

EDUCATING TEACHERS FOR CALIFORNIA'S FUTURE



*Teacher Education Summit of
California College and University Presidents
December 6, 1999*

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Graphic Design: Pamela Matsuoka

Photography: Anne Dowie
(except pages 26, 28,30,32,34,36)

Printing: Coast Litho

FOREWORD

“The first mass movement among college and university presidents in California.” That’s what Stanford President Gerhard Casper called the December 1999 Summit on Teacher Preparation.

That 50 leaders of four-year California institutions – public and private, large and small – met at all was unprecedented. That the meeting focused on teacher preparation was historic. That these leaders agreed on a joint statement of their own responsibilities and the needs of schools was a triumph. The Summit underscores the importance of the teacher preparation issue today. Elevating the skills and prestige of the teaching profession is the linchpin that will determine the long-term success or failure of the numerous reform efforts now underway.

Held at Stanford University, the Summit was co-chaired by President Casper, University of California President Richard Atkinson, and California State University Chancellor Charles Reed. The idea began in February 1999, when Chancellor Reed and Steadman Upham, President of Claremont Graduate University, asked whether the Irvine Foundation might help convene the presidents of public and private California colleges and universities to address the quality of teacher preparation in the state. In many respects, President Upham and Chancellor Reed represent institutions that could not be more different. The CSU System is large, public, comprehensive, and multi-campus. In contrast, Claremont is small, private, graduate-only, and located on a single campus. Despite these differences, they are united by a common purpose: improving teacher education.

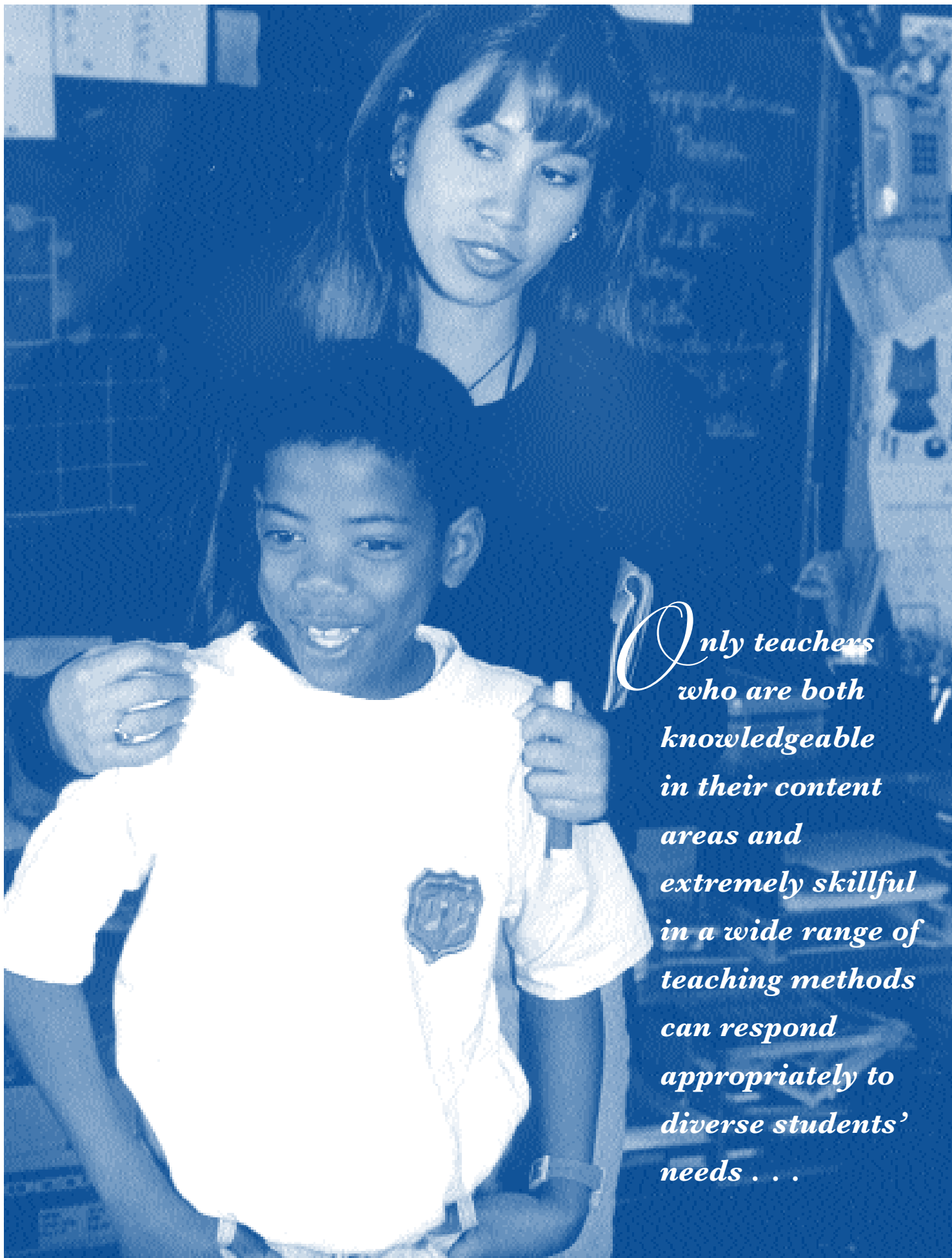
The Foundation stood ready to support such partnerships and began a statewide effort to galvanize the spectrum of teacher education institutions around an ambitious agenda on California teacher preparation. Partnering with the Hewlett and Stuart Foundations, Irvine worked closely with UC and CSU staff and the leaders of the independent colleges. As preparation for the Summit, Professor Linda Darling-Hammond produced “Educating Teachers for California’s Future.” The report examines current teacher workforce needs and recommends how the state can sustain high quality teacher preparation. This research served as a springboard for conversation among the presidents, leading ultimately to a “Joint Statement” that outlines the commitment of California’s college and university heads to the teacher education issue.

We congratulate California’s higher education leaders in taking this historic first step in a “mass movement” for better teacher preparation. Our efforts are only a beginning, as we and other foundations seek to help the higher education community address this critical public need. We welcome your thoughts and reactions.

Sincerely,

A handwritten signature in blue ink, reading "Dennis A. Collins". The signature is fluid and cursive, with the first name "Dennis" being more prominent.

Dennis A. Collins
President & CEO
The James Irvine Foundation



*Only teachers
who are both
knowledgeable
in their content
areas and
extremely skillful
in a wide range of
teaching methods
can respond
appropriately to
diverse students'
needs . . .*

JOINT STATEMENT OF CALIFORNIA'S COLLEGE AND UNIVERSITY PRESIDENTS AND CHANCELLORS

DECEMBER 6, 1999 • STANFORD, CALIFORNIA

In order for California's public school students to succeed, our public and private colleges and universities must share responsibility for preparing teachers who are knowledgeable about what they teach and proficient in how they teach. California needs to make good on the entitlement of each child to a competent and caring teacher.

In size and diversity, California's public school student population presents special challenges. Our more than 5.8 million K-12 students are enrolled in 8,331 schools across 1,055 school districts and are the most diverse in the nation, speaking 55 languages and many additional dialects.

In an average public school classroom in California:

- More than 25 percent of students come from families with incomes below the poverty line.
- At least 20 percent speak a first language other than English.
- More than half are members of racial/ethnic "minority" groups.
- About 10 percent have identified learning disabilities.

Only teachers who are both knowledgeable in their content areas and extreme-

ly skillful in a wide range of teaching methods can respond appropriately to diverse students' needs and enable them to:

- Learn how to learn.
- Master challenging content standards.
- Pass required statewide tests.
- Succeed at their own learning goals.
- Become responsible citizens.

Research shows that teacher quality is the most important school-based factor in determining student success. Quality depends, importantly, on teachers' undergraduate education in an academic discipline and their preparation as teachers. As leaders of California colleges and universities we accept our critical responsibility to develop, improve, and expand our teacher preparation efforts so that they:

- Are a priority for the entire college or university both in terms of status and resources.
- Recruit high-quality students whose diversity reflects California's student population.
- Reflect what research shows are the attributes of outstanding programs.
- Strategically address the needs of California's schools.

- Support new teachers after graduation and beyond.
- Use high-quality staff, up-to-date curricula, and top-flight clinical preparation.
- Satisfy quality reviews based on rigorous criteria.
- Eliminate the need for emergency credentials.

As citizens and leaders, we will use our influence and the knowledge generated by our institutions to support local, state and federal education policies that provide:

- Competitive teacher salaries and productive working conditions.
- School personnel practices and professional development activities designed to attract and retain high-quality teachers in a timely fashion.
- Licensing systems that assure quality without discouraging promising candidates.
- Recruitment and retention incentives for teachers to serve high-need schools and fields.

Recognizing that teacher preparation is a complex and long-term task, and accepting our responsibilities as university and college leaders, we invite a broader conversation with all of the stakeholders in California education, including the schools, policymakers, superintendents, teacher organizations, and school boards.

SUMMIT PARTICIPANTS

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*Research shows that
teacher quality is
the most important
school-based factor
in determining
student success.*

EXECUTIVE SUMMARY

California's schools must become dramatically more successful in educating its wide range of students if all of its students are to acquire the sophisticated skills needed to participate in a knowledge-based society. Of the possible policy instruments for addressing this challenge, teachers are a major key to success. Only teachers who are both knowledgeable in their content areas and extremely skillful in a wide range of teaching methods can respond appropriately to diverse students' needs and enable them to meet challenging learning goals to the same high standards now required by both the state and the economy.

The Importance of Teaching and Teacher Education

Of the array of policy instruments, recent research has shown that teacher "quality" – the combination of teachers' knowledge, skills, and expertise – is the single most important factor influencing student achievement, followed by the smaller but generally positive effects of small schools and small class sizes. Moreover, while subject-matter knowledge is important, knowledge of how to teach has proved to be an equally powerful factor influencing student learning.

If teaching is the linchpin of education achievement, teachers who negotiate the demands of new standards for more diverse students must have access to a deeper knowledge and pedagogical expertise than most teacher preparation programs now provide. Yet teachers' qualifications in the

United States are tremendously uneven; for example, 84 percent of Wisconsin mathematics teachers but only 49 percent of California teachers have a major and full certification in their field. And while Wisconsin has fewer than 2 percent of its teachers teaching without a license, California has seven times as many. Furthermore, on virtually every measure, teachers' qualifications vary by the status of the children they serve. In California, schools with the greatest concentrations of low-income and minority students are five times more likely to be served by unqualified teachers as compared to more affluent schools serving mostly Anglo students. Studies of student achievement in California school districts show a strong direct link between the proportion of unprepared teachers and the test performance of students, after controlling for student poverty.

While the importance of high-quality teacher preparation is increasingly clear, the field of teacher education today is almost precisely in the situation that medical education occupied in 1910, before the Flexner report. At that time, would-be doctors could undertake a 3-week course of study in which they memorized





What Matters and What Works in Teacher Education

Critiques of teacher education programs have noted that many have been weakened by the separation within universities of subject-matter content and the study of teaching and learning, and the divide between schools and universities in studying teaching practice. In California this has been exacerbated by the proscription – just recently removed – against teacher education in the undergraduate curriculum. In many traditional models, students complete coursework before they begin student teaching, the latter often an appended brief “taste of practice” with teacher mentors too often selected with little regard for quality. The often-repeated critiques of traditional teacher education programs are still apt in many places – inadequate preparation time, fragmentation of coursework and practice, uninspired teaching methods, superficial curriculum, and traditional views of schooling. The underfunding of programs and lack of quality review have allowed weak programs to continue in some universities. District-based programs that provide intern placements as teacher of record in lieu of student teaching and coursework have often suffered from other problems, including insufficient mentoring and lack of attention to content and pedagogy, as well as inadequate strategies for teaching struggling students well.

Nevertheless, a recent study found teacher education programs in California and elsewhere that have successfully prepared teachers to teach diverse students to high standards (National Commission on Teaching and America’s Future, 1996). Despite their institutional differences (public and private, undergraduate and graduate level, urban

lists of symptoms and purported cures (“a shivery back – treated by a round of calumel”). Or they could pursue graduate level medical education based on the emerging sciences of medicine at Johns Hopkins University. Though knowledge about the origins of disease and its treatment was increasing, few physicians had access to this knowledge. Licensing standards were weak to nonexistent; many believed that physicians were born, not made. Ambivalence about the worth of medicine as an occupation and medical education as a field was widespread. Affluent parents did not urge such an undertaking upon their sons, and prestigious schools like Harvard University were unconvinced that medicine was a respectable field of study. Just as the concerted efforts of universities, accrediting bodies and philanthropic institutions were needed to transform medicine into a field that could move beyond treating fevers with leeches, so too will the forces of collaborative effort and moral suasion be needed to transform teaching into a field that can support learning for all kinds of students.

and non-urban), these programs have the following common features:

- A common, clear vision of good teaching infusing all courses and clinical work;
- Well-defined standards of practice and performance used to guide learning and assessment;
- A rigorous core curriculum reflecting current knowledge about development, learning, and teaching;
- Extensive use of problem-based teaching methods including cases, action research, and portfolios;
- Intensely supervised, extended clinical experiences of at least a full school year; and
- Strong relationships with reform-minded local schools.

These features are seen in a number of California programs, but recent pressures to prepare more students more quickly have created disincentives for investing in high-quality teacher education and incentives for substituting on-the-job practice for systematic preparation instead. Ironically, studies have found much higher entry and retention rates for candidates prepared in high-quality programs, such as the 5-year blended models developed elsewhere in the country, than in shorter traditional programs or even shorter-term alternative routes. The differences are so large that it is actually less expensive in preparation, recruitment, and replacement costs to prepare teachers in these more extended, high-quality programs – which also result in greater competence and effectiveness – than in quick summer crash courses that lead to a revolving door of teachers into and out of teaching.

Teacher Supply And Demand

Throughout the 1990s, California's demand for teachers has steeply increased due to growing enrollments, retirements and attrition rates; the demand was spiked by the 1996 class-size reduction initiative. It is estimated that California will need to hire about 25,000 teachers annually over the next decade if attrition rates remain the same.

Surprisingly, though, the problems in staffing California schools are not the result of labor market shortages. California actually has a greater number of fully qualified teachers available to teach than there are positions to be filled. If California does not have a shortage, why do its schools have so many under-qualified teachers? The answer may be that the teacher pipeline in California operates as a sieve, unable to attract and retain the teachers it prepares to the schools and districts where they are most needed. Among the problems are:

- Noncompetitive and unequal salaries for teachers,
- Dismal working conditions in many schools,
- Dysfunctional personnel policies in some districts,
- Counterproductive licensing policies,
- Lack of targeted recruitment incentives in high-need fields and locations,
- Overreliance on high-attrition pathways into teaching such as emergency hiring, and
- Inadequate supports for beginning and veteran teachers.

California has addressed the problems of inadequate incentives and maldistribution of

qualified teachers by providing emergency permits and waivers to more than 12 percent of its teaching force and putting pressure on its teacher education programs to prepare more teachers as quickly and as cheaply as possible.

Recent expansion of financial subsidies for teachers-in-training and supports for beginner teacher mentoring could help attract and keep new teachers. But incentives also support the underpreparation of many, especially those who teach the state's neediest children.

Unfortunately, the press to prepare more teachers quickly, rather than to devise policies to prepare teachers to enter and stay in teaching, has begun to undermine high-quality teacher-education programs in California. Indeed, some teacher-education programs have begun to dismantle many of the features that made them successful – including those that create higher rates of entry and retention as well as greater competence. Moreover, California's current policies have also encouraged the proliferation of programs and pathways that create a revolving door of under-prepared teachers who enter and leave at rapid rates.

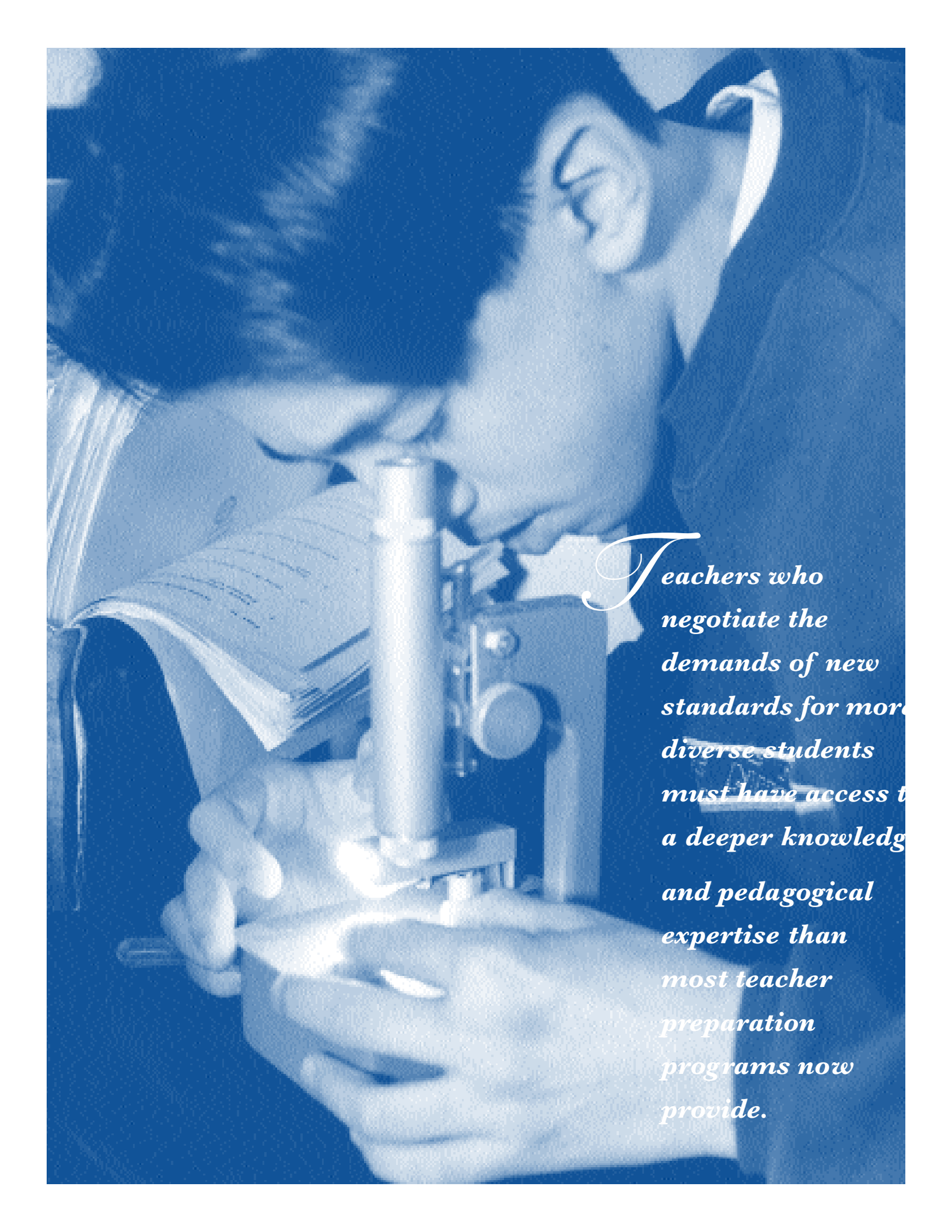
Strategies for Sustaining High-Quality Teacher Education in California

Creating an infrastructure for high-quality teaching in California will require both serious and sustained commitments from the state's universities. The goal is to create powerful teacher education programs that can raise California's children's achievement to the highest standards. Yet this goal will not be reached without equally serious, sustained commitments from the state. California's policy community must create a

profession of teaching that can attract, honor, support, and retain well-prepared teachers.

This analysis points to the following potentially productive areas of programmatic and policy effort:

- Support high-quality teacher preparation on individual campuses and in the state as a whole, especially for hard-to-staff schools. Ensure that teacher-education programs have adequate and expert staffing, a strong, coherent core curriculum that represents up-to-date knowledge, incentives for collaboration among arts and sciences and education faculty, and support for high-quality, extended clinical experiences in schools that are professional development partners and that serve diverse students well.
- Support stronger accountability for all teacher education programs and pathways through professional review in light of common standards and increased monitoring of program outcomes for entry, retention, and effectiveness in teaching;
- Contribute to high-quality professional development for beginning and veteran teachers, from early mentoring to the development of accomplished practice;
- Support policies that will help attract and retain qualified and competent teachers for every child, including more adequate and equal salaries and working conditions, efficient and effective district personnel practices and state licensing policies, targeted recruitment incentives for high-need fields and locations, more adequate supports for beginning and veteran teachers, and schools that are better designed for teaching and learning.



Teachers who negotiate the demands of new standards for more diverse students must have access to a deeper knowledge and pedagogical expertise than most teacher preparation programs now provide.

EDUCATING TEACHERS FOR CALIFORNIA'S FUTURE

*W*ith the arrival of the 21st century, it is increasingly clear that schools must become dramatically more successful with a wide range of learners if more citizens are to acquire the sophisticated skills they need to participate in a knowledge-based society. It is also increasingly clear that teachers' expertise and effectiveness is critical to the success of American education. The kind of pedagogy needed to help students to think critically, create, and solve complex problems as well as to master ambitious subject-matter content is much more demanding

than that needed to impart routine skills. And, in an era when the student population is more diverse than ever before, teachers are being asked to achieve these goals for all children, not just the 10 or 20% who have traditionally been selected into "gifted and talented" or "honors" programs.

In a typical public school classroom in California, more than 25% of students come from families with incomes below the poverty line, at least 20% speak a first language other than English, nearly half are members of racial/ethnic "minority" groups or recent immigrants, and about 10% have identified learning disabilities. Whereas in the past, schools varied the curriculum and learning standards for different learners,

today's students are being asked to master the same curriculum standards and pass the same tests for promotion and graduation, regardless of their different learning needs, starting points, and prior experiences. This poses even greater challenges for teaching. Only teachers who are both knowledgeable in their content areas and extremely skillful in a wide range of teaching methods can respond appropriately to diverse students' needs and enable them to succeed at these challenging learning goals.

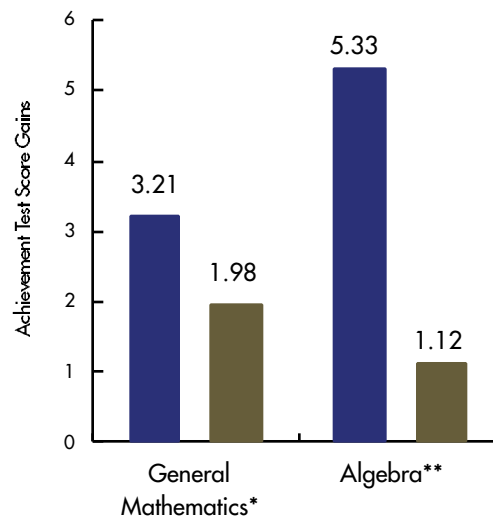
THE IMPORTANCE OF TEACHING AND TEACHER EDUCATION

A growing body of research finds that teacher expertise is one of the most important school factors influencing student achievement, followed by the smaller but generally positive effects of small schools and small class sizes (Darling-Hammond, 1999; National Commission on Teaching and America's Future [NCTAF], 1996). That is, teachers who know a great deal about teaching and learning and who work in environments that allow them to know students well are critical elements of successful learning. Studies of student achievement in Texas (Ferguson, 1991), Alabama (Ferguson and Ladd, 1996), and New York (Armour-Thomas, Clay, Domanico, Bruno, & Allen, 1989), for example, have concluded that teachers' qualifications – based on measures of knowledge and expertise, education, and experience – account for a larger share of the variance in students' achievement than any other single factor, including poverty, race, and parent education.



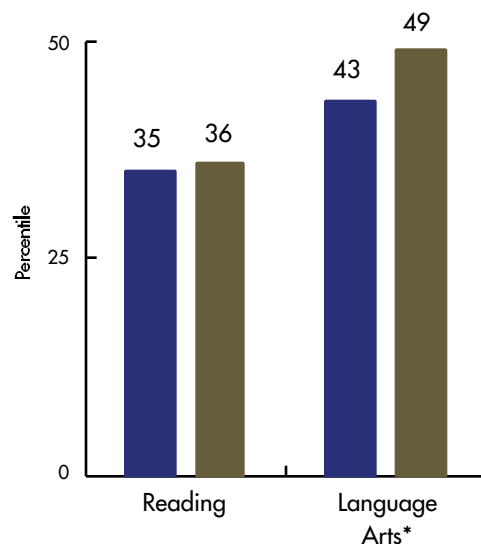
Studies in Georgia, North Carolina, Michigan, and Virginia, as well as national research, have found that students achieve at higher levels and are less likely to drop out when they are taught by teachers with certification in their teaching field, by those with master's degrees or enrolled in graduate studies, and by those with greater preparation in methods of teaching (Council for School Performance, 1997; Hawk, Coble, & Swanson, 1985; Knoblock, 1986; National Assessment of Educational Progress [NAEP], 1994; Sanders, Skonie-Hardin, & Phelps, 1994). Comparisons of teachers with similar experience but different amounts of subject matter knowledge and teacher education reveal significant differences in their students' achievement, taking account of initial achievement levels in both mathematics and language arts. Teachers who lack certification in their field and those who have entered through short-term alternative certification programs are less effective in developing student learning than those who have a full program of teacher education. (See Figures 1 and 2.)

A recent Texas study (Fuller, 1999) found that students of licensed teachers were significantly more likely to pass the Texas state achievement tests, after controlling for student socioeconomic status, school wealth, and teacher experience. Two recent studies in California found similarly strong relationships between teacher training and student performance. In an analysis of mathematics test performance in California high schools, Mark Fetler (1999) found that, after controlling for poverty rates, students do substantially better in schools where there are fewer teachers on emergency certificates. Teacher experience exerts a positive but smaller effect on achievement. A study by the Los Angeles County Office of Education found



ANOVA results: * $p < .01$ ** $p < .001$
 Source: P. Hawk, C. Coble, M. Swanson.
 Certification: It does matter.
 Journal of Teacher Education, 36 (3)
 May - June 1985: pp. 13-15

Figure 1
Effects on Student Achievement of Teacher Certification in Mathematics



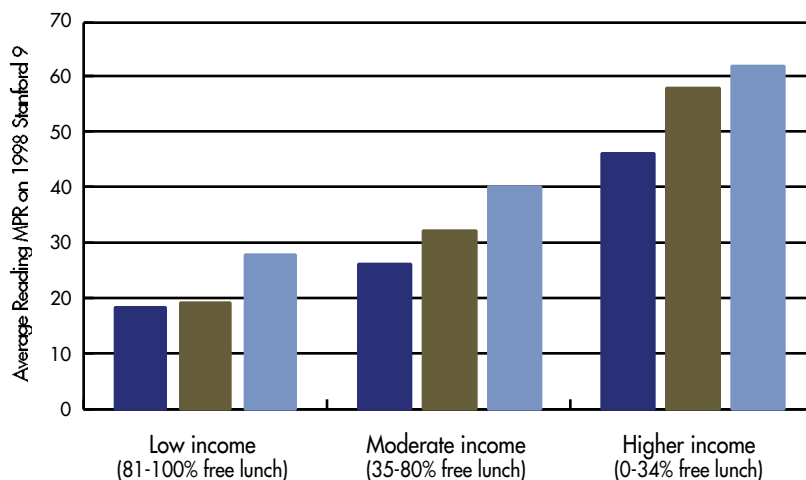
* Statistically significant at .001 level. Source: D. Gomez & R. Grobe: Three Years of Alternative Certification in Dallas: Where are We? AERA, 1990.

Figure 2
Student Achievement Gains of Alternately & Traditionally Prepared Teachers

that across all income levels, elementary students do better in reading when they are in schools with greater proportions of fully trained and certified teachers (LA County Office of Education, 1999). (See Figure 3.) The study concluded that, "Reading test scores were more highly related to the percentage of teachers who were untrained (uncertified) than to the percentage in their first and second year of teaching. This supports the finding that differing test scores are a teacher-training issue and not merely

Figure 3
Reading Achievement by Poverty Level of School & Percentage of Untrained Teachers
 Los Angeles Public School 2nd & 3rd Graders

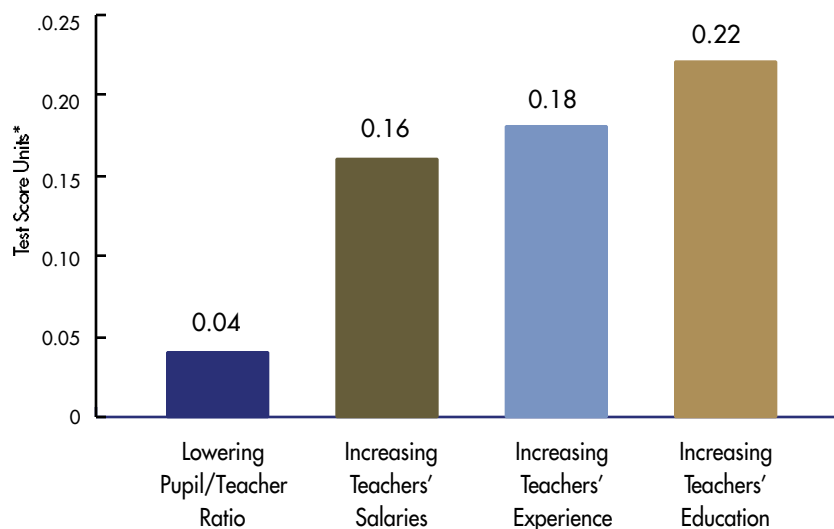
34-100% untrained teachers
 18-25% untrained teachers
 0-10% untrained teachers



most productive investment for schools. (See Figure 4.)

Finally, more than 30 years of research demonstrates that both subject-matter knowledge and understanding of teaching and learning matter for teaching effectiveness. Teachers who have more background in their content areas and have greater knowledge of learning and teaching methods are more highly rated and more successful with students in fields ranging from early childhood and elementary education to mathematics, science, and vocational education (for

Figure 4
Effects of Educational Investments
 Size of Increase in Student Achievement for Every \$500 Spent on:



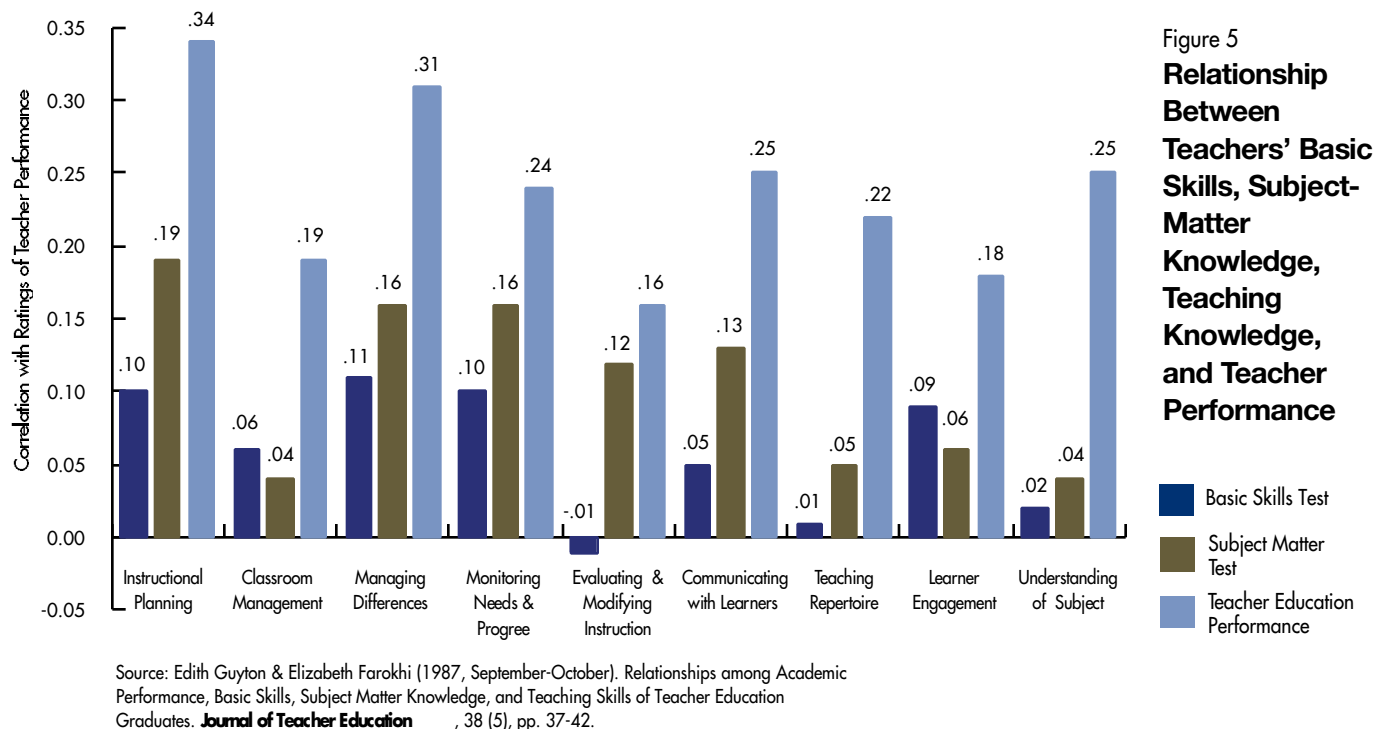
* Achievement gains were calculated as standard deviation units on a range of achievement tests in the 60 studies reviewed.

due to new teachers' lack of classroom experience."

These findings are reinforced by those of a recent review of 60 production function studies which found that teacher education, ability, and experience, along with small schools and lower teacher-pupil ratios, are associated with increases in student achievement (Greenwald, Hedges, & Laine, 1996). This study's estimates of the achievement gains associated with different kinds of expenditures found that spending on teacher education swamped other variables as the

reviews, see Ashton & Crocker, 1986; Begle, 1979; Darling-Hammond, Wise, & Klein, 1995; Druva & Anderson, 1983; Evertson, Hawley, & Zlotnick, 1985; NCTAE, 1996). While subject-matter knowledge is important, research consistently indicates that knowledge of how to teach is an equally powerful factor in teacher effectiveness and in some cases bears an even stronger relationship to teacher performance and student learning. (See Figure 5.)

If it is increasingly clear that teacher learning is a linchpin of school reform, it should



be equally apparent that teachers who are to negotiate the demands of new standards for more diverse students must have access to a deeper base of knowledge and expertise than most teacher preparation programs now provide. In contrast to many other countries the United States thinks of as peers or competitors, prospective teachers in the U.S. must fund their own preparation and frequently are allowed to decide how much and what kind of training they will undertake. In addition, by virtue of weak accountability policies and the absence of universal accreditation, universities in many states are allowed to decide on the content and quality of the training they offer. Because requirements for teacher education are dramatically uneven across the country, and because most states lower or ignore their standards whenever districts have trouble filling vacancies, teachers get radically different kinds and qualities of preparation depending on where and how they choose to enter the profession.

As a consequence, teachers' qualifications in the United States are tremendously uneven. Whereas many new teachers who attend

recently redesigned programs are better prepared for teaching than ever, many others have inadequate training for their work. As one example of the range of differences, 84 percent of Wisconsin's high school mathematics teachers have a major and full certification in their field, but only 49 percent of California's do (Darling-Hammond, 1997). The differences among teachers in their content area preparation as well as their training in education are a function of differences in state licensing standards and university program requirements, as well as of the willingness of states to bypass their standards – whatever they are – and allow candidates to teach who are not fully prepared.

On virtually every measure, teachers' qualifications vary by the status of the children they serve. Students in high-poverty schools are much less likely to have teachers who are fully qualified, and much more likely to have teachers who lack a license and a degree in the field they teach. (National Center for Education Statistics [NCES], 1997, p. 30). This is increasingly true in California, where schools with the greatest concentrations of low-income and minority students have five

times as many unqualified teachers as the more affluent schools serving mostly Anglo students. (See Figure 6.) This situation is most common in states where there are large inequalities in spending and salaries across districts and where policy makers have responded to increasing demand for teachers by lowering standards for entry rather than increasing the attractions to teaching.

These inequalities are exacerbated by the fact that states have very different standards for licensing teachers. Some, like Minnesota and Wisconsin, require a major in the field to be taught plus extensive study of learning, teaching, and student needs and clinical training of 15 weeks or more. Others do not require even a minor in the field to be taught and expect little knowledge of how students learn or how to teach. A few, including California, have authorized alternative certification programs that provide only a few weeks of training before teachers assume full responsibility for students.

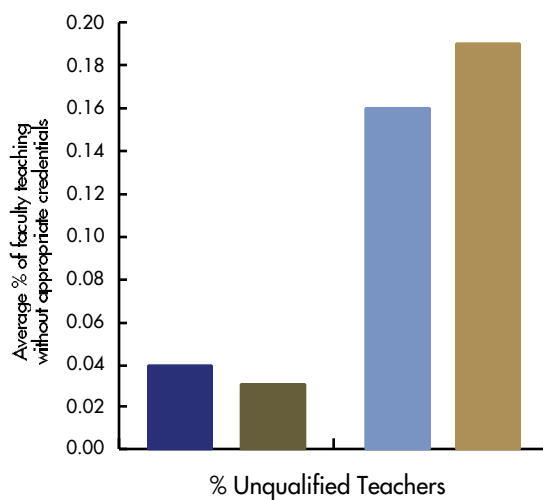
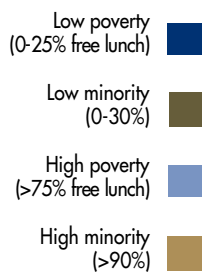
These conditions often make it hard to improve the quality of teacher education, while the non-enforcement of quality standards in many states removes much leverage for change. Only three states require professional accreditation of education schools,¹ and few state agencies have the resources or capacity to evaluate programs rigorously and enforce high standards through their program approval process. Candidates are licensed if they graduate from a state-approved program, and virtually all programs, regardless of their quality, are state-approved.

While some colleges have created very high-quality programs, there are still many programs that operate with inadequate resources, knowledge, and motivation to improve. The National Commission on Teaching and America's Future (1996) noted the longstanding problem that many universities have treated teacher education as a "cash cow" that is conducted on a shoestring and used to fund programs in other fields. This problem continues to exist. A 1997 study confirms earlier research which found that education programs are funded well below the average, generally near the bottom ranks of departments, and well below the level of most other professional preparation programs (Howard, Hitz, & Baker, 1997; see also, Ebmeier, Twombly, & Teeter, 1991).

Universities that are investing in high-quality teacher preparation, often without external supports, are exercising critically important moral leadership that is necessary to transform an entire field of work.

Teacher education today is almost precisely

Figure 6
Distribution of Underqualified Teachers by School Income Levels and Minority Status



Source: CBEDS data, 1999; SRI International, *Teaching and California's Future*, Center for the Future of Teaching and Learning, 1999.

1. Arkansas, North Carolina, and West Virginia require professional accreditation through the National Council for Accreditation of Teacher Education (NCATE) for all of their education schools. Kentucky, Indiana, Maryland, New York, and Ohio have recently enacted strong incentives for all education schools to become professionally accredited.



in the situation that medical education occupied in 1910, before the Flexner report called for sweeping reforms. At that time, would-be doctors could undertake a three-week course of study, much like some of today's alternative routes into teaching, in which they memorized lists of symptoms and purported cures ("a shivery back treated by a round of calumel") and then hung out their shingle to practice on patients. Or they could pursue graduate level medical education based on the emerging sciences of medicine at Johns Hopkins University which had also invented a clinical site called the teaching hospital, much like today's extended teacher education models that feature a year-long clinical placement in a professional development school.

Although there was increasing knowledge about the origins of disease and its treat-

ment, in 1910 relatively few physicians had access to this knowledge. Licensing standards were weak to nonexistent. Many believed that physicians were born and not made. Ambivalence about the worth of medicine as an occupation and medical education as a field was widespread. Affluent parents did not urge such an undertaking upon their sons, and prestigious schools like Harvard University were unconvinced that medicine was a respectable field of study. Just as the concerted efforts of universities, accrediting bodies, and philanthropic institutions were needed to transform medicine into a field that could move beyond treating fevers with leeches, so the forces of collaborative effort and moral suasion will be needed to transform teaching into a field that can support learning for all kinds of learners.



WHAT MATTERS AND WHAT WORKS IN TEACHER EDUCATION

In recent years, schools, colleges, and departments of education have been variously criticized as ineffective in preparing teachers for their work, unresponsive to new demands, remote from practice, and barriers to the recruitment of bright college students into teaching. (For recent analyses, see Goodlad, 1990; Howey & Zimpher, 1989; Zeichner, 1993). A major aspect of the critique is that, particularly after normal schools were incorporated into universities in the 1940s and '50s, many teacher education programs began to separate theoretical studies from application. In many places, teachers were taught to teach in lecture halls from texts and teachers who frequently had not themselves ever practiced what they were teaching. Students' courses on subject-matter topics were disconnected from their courses on teaching methods, which were in turn disconnected from their courses on foundations and psychology.

Students completed this coursework before they began student teaching, which was a brief taste of practice appended to the end of their program with few connections to what had come before. Many encountered entirely different ideas from those they had studied in the classrooms where they did their student teaching, because university

and school-based faculty did little planning or teaching together. Usually, their cooperating teachers were selected with no regard for the quality or kind of practice they themselves engaged in. When new teachers entered their own classrooms, they could remember and apply little of what they had learned by reading in isolation from practice. Thus, they reverted largely to what they knew best: the way they themselves had been taught.

While this description is offered in the past tense, it is unfortunately still true in some colleges and universities. The often-repeated critiques of traditional teacher education programs include:

- **Inadequate Time.** The confines of a four-year undergraduate degree make it hard to learn subject matter, child development, learning theory, and effective teaching strategies. Elementary preparation is considered weak in subject matter; secondary preparation is considered weak in knowledge of learning and learners.
- **Fragmentation.** Elements of teacher learning are disconnected from each other. Coursework is separate from practice teaching; professional skills are segmented into separate courses; faculties in the arts and sciences are insulated from education professors. Would-be teachers are left to their own devices to put it all together.
- **Uninspired Teaching Methods.** For prospective teachers to learn active, hands-on and minds-on teaching, they must have experienced it for themselves. But traditional lecture and recitation still dominates in much of higher education, where faculty do not always practice what they preach.

- **Superficial Curriculum.** “Once-over-lightly” describes the curriculum. Traditional programs have focused on subject-matter methods and a smattering of educational psychology. Candidates do not learn deeply about how children learn or about how to understand and handle real problems of practice.

- **Traditional Views of Schooling.**

Because of expectations that teacher education should prepare candidates for schools as they are, most prospective teachers learn to work in isolation rather than in teams, and to master chalkboards and textbooks instead of computers and CD-ROMS. In their clinical experiences and/or coursework, many learn traditional teaching and assessment methods instead of more powerful strategies that would dramatically heighten learning (NCTAE, 1996, p. 32).

Over the past decade, many schools of education and school districts have begun to change these conditions. More than 300 schools of education have created programs that extend beyond the confines of the traditional four-year bachelors degree program, thus allowing more extensive study of subject matter along with education coursework that is integrated with more extensive clinical training in schools. Some are five-year models that allow an extended program of preparation for prospective teachers who enter teacher education during their undergraduate years. Others are one- or two-year graduate programs that serve recent graduates or mid-career recruits. In either case, because the fifth year allows students to

devote their energies exclusively to the task of preparing to teach, such programs typically allow for year-long school-based clinical studies that are integrated with coursework on learning and teaching.

Programs that provide a bachelor’s degree in a disciplinary field plus intensive study of teaching at the graduate level are often better able to resolve several traditional dilemmas of teacher education: They create time for study of both subject matter and pedagogy, rather than trading off one against the other. They create room for much more extensive clinical experience – typically 30 weeks or more rather than the traditional 10 to 12 weeks of student teaching. And they reduce fragmentation of the curriculum by interweaving coursework with practical experiences, rather than front-loading theory disconnected from practice.

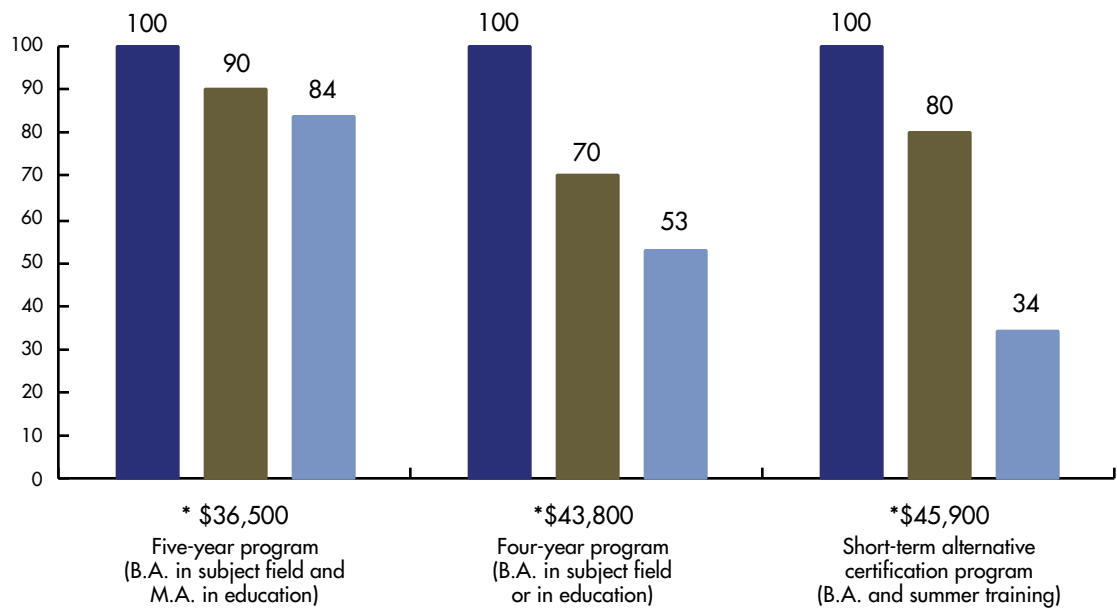
A number of recent studies have found that graduates of extended five-year teacher education programs are not only more satisfied with their preparation, they are more highly rated by their colleagues, principals, and cooperating teachers, are as effective with students as much more experienced teachers, and are much more likely to enter and stay in teaching than their peers prepared in traditional four-year programs (Andrew, 1990; Andrew & Schwab, 1995; Arch, 1989; Denton & Peters, 1988; Dyal, 1993; Shin, 1994). In fact, the entry and retention rates of these programs are so much higher than those of four-year programs – which are in turn much higher than short-term alternative programs² – that it is actually less expensive to prepare career teachers in this way. Taking into account the costs to states, universities,

In a typical public school classroom in California, more than 25% of students come from families with incomes below the poverty line, at least 20% speak a first language other than English, nearly half are members of racial/ethnic “minority groups or recent immigrants, and about 10% have identified learning disabilities.

2. The programs for which published data provide the basis of these estimates include 5-year and 4-year programs from an 11-institution study (Andrew & Schwab, 1995), national data on entry and attrition from different pathways (NCES, 1996) and data from studies of the Los Angeles Teacher Trainee Program, the Dallas Internship Program, the Houston Internship Program, and Teach for America (Stoddart, 1992; Wright, McKibbin, & Walton, 1987; Lutz & Hutton, 1989; Md. State Dept. of Education). For a fuller discussion, see Darling-Hammond (2000).

Figure 7
Average Retention Rates for Different Pathways into Teaching

% Who complete program
% Who enter teaching
% Who remain after 3 years



* Estimated cost per third year teacher

Estimates based on costs of teacher preparation, recruitment, induction, and replacement due to attrition.
L. Darling-Hammond, Solving the Dilemmas of Teacher Supply, Demand, and Quality, NCTAF, 1999.

and school districts of preparation, recruitment, induction, and replacement due to attrition, the actual cost of preparing a career teacher in the more intensive five-year programs is actually significantly less than that of preparing a greater number of teachers in shorter-term programs who are less likely to stay – and, not incidentally, are also less successful in the classroom. (See Figure 7.)

Many of these programs have joined with local school districts to create professional development schools. Like teaching hospitals in medicine, these schools aim to provide sites for state-of-the-art practice which are also organized to support the training of new professionals, extend the professional development of veteran teachers, and sponsor collaborative research and inquiry. In the most highly-developed sites, programs are jointly planned and taught by university-based and school-based faculty. Cohorts of beginning teachers get a richer, more coherent learning experience when they are organized in teams

to study and practice with these faculty and with one another. Senior teachers report that they deepen their knowledge by serving as mentors, adjunct faculty, co-researchers, and teacher leaders. Thus, these schools can help create the rub between theory and practice that teachers need in order to learn, while creating leadership roles for teachers and knowledge that is more useful for both practice and ongoing theory-building (Darling-Hammond, 1994).

A study of extraordinarily successful teacher education programs by the National Commission on Teaching and America's Future found that, despite their institutional differences (the programs are public and private, undergraduate and graduate level, urban and non-urban), there are common features of programs that prepare teachers who are successful at teaching diverse learners to high standards.³

- **A common, clear vision of good teaching** that is apparent in all course-

work and clinical experiences. In contrast to the fragmented courses and agnostic sense of purpose present on most campuses, faculty in these programs have hammered out their view of what matters for good teaching and have constructed a series of courses and experiences that ensure all of the building blocks for such teaching are present and reinforced. This vision includes an ethical commitment to the education of all students along with study and application of teaching strategies that address the needs of a wide range of students.

- **Well-defined standards of practice and performance** that are used to guide and evaluate coursework and clinical work. Along with a common vision of good teaching are explicit standards for what professional teachers should know and be able to do to meet the needs of diverse students and to teach their subject matter(s) in powerful ways. These standards guide decisions about learning experiences, assignments, and ongoing assessment of students' learning and performance in both the college classroom and the school classroom. Students have many examples of the kind of practice they are trying to develop, and they have many opportunities to get feedback about how they are progressing toward those goals.
- **A rigorous core curriculum.** Unlike programs criticized for “mushy” education courses that have an unclear knowledge base and mostly pass on unexamined

teaching lore, these programs have developed a systematic program of study grounded in substantial knowledge of subject matter content, child and adolescent development, learning theory, cognition, motivation, social contexts, and subject matter pedagogy, taught in the context of practice. Students do not report that their only valuable experience was student teaching. Instead, they report that their courses were intellectually engaging, theoretically well-grounded, and practically useful.

- **Extensive use of problem-based methods**, including cases and case studies, teacher research, performance assessments, and portfolio evaluation. Like the strategies used in good schools of business, law, architecture, engineering, and medicine, these methods help teachers apply general propositions derived from research and theory to real problems of practice, thus supporting their developing abilities to reason pedagogically. Learning to think like a teacher requires the combination of multiple kinds and sources of knowledge with a diagnostic eye on both curriculum goals and student needs. Problem-based methods support the development of teaching judgment and tools for inquiry as they are used in practice.
- **Intensely supervised, extended clinical experiences** (at least 30 weeks) which are carefully chosen to support the ideas and practices presented in simultaneous, closely interwoven coursework. In

3. The programs, at public and private universities across the country, operate at Alverno College in Milwaukee, Wisconsin; Bank Street College of Education in New York City; Trinity University in San Antonio, Texas; University of California at Berkeley; University of Southern Maine; University of Virginia in Charlottesville; and Wheelock College in Boston, Massachusetts. The study collected outcome evidence including reputational evidence about quality from scholars and from practitioners who hire program graduates; surveys and interviews of graduates about their perceptions of their preparation in comparison with a comparison group drawn randomly from beginning teachers across the country; surveys and interviews of principals about their perceptions of the graduates' preparation and performance; and observations of graduates' practice in their classrooms. Based on evaluations and observations of their practice, the graduates of these programs have developed pedagogical skills that enable them to teach the challenging material envisioned by new subject matter standards to very diverse learners.



contrast to traditional programs' weak student teaching experience of 8 to 12 weeks, these candidates have a full academic year to develop, test, and problem solve more sophisticated forms of practice under the guidance of master teachers. Their practice has an opportunity to take root and grow strong, so that it is not blown over like a thin reed when they enter difficult teaching circumstances as a first-year teacher.

- **Strong relationships with reform-minded local schools** that support the development of common knowledge and shared beliefs among school- and university-based faculty. These partnerships support co-reform of both the school and the university teacher education program and create sites for state-of-the-art practice, training, and research.

A critically important feature of these programs is that they allow teachers to learn **about** practice **in** practice (Ball and Cohen, 1999), in settings that deliberately construct integrated studies of content, learning, and teaching, and create strong connections between theory and practice. Teachers learn just as students do: by studying, doing, and

reflecting; by collaborating with other teachers; by looking closely at students and their work; and by sharing what they see. This kind of learning cannot occur either in college classrooms divorced from engagement in practice or in school classrooms divorced from knowledge about how to interpret practice. The programs engage prospective teachers in both studying research and conducting their own investigations of student learning and evaluations of teaching strategies and their effects. The “rub between theory and practice” (Miller and Silvernail, 1994) occurs most productively when questions arise in the context of real students and real work-in-progress where research and disciplined inquiry are also at hand.

These extraordinary programs resemble those that have resulted from reforms of teacher education abroad. Countries like France, Finland, Germany, Belgium, and Luxembourg require from 2 to 3 years of graduate level study for prospective teachers on top of an undergraduate degree – sometimes with two disciplinary majors – in the subject(s) to be taught. Education courses include the study of child development and learning, pedagogy and teaching methods, plus an intensively-supervised internship in a school affiliated with the university.

Prospective teachers conduct research that leads to a full-blown thesis on an aspect of teaching as well as learning about learning and teaching methods. Many other European nations, including Ireland, Italy, the Netherlands, New Zealand and Portugal, have recently launched similar reforms. (Organization for Economic Cooperation and Development, 1995). Japan and China have also undertaken major teacher-education reforms that include both university- and school-based training. In Japan, first year teachers experience a highly-structured

internship that includes a reduced load, 60 days of inservice education, and intensive mentoring from veteran teachers.

In most of these countries, teacher education is heavily subsidized by the government and candidates pay little or nothing for this extensive training. Although many U.S. institutions are taking steps to overhaul teacher education because they believe it will enable them to prepare more effective teachers and they feel a strong commitment to the public schools in their communities, they lack the systemic policy supports for candidate subsidies and program funding that their counterparts in other countries enjoy.



HIGH QUALITY TEACHER EDUCATION IN CALIFORNIA

There are a number of teacher education programs in California that illustrate the principles of high quality teacher education described above. These exist in the California State University System, the University of California, and in private independent institutions in the state. While the programs take diverse forms, they share a common conception of the knowledge base for teaching, feature a rigorous core curriculum and strong school-university partnerships, involve teachers in inquiry and reflection about student learning in relation

to teaching, emphasize effective methods for teaching challenging content to diverse learners, ensure strong modeling and coaching from expert practitioners in settings that reflect state-of-the art practice, and use clear standards along with performance-based assessments to guide their efforts.

The programs described here (see insets) – a blended 4½ to 5-year undergraduate/graduate program at CSU-Chico, a high-quality postbaccalaureate internship model operated by CSU-Hayward with the New Haven Unified School District, and 1½ to 2-year graduate-level programs at UC-Santa Barbara, UCLA, and Mills College – are just a few of a much larger number representing the strong commitments of many California campuses to top-flight teacher education.

CALIFORNIA STATE UNIVERSITY, CHICO

The Northern third of the state of California appears ripe for teacher shortages. It covers a vast geographic area of small communities, has a large percentage of second language learning students, and includes its fair share of special needs children requiring specially prepared educators. In addition, the entire region possesses but one California State University campus to serve more than 40,000 square miles. Yet, in large part because of the efforts of Chico State University, these counties hire many fewer teachers on emergency credentials than the rest of the state. CSU-Chico has taken seriously its dual responsibilities for quality and quantity of teachers by creating and maintaining multiple entry points and pathways for high-calibre candidates to meet high standards for the teaching profession – without sacrificing the educational needs of students.

The Chico-Durham Tri-Placement Program, a program operated in partnership with the Chico and Durham Unified School Districts, has twice been awarded the Quality of Education Award from the California Council on the Education of Teachers (1988 and 1999). Its graduates rating the quality of their preparation 6 or above (on a 7-point scale) on 96% of items in surveys of graduates. Graduate surveys and district data show attrition rates far below the norm, and 70% of recent graduates serve in such leadership roles as mentors, negotiators, reading specialists, or staff developers.

The Tri-Placement Program is a 5th-year pathway into teaching with connections to the undergraduate curriculum through two undergraduate prerequisite courses that include field experience, one of which serves as a screen and feeder to the program. The program uses a professional development school model in which teacher candidates apprentice with expert, veteran teachers in three different classrooms for four and one half days each week for one full public school year while taking coursework. The model is premised on the belief that professional preparation is best accomplished with careful mentoring in the context of classrooms within strong school-university partnerships. In addition to having lengthened the clinical training period to an entire academic year with gradually increasing responsibilities in classrooms serving diverse students, the program includes coursework and seminars that are carefully tailored to the candidates' strengths, interests, and needs, and sophisticated sources of assessment and feedback based on the California Standards for the Teaching Profession.

A new blended model of undergraduate and graduate teacher education, the Integrated Teacher CORE Program, launched with its first cohort of freshmen in 1996, is a 9-semester pathway for "early-deciders." The program was designed and implemented by

continued on page 28

The opportunity to develop more high-quality programs in the state has been increased by the recent removal of the long-time state proscription against undergraduate involvement in teacher education. This separation of subject-matter studies from the study of education had created a system of mostly nine-month post-baccalaureate credential programs that were disconnected from the undergraduate curriculum. This made it difficult to integrate arts and sciences coursework with preparation in content pedagogy. It also made it difficult for prospective teachers to begin earlier coursework that would enhance their knowledge about and familiarity with teaching and to receive appropriate advisement regarding both their subject matter and educational studies. The recent regulatory changes create new opportunities for California colleges and universities to combine undergraduate and graduate studies, to connect content and pedagogy, and to create more extended clinical practice experiences. These changes could enable campuses to create the more powerful integrated models like the 5-year blended programs that have proven successful elsewhere in the country.

Many California campuses have begun to move affirmatively toward the creation of these more powerful programs. In addition, California campuses pioneered the development of two-year post-baccalaureate models of preparation that develop sophisticated forms of student-centered practice by tightly linking theory and pedagogical coursework to extensive and intensively supervised clinical practice in both “traditional” and care-



fully designed “internship” models of training. However, the overall quality of teacher preparation in California has been threatened in the last few years by the widespread hiring of unprepared teachers and by increasing pressures to reduce the amount and quality of preparation in response to high teacher demand. The supply situation and the State’s approach to managing it are profoundly influencing the nature and availability of productive learning opportunities for teachers.

TEACHER SUPPLY AND DEMAND

Throughout the 1990s, California has had steeply increasing demand for teachers due to growing enrollments, increasing retirements, and high attrition rates, especially for beginning teachers. In addition to its burgeoning pupil population and its older-than-average teaching force, California’s teacher hiring needs were spiked by the state’s 1996 class size reduction initiative reducing class sizes in the early elementary grades to no more than 20.⁴ As a consequence of these factors, California’s teaching force is expected to grow from about 275,000 in 1999 to nearly 300,000 in 2008. Analysts estimate that California will need to hire about

4. The number of K-12 students in California schools is expected to grow from 5.7 million in 1998-99 to 6.2 million in 2007-08 according to the State of California, Department of Finance, (1998). Assuming the current pupil-teacher ratio, this growth will require adding about 21,500 new teachers by 2007-08. California has a greater share of teachers over 55 (19%) than 49 other states (NCES, 1997). Some estimate that current retirement rates averaging around 2% annually could rise to as high as 4 or 5% by 2007, resulting in a cumulative demand for as many as 50,000 replacement teachers from 1999 to 2007 (Shields, et al., 1999). Retirements in combination with other sources of teacher attrition (non-retirement attrition averages about 6% annually), produce a yearly demand for about 22,000 replacement teachers. Class size reduction brought approximately 27,000 additional teachers into the California teaching force between 1996 and 1998.

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The Northstate Partnership for Interdisciplinary Teacher Education that includes representatives of three school districts (Paradise Unified, Chico Unified, and Oroville Elementary), academic departments at California State University, Chico and community service agencies to improve teacher education. Its goals are to identify and recruit exemplary pre-collegiate students intent on becoming teachers and offer them an interdisciplinary course of blended content and professional studies that include field experiences that link university courses with elementary teaching in rural, suburban and urban schools. Students participate in a Partner Reading Tutoring Program in Chico elementary schools that introduces them to beginning strategies to help children in their reading skills. Faculty from the arts and sciences, education, and K-6 teachers work together to relate the content of the general education courses to its presentation in elementary schools. In addition, internships with community service agencies, like Child Protective Services, Public Health, and local mentoring programs help prospective teachers better understand issues that impact the lives of children in and out of school.

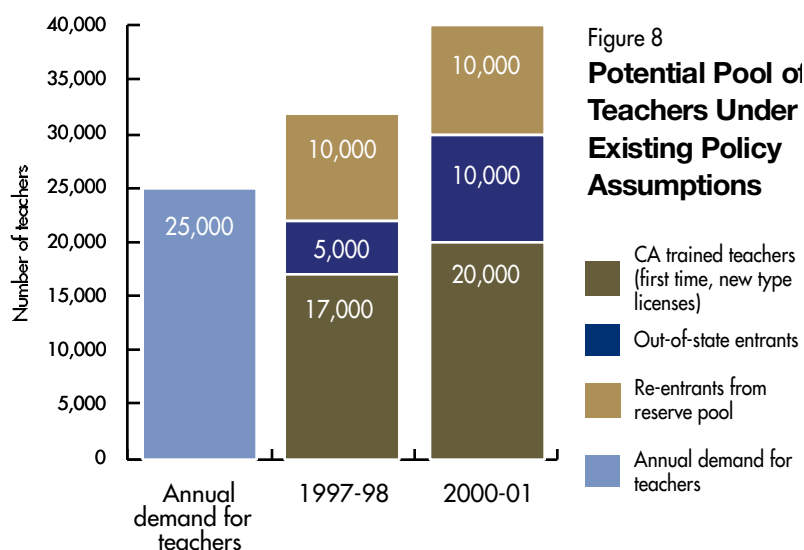
Candidates in the program report, and their work provides corroborating evidence, that they make connections between their general education courses and their teacher-education experiences. School- and college-based educators report benefits from the opportunities provided to work together across school, college, and department boundaries. In addition, earlier and better educational guidance and blended undergraduate studies and teacher preparation results in less time and expense on the route to becoming a teacher. The program provides for earlier identification and recruitment of exemplary teacher candidates and for earlier and more grounded decisions for some who will decide not to enter the profession. This is better for them and for students in the long run, and it creates more efficient as well as effective pathways into teaching.

25,000 teachers annually over the next decade (Shields, et al., 1999) if attrition rates remain the same.

This steep growth and the widespread issuance of emergency credentials in the last three years since the class size reduction initiative have led to a common perception that there are severe teacher shortages in California. This perception appears well-founded. According to the California Department of Education, in 1998-99, there were more than 34,000 teachers teaching on emergency permits (about 12% of the State's teaching force).⁵ While some of these were fully trained out-of-state entrants who had not yet satisfied one or another requirement unique to California, most lacked the essential preparation for their jobs. In addition, more than 3,500 teachers were teaching on waivers, a majority of whom had not even satisfied the basic skills testing requirement for an emergency permit. Tragically, these teachers are disproportionately assigned to schools serving the greatest numbers of low-income and minority students.

As demonstrated earlier, teachers' under-preparation is strongly related to lower achievement for students. Given the strong influence of teacher expertise on student learning, this circumstance deprives these students of their right to an equal education opportunity at the very time when the state is prepared to deny them a diploma if they do not meet common standards of educational performance.

Ironically, though, the problems in staffing California schools are not the result of labor market shortages. There are actually more



fully qualified teachers available to teach in California schools than there are positions to be filled. In 1997-98, for example, even before recently-enacted policies that will expand the teaching pool, there were at least 32,000 fully-qualified teachers available to enter California's teaching force. This number included approximately 17,000 first-time, new-type credentials issued by California colleges and universities, more than 5,000 out-of-state entrants who received licenses, and 10,000 re-entrants from the reserve pool of teachers in the state.⁶ (See Figure 8.)

Since then, the California State University system has pledged to expand its production of teacher education graduates to 15,000 annually (up from about 12,000 in 1997) and the University of California system has committed to increase its graduates to 2,500 (from about 800 per year currently), loans and grants for individuals preparing to teach in California have been substantially expanded, and the legislature has enacted a bill to create inter-state reciprocity for teachers prepared in other states. The expansion of teacher education in California could

5. California Department of Education, Educational Demographics Unit, *Statewide Classroom Teacher Credential and Experience Report by County for the Year 1998-99*. Prepared October 26, 1999. <http://data1.cde.ca.gov/dataquest/TchExp1.asp>

6. Data on licenses issued to in-state and out-of-state entrants from the California Commission on Teacher Credentialing, 1997-98 reports (CCTC, June 1998) and personal correspondence (L. Ford, October 1999). Estimate of number of re-entrants from Fetler (1997).

CALIFORNIA STATE UNIVERSITY, HAYWARD NEW HAVEN UNIFIED SCHOOL DISTRICT

“During the last few years, I’ve often heard new teachers saying they didn’t learn much while preparing for their credential. So, I reluctantly looked for a credential program knowing that I just had to fulfill this requirement to become a teacher. . . . In the last two months, I have radically changed my mind about the opportunities for excellence in education and training for future teachers. I consider myself lucky to be part of the cohort at New Haven. Being in the program has already been a rewarding experience. Indeed, prospective employers seriously consider my candidature because I am being educated in New Haven.” (SSPP Candidate, 1997-98 Cohort)

New Haven Unified School District in Union City is midway between Oakland and San Jose. Serving more than 14,000 very diverse students, the district was once the lowest-wealth district in the county and had a reputation to match its wealth. Today, NHUSD, while still a low-wealth district, has a well-deserved reputation for excellent schools. Where once students transferred out when possible, the district has had to close its doors to out-of-district transfers because the schools are bulging at the seams. Of the many factors contributing to the district’s success, one key was New Haven’s realization that if they wanted good teachers, the district would have to enter into the business of teacher development from recruitment to retirement. In 1993, the New Haven Unified School District joined with California State University, Hayward to design the Single Subject Partnership Program (SSPP). SSPP is an innovative combined pre-service and internship program based in district secondary schools that simultaneously educates teachers while protecting and providing a quality education for students.

Personnel director Jim O’Laughlin is quick to credit California State University, Hayward for the calibre of the district’s preservice teacher development efforts, “The uniqueness of our program is based on the unique collaborative relationship we have developed with Cal State Hayward. This is dependent upon their willingness to collaborate and truly partner with a school district in teacher preparation.” The SSPP combines elements of internships and traditional preparation routes. SSPP teacher-candidates can be either traditional teacher education candidates or serve as part-time interns. The program requirements are the same for both. The curriculum is jointly planned and delivered by university professors and district faculty to provide for close articulation of district, school, and university activities. Because of the full integration of university and district in the preparation program, it is difficult to distinguish “university components” from “school components” of the program. With the exception of the content-specific pedagogy courses at the university, SSPP teacher-candidates remain in their cohort, participating in other coursework and field experiences in the district. This models the conceptual melding of theory and practice.

The Hayward-New Haven program is the one of a relatively few in the state that does not allow candidates to serve, unprepared, as full-time instructors of record. According to a CSUH instructor, “Full time internships are a poor practice – also a reality – but not in New Haven.” The selection of part-time interns who teach one or two periods per day is not made until after a month of coursework in the summer (co-taught by university and school faculty) and at least a month or more of student teaching. Those selected as interns after careful screening work under close supervision from partner teachers and support providers with released time for this purpose. Others continue as student teachers while both take the same rigorous set of courses that candidates complete in traditional programs.

Jim Zarrillo, former Chair of the CSUH Department of Teacher Education, summarizes the nature of this university-district collaboration in teacher education: “New Haven identifies teacher preparation as part of their reason for being, as much as teaching third-graders how to write in cursive . . . This is the Shangri-La of partnerships: It is standards based. Everybody working with the program does everything – teaching teachers, supervising teachers, teaching K-12 students, researching. It articulates teacher education with professional development and school practice.”

make an important difference in the availability of well-qualified teachers if high-need fields and locations are emphasized and if high-quality models of preparation are pursued.

In addition, since there is a substantial surplus of teachers in many other states, reciprocity coupled with aggressive recruitment could make an important contribution to California's need for well-qualified teachers. Whereas California enrollments are projected to increase by more than 20% by 2007, enrollment declines are anticipated in most parts of the Northeast and Midwest, and other states will have stable enrollments (NCES, 1998). Many of these states have a large number of teacher education institutions and regularly produce more teachers than they can hire. The American Association of Employment in Education's annual surveys (AAEE, 1998) report surpluses of teachers in most fields in the Northwest, Rocky Mountain, Northeast, and Middle Atlantic states. Elementary education has been a field of national surplus for a number of years, along with fields like English, art, business education, health education, physical education, and social studies. Fortunately, many of the states with the largest surpluses (e.g. Wisconsin, Minnesota, New York, Connecticut, Maine) have among the strongest teacher-licensing standards and preparation programs in the country as well. On the other hand, fields like mathematics, physical science, special education, and bilingual education register mild to serious levels

of shortage across different regions of the county. Given only those policy interventions that have already been enacted, the pool of potential teachers could, under conservative assumptions, expand to at least 40,000 annually over the next several years, substantially more than the annual demand.⁷ (See Figure 8.) These estimates do not include the potential effects of policies like increased salaries, improved working conditions, improved teacher education, targeted recruitment incentives, and better supports for teachers that other states have used to dramatically increase the supply of qualified teachers.

If California does not have a labor market shortage of qualified individuals interested in and prepared for teaching, why are there so many underqualified teachers in California schools? The major problem is that the pipeline to a teaching career in California actually operates as a sieve. Teachers want to work in schools that pay them adequately and support their efforts well. Qualified teachers also need to be able to find and gain access to the jobs that are available.⁸ Finally, teachers are most likely to stay in schools where they feel successful in their work. In contrast to some states that have enacted comprehensive policies to improve and equalize teaching salaries and conditions across schools and districts, teaching supports are unevenly available across California's schools.

Many California-trained teachers (as well as many out-of-state entrants), although they

On virtually every measure, teachers' qualifications vary by the status of the children they serve. Students in high-poverty schools are much less likely to have teachers who are fully qualified and much more likely to have teachers who lack a license and a degree in the field they teach.

7. These estimates assume increases in the production of California-trained teachers of 3,000 annually, a conservative assumption which anticipates that the growth in CSU and UC enrollments will be accomplished in part by shifts of enrollment from private institutions. The estimate also assumes a doubling of the number of out-of-state entrants from 5,000 to 10,000, also a fairly conservative assumption given that current entry rates exist with no reciprocity. At least 20 states have standards for teacher education at least as rigorous as California's and should be eligible for reciprocity; many of these have large surpluses of elementary teachers as well as teachers in secondary fields like English and social studies where CA currently hires many underqualified teachers. There are an estimated 60,000 newly trained teachers each year nationally who are unable to secure jobs in the states where they train to teach, not including reserve pools of teachers trained in previous years. Finally, the estimate includes no increase in re-entrants from the reserve pool, which have been stable for many years at about 40% of total supply or 10,000 teachers. This rate of re-entry is comparable to national rates of re-entry and would probably be affected only by major changes in the attractions to teaching – improved salaries or working conditions – which we consider later.

UNIVERSITY OF CALIFORNIA , SANTA BARBARA

The teacher education programs at the University of California, Santa Barbara (UCSB) offer a combined Master's-Credential program serving approximately 90 candidates each year. The program is a "fifth-year plus" model requiring 6 quarters – three contiguous academic quarters plus three summer quarters – to receive a B/CLAD credential and a Masters in Education. The program's vision for preparing teachers to teach challenging content to diverse learners is infused throughout a tightly-constructed program conducted by a joint faculty of university-based teacher educators and faculty in seven professional partner schools where all recruits are placed for a year-long clinical experience. The coursework and clinical work aim to develop teachers' capacity to learn from teaching via autobiography and the development of an educational philosophy, the close study of children and schools, the development of pedagogical competence, understanding of diversity, and continual collaboration and reflection.

In surveys and follow-up studies of graduates derived from the National Commission on Teaching's Exemplary Teacher Education Study, UCSB graduates rated their preparation as significantly superior to those of a national random sample of beginning teachers on 32 of 37 measures of teaching knowledge and skill items. The graduates scored comparably with those of a national sample of exemplary teacher education programs on 33 of 37 measures and ranked higher on measures evaluating their preparation to teach the concepts, knowledge, and skills of their discipline(s) in ways that enable students to learn, to use a variety of assessment techniques, to teach in ways that support new English-language learners, and maintain an orderly, purposeful classroom environment. In-depth follow-up studies of graduates by researchers who observed them in the classroom reported that they perform at the top levels of performance measures of the California Standards for the Teaching Profession.

This strong preparation is a product of carefully constructed curriculum tied to field assignments in schools that engage students in the study of content and pedagogy, cross-cultural education, human development, language and culture, the needs of special needs students as well as the study and use of inquiry techniques like ethnography. Both elementary and secondary teachers develop and enact an integrated curriculum unit that incorporates interdisciplinary studies, strategies for meeting the needs of English-language learners and other students with special needs, and the use of technology. They also complete a "school service project" which helps candidates develop leadership skills, learn about school change, and become more fully participating members of the school community in which they are student teaching.

Ongoing assessment includes both a Credential Portfolio and a Master's Portfolio. For the Credential Portfolio, candidates collect artifacts documenting their growth over time in each of the six domains of the California Standards for the Teaching Profession and examine these and other indicators of their progress at several points throughout the year with their cooperating supervisor. This becomes a key part of the final evaluation of performance for the credential. The Master's Portfolio is a candidate-driven inquiry developed over the course of at least eleven months that involves candidates in learning how to conduct research and then developing a classroom-based research project that helps them develop skills of investigation and analysis. The project is structured to encourage them to use theory to inform practice and practice to inform theory. Finally, the process of evaluation is organized to ensure multiple perspectives on the question, including those of parents or community members, and feedback from various sources. The goal is the development of a professional educator who has tools to inquire into and address problems of practice throughout his or her career.

want to teach, ultimately do not enter or stay in teaching within the state. Estimates of the number of California-trained teachers who actually enter teaching in the state range from about 50% to 85%.⁹ Based on several sources of data, a reasonable estimate of current entry rates is around 70%, a figure that is slightly lower than entry rates for individuals graduating from teacher education programs nationally.¹⁰ Among those who do not accept jobs in California after they graduate, some unknown number leave the state to teach elsewhere, some pursue additional studies and enter teaching later (nationally, delayed entrants comprise almost one-third of new hires) (Boe et al., 1998), and some choose other occupations altogether. The likelihood that these individuals will eventually enter teaching is heavily dependent on salary levels and working conditions.¹¹

In addition to the fact that not all individuals who prepare to teach enter the field, large numbers of teachers leave the profession early in their careers. National data suggest that about 30% of beginning teachers leave teaching within 5 years – a rate that is sharply reduced by access to mentoring supports in the early years. Survival rate

data through 1995 indicated that about 40% of California's beginning teachers leave within that time frame (Fetler, 1997),¹² a rate that may have increased in recent years with greater hiring of new teachers and individuals who are unprepared. California's teacher supply problems are a function of several factors:

- **Noncompetitive teacher salaries that are also substantially unequal across districts.** Beginning and average teacher salaries in California, adjusted for cost-of-living, lag behind those for liberal arts graduates by 25% and behind those for computer science graduates and engineers by 40%. (See Figure 9.) These differentials contribute to high non-entry and retention rates for the teaching generally and for fields like mathematics, science, and computer technology particularly. In the region, California's beginning salaries, when adjusted for cost of living differentials, compare poorly to those of surrounding states, as shown in the table on page 35.¹³ Teachers' salaries have slipped steadily both in real dollar terms and as a share of the education budget for more than two decades. California now ranks 44th in the U.S. in the share of its educa-

8. The Center for the Future of Teaching and Learning's 1999 survey of California teachers found that 59% of teachers reported proximity of the district they teach in to their home as important to their choice, 48% cited salaries and benefits, 40% cited the availability of a position, 33% cited previous experience with the district, 33% cited positive reputation of the district, and 30% indicated that support for new teachers was important in their choice (Shields, et al., 1999, p. I-41).

9. Cohen and Das (1996) and Fetler (1997) estimate entry rates of California-trained teachers at around 50%, based on inferences from licensing data rather than empirical data about actual entry rates. These estimates are likely to be too low because they assume that all emergency and out-of-state license holders enter and stay in teaching for at least a year at rates of 100% and then assume the remaining slots are held by California-trained teachers. CCTC data suggest that about 35% of emergency credential holders at the elementary level and about 50% at the secondary level are gone within a year (CCTC tabulations for 1997 to 1998), attrition rates that are 3 to 5 times higher than for trained beginners. Experiences in other states indicate that out-of-state entrants who apply for licenses do not always enter teaching, thus the licenses awarded to these categories of teachers may represent many fewer slots than the estimates presume and those awarded to California-trained teachers may represent a greater share of the total. Empirical data suggest higher entry rates. The California Commission on Teacher Credentialing (1999) found in a survey of recent graduates from California institutions that more than 90% seek jobs after graduation and of these, more than 90% take jobs in teaching. This finding replicates that of an earlier similar study (Tierney, 1993). However, the CCTC survey response rate was relatively low (about 40%) and may have underrepresented individuals who left the state to work elsewhere or who did not take jobs.

10. The Legislative Analysts Office in California estimates entry rates at 70% (Shields, et al., 1999), near the mid-point of other estimates. This is comparable to national entry rate data. National estimates of entry rates for bachelor's degree recipients of degrees in education in 1990 indicate that 73% were employed as educators a year later (Recent College Graduates Survey, 1991, as reported in *The Digest of Education Statistics*, 1993, National Center for Education Statistics, p. 397). Of newly qualified teachers in 1990 who held degrees in education, 78% were employed as teachers the following year (Choy, Bobbitt, et al., 1993; Gray et al., 1993).

CENTER X UNIVERSITY OF CALIFORNIA , LOS ANGELES

Seven years ago in a high rise with a panoramic view of the city, the faculty of UCLA's Graduate School of Education sat, as Jeannie Oakes describes it, "squabbling in its usual fashion over its agenda of bureaucratic minutiae." As the squabbling continued, faculty members began to notice fire after fire after fire. They were, in fact, watching the city go up in smoke in the aftermath of the Rodney King verdict. Rather than fiddle as the city burned, several faculty members decided to do more than put out the immediate flames; they made a personal commitment to reconstruct the teaching profession's social contract with its community. Center X was born when these faculty decided to develop the pre- and inservice teacher education programs that could make a difference for children in central city Los Angeles.

Both pre- and inservice programs seek to demonstrate that schools for low-income minority children can become rich, rigorous, and caring communities where all children succeed. They focus on a social justice agenda that works simultaneously on professional education, school reform, and re-inventing the university's role in K-14 schooling, aiming to blend theory and practice and bring together educators' and students' needs for in-depth content knowledge, powerful pedagogies, and school cultures that enable serious and sustained engagement in teaching and learning. The programs also aim to construct diverse, socially responsible learning communities in which all members, regardless of race, class, gender, and age can participate fully in a society that affirms and sustains the principles of equality and social justice.

The preservice teacher education program offers a Master of Education degree and a CLAD or BCLAD Credential in a combined, full-time, two-year program that integrates research-based methodologies with classroom practice by providing advanced study in such areas as cultural foundations, instructional decision-making, and curriculum development. The credential course sequence is integrated with a set of student teaching experiences in racially, culturally, and linguistically diverse school sites, focusing on classrooms with new English language learners. Partnerships have been forged with urban districts including Centinela Valley, Inglewood, Lawndale, Lennox, Los Angeles Unified, and Santa Monica. Between academic years, it is mandatory for students to participate in a subject matter institute through the Center X professional development programs. During the second year, when they are now fully credentialed and while simultaneously completing their final program course work and portfolio defense for the M.Ed., students participate in a paid teaching residency at partnership schools. In this way, the program assures the children in these schools fully qualified, fully supported teachers while supporting novice teachers the support and ongoing professional development that can launch a successful career.

One key indicator of the program's quality is that its graduates are entering, staying, and succeeding as teachers in urban schools. The program has received feedback from 180 of its initial 227 graduates. Of those 180, 167 are working in urban schools and 11 are working in education-related fields. Of its 1999 cohort, over 92% of the respondents are teaching in urban schools. A second indicator emerged from a study of beginning teachers' influences on student learning gains in an urban elementary school that used longitudinal performance assessments to evaluate student literacy development. In this study, graduates of UCLA's program were as strikingly effective as those of another widely-recognized two-year graduate level teacher education program: the University of California at Berkeley's Developmental Teacher Education program, one of seven studied in the National Commission on Teaching's Exemplary Teacher Education study. A third indicator is the strong evidence that practices in partnership schools are changing on a wider basis. As one principal commented, echoing the sentiments of many of her peers, "Through the university-school connection, we anticipated that the master and student teacher relationship would create an exchange of ideas. Little did we anticipate how powerful the change process would be for the participants. Our school site has been transformed by the focus on social justice and raising expectations for all of our students."

1997-98 Teacher Salaries Adjusted for Cost-of-Living	Beginning Salary	Average Salary
Nevada	28,813	40,816
Alaska	26,529	38,620
Oregon	26,225	42,556
California	24,219	38,635
Washington	23,165	37,408

after the passage of Proposition 13 in 1979, especially in the least wealthy districts, leading to what has been called the “Mississippi-cation of California schools” (Schrag,

tion budget devoted to teachers’ salaries (only 34%). Finally, beginning teachers’ salaries in California vary by more than 50% across districts, and by as much as 35% within a local labor market, creating labor market imbalances within and across regions (Pogodzinski, 1999).

- **Dismal working conditions in many schools, especially those serving the least advantaged students.**

Teaching conditions steadily worsened

1999). By the late 1990s, California ranked 45th or lower among states on student achievement, class sizes, staff/pupil ratios, libraries, and most other school resources. Even after class size reduction, class sizes above the 3rd grade continue to be among the nation’s highest and working conditions in low-income districts among the worst. Large classes, severe overcrowding of facilities, and inadequate stocks of books and materials have converged with pressures for test score increases on

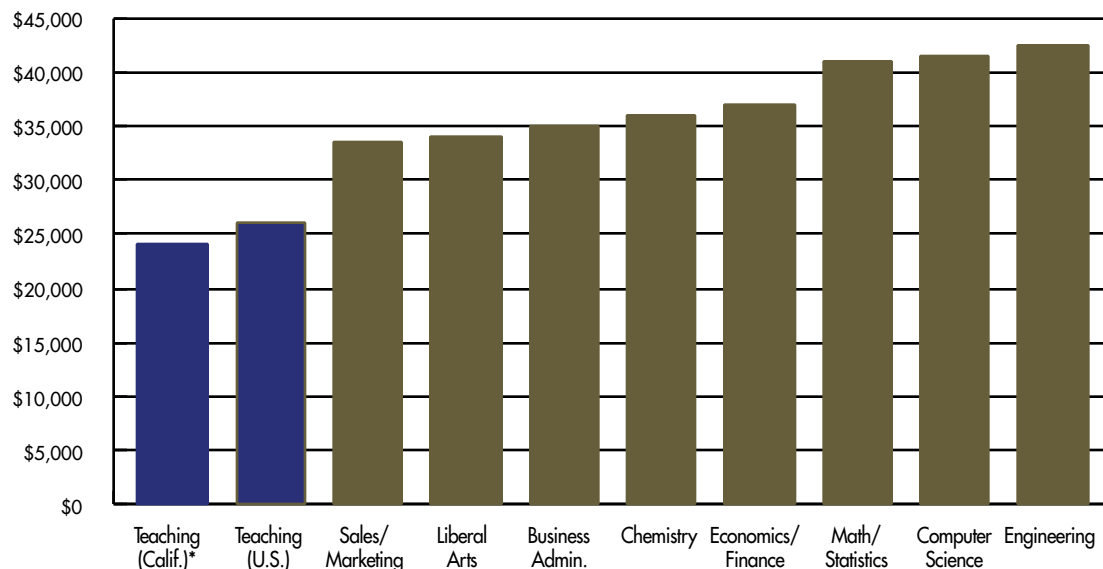


Figure 9
Beginning Salaries in Teaching and Other Occupations

* Adjusted for cost of living.

Source: H. Nelson and K. Schneider, *Survey and Analysis of Teacher Salary Trends, 1998*. Washington, D.C.: American Federation of Teachers, 1999.

11. Beaudieu (1993, 1995).

12. Based on data for cohorts of first-time teachers from 1986-87 through 1995-96, Fetter (1997) estimates a survival rate of 62.7% of new teachers at the beginning of the 5th year (representing a 37.3% attrition rate at the start of Year 5 and a probable 40% attrition rate by the end of Year 5).

13. H. Nelson and K. Schneider, *Survey and Analysis of Teacher Salary Trends, 1998*. Washington, D.C.: American Federation of Teachers, 1999. Cost of living index from Table I-7, p. 14 applied to salary data from Table I-9, p. 16.

MILLS COLLEGE, OAKLAND

“I arrived at my first permanent teaching job five years ago, mid year, in a district a month away from a bitter strike. The 1st grade classroom in which I found myself had some two dozen ancient and tattered books, an incomplete curriculum, and an incomplete collection of out-dated content standards. Such a placement is the norm for a beginning teacher in my district. I was prepared for this placement, and later came to thrive in my profession, because of the preparation I received in my credential program. The concrete things Mills gave me were indispensable to me my first year as they are now: my understanding of grade level expectations and my knowledge of the state standards, the practice I received developing appropriate curricula, my understanding of developmental learning levels, refinement of my content knowledge, rigorous exposure to assessment strategies, exposure to a wide range of learning theories, a deep understanding of cultural differences and their implications, training in working with non-English speaking students and children labeled “at risk”, my familiarity with the functioning of a school site and district, and an understanding of the importance of appropriate goals, objectives, and expectations. It is the big things, though, that continue to sustain me as a professional and give me the courage to remain and grow while so many of my colleagues quietly disappear or fall prey to cynicism: My understanding of the importance of learning from and continually asking questions about my own practice, the value I recognize in cultivating collegial relationships, and the development of a belief in my moral responsibility to my children and to the institution of public education. In an environment that so easily diminishes the individual who is the teacher, I find myself sustained, and I attribute this wholly to the training, education, and support provided to me by Mills.” (A current Oakland teacher and 1995 Mills graduate)

This kind of testimony, typical of graduates’ views of Mills College’s Teachers for Tomorrow’s Schools program, says more about the program than dozens of brochures could reveal. Equally revealing is the fact that, like other high-quality extended teacher education programs, graduates enter and remain in teaching, the vast majority in urban schools. Of 1998 and 1999 graduates, just over 90% are still teaching; of graduates who entered the profession as long as seven years ago, 85% are still teaching while many others are in education-related jobs. As a veteran teacher notes, Mills College’s intensive two-year graduate level credential and Masters program “provides students with a rigorous academic program but also prepares them to work in a real classroom.”

Located in the heart of Oakland, Teachers for Tomorrow’s Schools is committed to urban education and to an ethic of care and social justice, equity, and access. The program recognizes the central importance of understanding learners and building academic programs that are developmentally appropriate and inclusive. Its coursework and fieldwork are interconnected in a cohort model that emphasizes collaborative learning for teachers as well as students. The one-year credential program – with a full-year of student teaching wrapped around coursework that emphasizes learning, development, and assessment as guides to teaching – is followed by a second year masters program while students are engaged in full- or part-time teaching. Its standards-based approach emphasizes deep understanding of subject matter content and how to make it accessible to learners, understanding of learning as a constructivist enterprise, understanding of teaching as inquiry and reflection on the relation between teachers’ actions and students’ learning, and an appreciation of teaching as a moral enterprise and a collegial and political act that has far-reaching consequence for social welfare and equity. Candidates are involved in rigorous coursework and intensive student teaching simultaneously in classrooms where there is strong connection between university and school-based faculty. The strength of this relationship is reflected in one cooperating teacher’s comment in a recent study: “I wouldn’t accept a student teacher from any other college!” Another cooperating teacher summed up the feelings of most educators who work with the teacher education program: “Mills makes a heroic effort to prepare the best educators for the state of California: It is a model to follow.”

measures unaligned to the state curriculum to create stressful settings for teaching in many schools, especially those that serve the most economically disadvantaged students. In many schools, beginning teachers are routinely given the largest course loads with the most educationally needy students and the least planning time. Not surprisingly, these schools have difficulty retaining teachers.

- **Dysfunctional personnel practices that undermine the hiring and retention of qualified teachers, especially in many urban school systems.** Evidence nationally and in California indicates that the hiring of under-qualified teachers in many communities is often caused by cumbersome hiring procedures that can take months, late hiring caused by seniority transfer provisions and late budget decisions, and preferences for hiring untrained, inexperienced teachers who cost less money (NCTAF, 1996; Shields et al., 1999). In California, nearly 50% of newly hired teachers in 1998 were hired after August 1, and 25% were hired after the start of the school year (Shields et al., 1999). In the six California districts that account for most of the state's emergency hiring, these problems are commonplace.¹⁴ Qualified candidates who apply to teach in these districts often find that they cannot get answers to their questions about vacancies, are unable to get scheduled for interviews, and have their files lost. A recent PBS documentary interviewed a number of qualified science teachers who had applied to teach in the Oakland Public schools but had never been called for a job. Meanwhile, the district hires hundreds of teachers on



emergency credentials.

Local schools of education often report that their graduates who want to teach in urban areas cannot negotiate the poorly functioning personnel systems in high-need city districts. Many candidates who want to teach cannot wait until August or September for an answer and must take offers from other districts or private schools if they are to be guaranteed a job in the fall. This results in the late hiring of much less-qualified candidates than the district's original pool of applicants. In addition, many districts will bypass well-qualified applicants with greater education and experience in order to hire untrained teachers who cost less. Finally, some districts do not value the expertise of the teachers they already employ. Since 1990, both Los Angeles and San Francisco have used early retirement incentives to buy out the contracts of thousands of qualified veteran teachers and then hired unqualified teachers to replace them. In states with highly-qualified teaching forces, these practices are prevented by the state standards board or department of education. In California, the Commission on Teacher Credentialing (CCTC) has not had the

14. Together Los Angeles, Montclair, Oakland, Pasadena, Pomona, and Compton account for more than 60% of all emergency permits and waivers in California.



authority or resources to investigate the hiring practices of individual school districts. Consequently, emergency hiring requests are approved in bulk without evaluation of their need or appropriateness.

- **Counterproductive licensing policies that sometimes create unnecessary barriers without ensuring quality.** The lack of reciprocity with other states, the separation of undergraduate education and postbaccalaureate teacher education, and the state's testing policies have created unintentional barriers to entering teaching in California. Pogodzinski (1999) notes that California's is one of the most complex licensing and accreditation systems in the country, with many redundancies and substantial costs and time delays. In addition to the paper-

work processes that can be cumbersome, out-of-state entrants have to take and pass 3 or 4 separate test batteries¹⁵ in order to become certified in California, even if they are fully prepared and have taken licensing tests elsewhere. In addition to the time and expense involved in taking so many different examinations, most of the tests are unique to California and are difficult to access from out-of-state. Additional coursework may also be required of some candidates. Although the legislature has enacted a reciprocity bill, the CCTC has not yet approved states for reciprocity.

Eighteen states are currently being considered for reciprocity. Other high standards states have not yet been placed on the list, in part because most do not have testing systems that are similar to California's. (Many other states use different examinations and require fewer tests.)

Candidates from California colleges and universities who have not completed a program of studies at a specific college formally approved by the CCTC¹⁶ also have to take and pass three of these tests to be admitted to a teacher education program and undertake independent student teaching, even if they have a major in the field in which they would like to teach. Cut-off scores on the two batteries of subject matter tests have been set substantially above those elsewhere in the country, such that only 15% of all candidates pass the mathematics test batteries, only 26% pass the

15. These include the CBEST, a basic skills test used only in California; Praxis II, a subject matter test offered nationally by the Educational Testing Service; the SSAT or MSAT (an additional subject matter test used only in California); and, at the elementary level, the RICA, a testing of knowledge about the teaching of reading used only in California.

16. These approved programs of study are approved separately for each subject area on each campus. Different campuses have approved programs in different sets of fields; some lack approved programs altogether. In order for candidates to take advantage of such programs, they must be in a field in which their campus has an approved program and learn of the requirements during their undergraduate years in time to follow the requisite courses.

17. In addition to the extremely high cut-off scores, part of the problem may be that California has adopted only one module of the Praxis examination – the essay component – without adopting the other part of the test commonly used in other states and intended as a stabilizing element for scoring. As an indication that the validity of the testing program is questionable, among the group of candidates taking the mathematics examinations, those with undergraduate majors in mathematics passed at a rate of only 33.1%, and those with an undergraduate GPA of 3.5–4.0 passed at a rate of only 36.4% (Brunsford, 1999).

social science batteries, and only 45% pass the English batteries (Brunsford, 1999).¹⁷ While candidates who fail the examinations are discouraged from entering teacher education, individuals who have met no standards at all are hired to teach without preparation on emergency permits and waivers. Finally, the long-enforced separation between undergraduate subject matter preparation and postbaccalaureate teacher education has meant that on many campuses, candidates do not receive advisement about the courses they need to enter teacher preparation after they graduate, and opportunities for blending content preparation with pedagogical preparation are missed.

- **Lack of targeted recruitment incentives for high-need fields and locations.** The barriers described above are problematic in all fields, but are especially so in high-need fields like mathematics, science, computer technology, special education, and bilingual education/ English language development where there are genuine undersupplies of candidates. During the 1960s and '70s when the last major increases in teacher demand occurred, the federal government initiated a variety of targeted scholarship and forgivable loan programs, as well as teacher education supports, to help ensure an adequate supply of programs for high-need fields like mathematics, science, and special education and for high-need locations like cities and poor rural districts. These

programs were successful in nearly eliminating the hiring of underqualified teachers during the 1970s; however, they were repealed in the 1980s. Since teacher demand has increased again, many states have instituted similar programs to subsidize the preparation of individuals who will teach for several years in high-need fields and locations. Until 1998, California offered few targeted incentives for individuals to prepare to teach in fields and areas where they are most needed. The 4,500 Assumption Program of Loans for Education (APLE) awards authorized in the 1998-99 Budget Act – which focus some support on those who pledge to teach in understaffed schools and in shortage fields – will help in this regard, as will the expanded number of Cal Grant “T” Program (Cal T) grants for preparation in 5th year programs, but more sizable assistance is needed.

- **Overreliance on pathways into teaching, such as emergency hiring and short-term alternative routes, that have extremely high attrition rates.** In part as a consequence of the factors described above, California has begun to rely on pathways into teaching that have extremely high turnover rates. About 40% of emergency credentialed teachers leave within a year (more than three times the rate for credentialed teachers), and about 60% of those who enter through short-term alternative routes leave within three years (at least

18.CCTC reports 1-year attrition rates for emergency credentialed teachers of 35% for elementary recruits and nearly 50% for secondary recruits. From self-reported data derived from a subset representing 25% of California's internship programs funded in a recent grant program, McKibbin reports a retention rate of about 85% of graduates of internship programs during one year in the field. Other analyses of these data show a retention rate for interns of only 50-60% over three years. Other data suggest that about 60% of intern program entrants actually graduate from the programs (Wright, McKibbin, & Walton, 1987), so if the recent retention data are correct (they are not from first-hand empirical research but program self-reports), the percentage of entrants still in teaching after a year or two would be in the neighborhood of 50%. National data from the Recent College Graduates Survey indicate that about two-thirds of unprepared entrants leave teaching within their first year (Grey et al., 1993). Other national indicate that about 60-65% of entrants through short-term alternative certification routes have left within three years (Darling-Hammond, 2000).

double the rate of those who enter through traditional preparation programs).¹⁸ High turnover is a function of both lack of training, which leads to discouragement and burnout, and lack of commitment on the part of some who have entered because the job is readily available rather than because they are really interested in teaching. About 25% of California's teachers now enter the occupation through emergency hiring and waivers. A small but growing share enter through internship programs, some of which are carefully structured to ensure high quality coursework and assisted clinical learning, while others offer largely unmentored entry and incoherent collections of courses that do not represent up-to-date knowledge about teaching. In some districts, more than half of newly hired teachers enter through these routes. This creates a revolving door of teachers into and out of teaching, rather than a stable teaching force. In recent years, the state has established more incentives for individuals to enter teaching through backdoor routes than through quality pre-service teacher education. Before the expansion of the Cal T grants and APLE loan programs in 1999, there were relatively few supports for individuals who wanted to become well-prepared before they enter teaching in California.

- **Inadequate supports for beginning and veteran teachers.** In addition to the attrition caused by the large number of emergency hires and others with minimal training, teacher turnover in California is also related to the unavailability of support for novices, only 16% of whom were working with a mentor teacher on a regular basis in 1998 (Shields

et al., 1999). This may change as the Beginning Teacher Support and Assessment (BTSA) program expands in coming years if care is taken to adapt program models to the needs of local schools with large numbers of new teachers. Finally, the lack of resources for both teaching and teacher learning in many districts contributes to higher than average rates of teacher attrition in California. Teachers in some districts lack even basic resources like textbooks and materials. Most do not have the opportunity to engage in sustained, high quality professional development that will enable them to help their students meet the new learning standards in their subject area, and few have any regular time for shared planning and collaboration with other teachers to help them solve problems of practice (Shields et al., 1999).

These factors combine to produce relatively low entry rates for newly prepared teachers and unusually high attrition rates for all teachers, especially beginners. While some districts with attractive salaries and working conditions, good supports for teaching, aggressive recruiting and streamlined hiring procedures, have ten times more applicants than they can hire, others are unable – and sometimes unwilling – to seek out and find qualified teachers in all fields, to hire those who apply in an efficient manner and timely way, and to treat those they hire with enough care so they will stay. Recently enacted policies address some but not all of these problems.

In particular, the framing of the problem as a need to prepare more and more teachers as quickly as possible, in large part by conducting teacher education faster, more cheaply, and less coherently could actually

exacerbate the problems California faces. This misdiagnosis of the problem has tended to deflect attention away from the factors that need to be addressed in order to attract and keep the already potentially adequate supply of qualified teachers in California's schools: competitive and equitable salaries and working conditions, functional district hiring procedures and supports for teachers, sensible state licensing policies, and targeted incentives for recruiting teachers in shortage fields and locations.

Equally unfortunate, the press to prepare more teachers quickly (rather than to get prepared teachers to enter and stay in teaching in the places they are needed) has begun to undermine high quality teacher education programs in California, causing them to dismantle many of the features that have made them most successful – including those that create higher rates of entry and retention as well as greater competence.

It has also encouraged the proliferation of programs and pathways that create a revolving door of underprepared teachers who enter and leave at rapid rates, practicing at the start of their careers with little knowledge or skill, mostly at the expense of the state's neediest students. Because of their short tenures and the weaknesses of the training they have received, it is likely that many of these teachers never become truly competent. Furthermore, for those students in low-income schools who experience a steady parade of underprepared, inexperienced, and short-term teachers throughout their school careers, the fact that some of them may eventually become more skilled after they have moved on is little consolation for the inadequate teaching they have already received. These conditions conspire to weaken the quality of teaching practice in the state as a whole and the prospects for achieving educational excellence and equity.



ISSUES FACING TEACHER EDUCATION IN CALIFORNIA

While high-performing states elsewhere in the country are investing in more rigorous teacher education programs that provide more coherent and comprehensive training, a substantial portion of the teacher training system in California is moving in the opposite direction. States like Connecticut, North Carolina, and Kentucky that sharply improved student achievement during the 1990s launched reforms more than a decade ago that reduced or eliminated teacher shortages and improved teacher quality by investing in salary increases and equalization, strengthening teacher education coursework and accreditation, and instituting beginning teacher mentoring programs, among other reforms.

Other states are following suit and instituting major improvements in teacher education. New York, like Connecticut, now requires all teachers to gain a masters degree as the basis for a professional license in addition to a major in the field to be taught and coursework in teaching that ensures deep knowledge of learning, teaching, and the needs of a wide range of learners. Like North Carolina, New York will require national professional accreditation for all of its programs, and it is eliminating the practice of in-state certification by “transcript review,” a form of alternative certification that allowed candidates to take individually determined courses while teaching on an emergency credential.

North Carolina has required and funded all of its colleges and universities to create professional development school partnerships that will be the basis of year-long student teaching placements for all entering teachers. Colorado has also just enacted a

requirement for year-long student teaching placements. Kentucky is launching a multi-million dollar initiative to encourage school-university partnerships and to ensure integration of arts and sciences courses with education courses in blended programs. Georgia has made teacher education improvements the cornerstone of its P-16 Council efforts with an emphasis on developing more coherent programs that connect content and content pedagogy and extending clinical training in partner schools. Wisconsin, Ohio, Maryland, Indiana, and Minnesota are other states that have recently undertaken reforms that will strengthen teachers’ content and pedagogical knowledge and their clinical experience by extending, deepening, and connecting teachers’ theoretical and practical preparation.

Pressures to Reduce Preparation and to De-Couple Coursework and Clinical Training

Meanwhile, in California, reforms in the last year or two have focused more on reducing the duration of teacher education and eliminating the requirement that it occur before teachers practice on children than on ensuring that teachers receive high quality preparation that will enable them to succeed. In the name of “flexibility,” curriculum expectations and clinical training are being weakened. In the past year, two-year postbaccalaureate programs, such as the widely respected program at the University of California at Santa Cruz, reverted to one-year programs; planned 5-year models are reverting to 4-year models of the kind that other states have begun to abandon – programs with front-loaded, disconnected coursework followed by a short dollop of student teaching; some internship programs are offering fewer content-related courses

and less supervised clinical practice; and candidates are often advised to enter teaching on emergency credentials and then pick up credits as they work. “Fast tracking” allows some teachers-in-training to shorten their clinical preparation to take paid jobs part way through their student teaching cycle. The recent Center for the Future of Teaching and Learning study (Shields, et al., 1999) notes the recent trend in California to get teachers into classrooms quickly by both shortening student teaching and allowing the emergency permit to substitute altogether for formal student teaching, despite the fact that research identifies practice teaching as one of the most important components of preservice preparation. The study notes:

Of particular concern is the trend in areas of high demand for fewer teacher candidates to participate in traditional fifth-year programs with student teaching components. Instead, candidates are increasingly choosing to take teaching jobs before earning a credential. For prospective teachers willing to work in districts with severe shortages, there are virtually no incentives to enter a credential program. For example, of the 292 multiple and single subject teacher candidates at Cal State-LA participating in their clinical experience during spring 1999, only 33 were not already full-time teachers of record. By employing an on-the-job training model, we have solved the problem of unattended classrooms but have eliminated incentives for candidates to be prepared to teach. One result is that many teacher preparation programs in California have a new and disheartening mission: to prepare the unprepared while they teach. Of course, the biggest losers are the students denied access to a high-quality teacher (p. 76).

Recent California studies have found that candidates who replaced all or part of their

student teaching with the emergency permit option are less satisfied with their preparation, and a significant number would change their decision if they had the opportunity to do it over again (Stone & Mata, 1998; Turley & Nakai, 1998). When candidates enter teaching as emergency hires, they sacrifice the opportunity to learn to teach by observing expert veterans in action and by systematically learning to apply theory to practice. Even when these teachers make their way through the credentialing system, they often continue to have major gaps in their knowledge and skills because they take courses on an ad hoc basis that are unconnected to one another and to their teaching experience. Night and weekend courses are typically taught by adjunct faculty who, even when they are veteran teachers with much to offer, are not involved with others in planning a coherent curriculum. Course content is erratic, and field placements are generally not supervised in any serious or sustained fashion.

Studies in California and elsewhere show that teachers who enter the profession without completing a teacher education program feel significantly less well prepared (Shields, et al., 1999; Silvernail & Imbimbo, 1999). More importantly, evidence suggests that many do not learn to teach proficiently but learn to cope in ways that are counterproductive to student learning (Grossman, 1989; Lenk, 1989; Shapiro, 1993). A number of studies suggest that the typical problems of beginning teachers are greater for those who have not had adequate preparation prior to entry (Adams, Hutchinson, & Martray, 1980; Glassberg, 1980; Taylor & Dale, 1971).

A substantial body of research indicates that teachers admitted with less than full prepa-

Teachers learn just as students do: by studying, doing, and reflecting; by collaborating with other teachers; by looking closely at students and their work; and by sharing what they see. This kind of learning cannot occur either in college classrooms divorced from engagement in practice or in school classrooms divorced from knowledge about how to interpret practice.

ration are not only less satisfied with their training, they have greater difficulties planning curriculum, teaching, managing the classroom, and diagnosing students' learning needs. They are less able to adapt their instruction to promote student learning and less likely to see it as their job to do so. Principals and colleagues rate them less highly on their instructional skills, and they leave teaching at higher-than-average rates. Most important, their students learn less, especially in areas like reading, writing, and mathematics, which are critical to later school success (Bents & Bents, 1990; Darling-Hammond, 1992; Darling-Hammond, Hudson, & Kirby, 1987; Feiman-Nemser & Parker, 1990; Gomez & Grobe, 1990; Grady et al, 1991; Grossman, 1989; Jelmberg, 1995; Lenk, 1989; Mitchell, 1987; National Center for Research on Teacher Learning, 1992; Rottenberg & Berliner, 1990).

Learning from practice by trial and error does not teach what learning from supervised experience does. Often unmentored teachers are so concerned about their own survival that they learn to blame students for their own lack of skills. Even if they learn to manage a class and get through activities, they may never have the opportunity to learn how to work effectively with students for whom academic learning does not come easily. It is not clear that teachers who learn to teach in this way as a means of surviving ever learn other strategies. One researcher's account of a well-meaning and enthusiastic young recruit, one of a number of bright college graduates assigned to teach in a central city school after a few weeks of summer training, illustrates how this can happen. The young man was fired after several weeks of teaching elementary school, having reverted to using teaching methods that

were heavily rote oriented and worksheet-driven because he had no other curriculum ideas. This, coupled with his inept and heavy-handed attempts at discipline, lost the class. At the end he concluded: "I don't think (the students) hated me. I do think they thought I hated them" (Shapiro, 1993, p. 74). What he learned from this unguided experience was revealed when he began a new teaching assignment in yet another school. He started off his new job by taking away the children's recess, so they would know who was boss. As the researcher described it:

And that is how it begins. Or how it begins to end. You come to your first class and they eat you up and you vow that it will not happen again. And you learn what you have to learn to make sure it doesn't. You learn the value of workbooks because even if they're numbingly dull they keep the kids busy and if the kids are busy they are not making trouble for you (p. 89).

A number of studies have found that teachers who are better prepared tend to be more able to use teaching strategies that respond to students' needs or that encourage higher order learning (Hansen, 1988; Perkes, 1967-68; Skipper & Quantz, 1987). Since the novel tasks required for problem-solving are more difficult to manage than the routine tasks associated with rote learning, lack of knowledge about how to manage an active, inquiry-oriented classroom can lead teachers to turn to passive tactics that "dumb down" the curriculum (Carter & Doyle, 1987; Doyle, 1986), busying students with workbooks rather than complex tasks that require more skill to orchestrate (Cooper & Sherk, 1989). It is not clear that limited course-taking unconnected to practice can overcome these habits that are developed in the press to gain classroom control when models of

effective teaching methods are absent.

It is possible that university programs that try to offer disconnected night-time courses to untrained teachers already engaged in classroom practice will inadvertently prove the point made by many critics of teacher training: that teacher education makes little difference in the effectiveness of teachers, at least when it is conducted in this fashion.

Incentives for Alternative Credentialing

An alternative to entering a traditional pre-service program – or to entering teaching on an emergency credential (pathways that are increasingly blurred in California) – is entering through an internship program. The California legislature has recently allocated more than \$10 million dollars for internship programs, in addition to \$2 million for pre-internships for individuals teaching on emergency credentials who have not passed the basic skills or content tests needed to enter teacher education. There are potential advantages of such programs when they are responsibly organized, because they can be managed as school-university partnerships that integrate theory and practice, wrapping coursework around supervised clinical experiences that can, at least in theory, be well-supported. The CSU-Hayward – New Haven Unified School District program described earlier is one example of a carefully constructed internship program that provides reasonable safeguards for students as well as beginning teachers.

This model is unusual, however. Most programs allow interns to become teachers of record with full responsibility for classrooms after only a few weeks of summer training. As Shields and colleagues (1999) note: “Regardless of how well internships prepare

new teachers, they – by definition – place underqualified teachers in classrooms. Although internship programs might train emergency teachers quite ably within a year or two, for the duration of the internship, the students in their classrooms are taught by someone who is learning as she goes.” (I-54).

While internship programs are growing in California (about 4,000 first and second year teachers were in such programs in 1998), there are reasons to be concerned about the quality of many of them.

Whereas some retain a rigorous curriculum tied to carefully supervised student teaching and well-supported internship experiences in schools, others place interns as teachers-of-record without significant mentoring after a few weeks of summer training and water down coursework to a two-hour session of “seat time” weekly in which serious and difficult issues of teaching and learning are rarely addressed. The reduction of traditional coursework and lack of student teaching in these programs is supposed to be compensated for by intensive mentoring and supervision in the initial months of full-time teaching. However, promised mentors do not always materialize. As a RAND report on nontraditional programs noted:

... Ironically, given that these (alternative certification) programs presumably emphasize on-the-job training *in lieu* of standard coursework, the alternative program recruits in our sample received substantially less assistance and supervision than recruits in any of the other types of programs (Darling-Hammond, Hudson, and Kirby, 1989, 106).

In this study, fewer than a third of alternative certification recruits from short-term summer programs spent an hour or more each week working with a support person,

Creating an infrastructure for high quality teaching in California will require both serious, sustained commitments from the state's universities to the creation of powerful programs of teacher education and equally serious, sustained commitments from the State's policy community to the creation of a profession of teaching that can attract, honor, support, and retain well-prepared teachers.

as compared to three-quarters of the recruits in graduate school programs. Other studies have also commented on the unevenness of supervision in AC programs, particularly those that rely on local district resources (Adelman, 1986; Cornett, 1992).

Three recent evaluations of California intern programs have raised similar concerns about the lack of support interns receive. McKibbin's (1998) summary of two CCTC evaluations noted:

The Commission's two evaluation studies showed that the quality and comprehensiveness of the curriculum in district intern programs varied a great deal. In the 1987 and 1994 studies, interns reported that the formal "mentor" support system is not supplying assistance at a level of intensity that would be beneficial.. Twelve percent of the interns reported that they had not had contact with a mentor or other person formally assigned to them. Others reported that formal support was inadequate because their mentors were employed at schools some distance from their sites, or taught subjects in different areas or grade levels than the interns. The numbers of support conferences and observations were lower than what would reasonably be expected, and these numbers declined from 1987 to 1994. As a result of the two studies, the Commission concluded that significant aspects of district intern programs must be improved, such as the unevenness of intern support and the use of District Intern Certificates to provide a convenient hiring mechanism rather than as a professional preparation program (6-7).

A study of Los Angeles' education specialist program – a district intern program cited as one of the better models – found that 85% of interns did not receive any mentoring in the first month of teaching. On average, interns observed their mentors and were observed only four times per year

(McKibbin and Giblin, 1999, pp. 39-40). Quite often the districts that hire the most interns have the fewest veteran teachers available for mentoring. As one district intern who taught high school English reported, "The mentor they assigned to me was a math teacher from a school 20 miles away. I never saw him" (Shields et al., 1999, I-56).

Some of these problems are long-standing. Problems resulting from inadequate preparation headed the list of complaints of the 20 percent of Los Angeles alternate route candidates who quit before they completed their summer training programs in 1984 and 1985, as well as many of those who remained but voiced dissatisfaction (Wright, McKibbin, and Walton, 1987). This evaluation found that in addition to the 20 percent of recruits who dropped out before completing the training, another 20 percent of the remainder left or were not deemed ready for employment by the end of year two when they would have been credentialed (Wright, McKibbin, and Walton, 1987). Stoddart's (1992) analysis revealed that 53 percent of Los Angeles' alternative certification recruits (prepared in an eight-week summer program run by the district) had left within the first five years of program operation. This track record is not unusual for alternative certification programs. Similar attrition rates have been found for alternative certification programs in other states (Darling-Hammond, Hudson, & Kirby, 1989; Lutz & Hutton, 1989).

One recent study of 53 recently funded California intern programs (a subset representing about one-fourth of the State's 200 internship programs) cites a retention rate of about 85% for program graduates over the period of what appears to be one year

(McKibbin, 1998). This figure is based on program self-reports rather than first-hand empirical data collection, so its accuracy is difficult to confirm. Other analyses of the state self-report data suggest that only 50-60% of interns remain in teaching by the 3rd year of teaching.¹⁹

From the point of view of students, the more important question is what recruits know when they begin teaching independently in the classroom. In California as elsewhere many alternative certification programs provide no opportunity for subject matter coursework or extended practicum experience; recruits' "practicum" consists of their first year(s) of full-time teaching. Pedagogical training tends to be minimal, focusing on generic teaching skills rather than subject-specific pedagogy, on singular techniques rather than a range of methods, and on specific, immediate advice rather than research or theory (see Stoddart, 1992; Bliss, 1992; Zumwalt, 1990). These constraints, and the current status of teaching knowledge in many of the districts that mount their own programs, lead to a predilection for teacher-proof approaches to training and curriculum that undermine most of the current reforms in teaching and learning. Packaged programs like Distar, ITIP, and Assertive Discipline – an approach to classroom management that has been characterized as "psychological child abuse" by the American Psychological Association – are used in some of the largest California intern programs (McKibbin &



Giblin, 1999; Stoddart, 1992). Although these approaches do not help teachers to teach diagnostically or in ways that support the acquisition of higher order thinking skills, they can be "taught" in a day-long workshop and require almost no sophisticated knowledge or skill on the part of teachers. Unfortunately, when these programs fail to meet many of the teacher's goals and the students' needs, teachers prepared in this way often have few powerful theories or alternative techniques to marshal.

Interestingly, a state evaluation of the Los Angeles teacher trainee program compared several different kinds of teaching recruits, including one group of alternate route entrants who decided to enroll in regular university teacher education programs rather than the short alternate route summer program, while still receiving state-funded mentor support. This group of university-prepared candidates who received funded mentoring in their first year on the job far outscored any of the other recruits on every criterion of classroom effectiveness, suggesting the cumulative power of adding adequate preservice preparation to intensive

19. Empirical data, data sources, and methods are not described in this report, so it is not possible to evaluate the comparability of these statistics with others previously published. It appears that the largest district intern programs evaluated in some previously published studies are not included in this subset of programs. The data are from self-reports of programs rather than original data collection. The retention rates were reported for program graduates, rather than entrants. In other studies, much of the attrition for interns was found to occur during the one or two years of the program itself (i.e. during the first year or two of teaching while they are taking courses), which is also when most beginning teacher attrition occurs. Finally, the report contrasts the 85% in-district retention rate with a statement that only 50% of traditionally prepared entrants are retained. If this is an empirical measure (again, no data are offered), it presumably refers to in-district retention rates. A differential in in-district retention rates should be expected. Because they are fully credentialed, traditionally-prepared teachers are much freer to move to other districts in search of higher salaries or better working conditions than are interns who hold emergency credentials or intern credentials that cannot be carried to another district.

American Council on Education Action Agenda for College and University Presidents

1. Take the lead in moving the education of teachers to the center of the institutional agenda.
2. Articulate the strategic connection of teacher education to the mission of the institution.
3. Undertake campus-wide review of the quality of the institution's teacher education programs.
4. Commission rigorous, periodic, independent appraisals of teacher education program quality.
5. Coordinate Education Faculty and Courses with those in Arts and Sciences.
6. Ensure that teacher education programs have necessary equipment, facilities, and personnel to educate future teachers in the uses of technology.
7. Advocate for graduate education, scholarship, and research in the education of teachers.
8. Strengthen inter-institutional transfer and recruitment processes.
9. Ensure that teacher education graduates are supported, monitored, and mentored.
10. Join with other opinion leaders to speak out on issues associated with teachers and teaching and to shape public policy.

Source: American Council on Education, *To Touch the Future: Transforming the Way Teachers are Taught: An Action Agenda for College and University Presidents*, Washington, DC: ACE, 1999.

on-the-job supervision (Wright, McKibbin, and Walton, 1987, 124).

STRATEGIES FOR SUSTAINING HIGH QUALITY TEACHER EDUCATION IN CALIFORNIA

Lee Shulman (1987), president of the Carnegie Foundation for the Advancement of Teaching, notes that “the integral relationships between teaching and the scholarly domains of the liberal arts makes clear that teacher education is the responsibility of the entire university, not the schools or departments of education alone.” Presidents of U.S. colleges and universities are increasingly recognizing that their support of professional preparation for teaching – the profession on which all other professions depend – is a mission critical to the future of all communities and requiring the involvement of their institutions as a whole. In the fall of 1999, a broadly representative task force of the American Council on Education issued a report affirming ten action steps for presidents of colleges and universities (see sidebar). This agenda addresses the issues of institutional priority and coordination, program quality and accountability, support for recruitment and retention of teachers, and involvement in policy influencing teachers and their preparation for high quality teaching.

These commitments are perhaps most important in California – the nation's largest, most diverse, and arguably most technologically-advanced state in which all of the challenges of 21st century education are most profoundly joined. Creating an infrastructure for high quality teaching in California will require both serious, sustained commitments from the state's universities to the creation of powerful programs of teacher education and equally serious, sustained commitments from

the State's policy community to the creation of a profession of teaching that can attract, honor, support, and retain well-prepared teachers. This analysis points to at least three potentially productive areas of programmatic effort.

1. Support high-quality teacher preparation on individual campuses and in the state as a whole, especially for hard-to-staff schools:

- Ensure that teacher education programs have adequate and expert staffing, a strong, coherent core curriculum that represents up-to-date knowledge, incentives for collaboration among arts and sciences and education faculty, and support for high-quality clinical experiences.
- Provide incentives for the design and/or expansion of teacher education programs that reflect the features of effective programs, including extended (integrated 4-1/2 to 5-year) models that provide entering teachers with adequate grounding in their content areas (the equivalent of a major in their teaching field at the secondary level or an appropriately distributed program of content studies at the elementary or middle level) and a thorough program of preparation for teaching that integrates subject matter and pedagogy, reflects student learning standards and up-to-date teaching standards, and takes into account the needs of diverse students. Such a program should include intensive coursework in language acquisition, literacy development, learning and learning differences, curriculum, assessment, and uses of technology along with extended and well-supervised clinical

training (preferably a full year) under the guidance of expert teachers in sites where state-of-the-art practice is modeled. Clinical work should be closely linked to coursework on how children learn and how learners with different needs can be taught challenging content.

- Support school-university professional development school and district (PDS) partnerships that enable new and veteran teachers to develop state-of-the-art practice in settings that are focused on the support of both student and teacher learning. Wherever possible, develop such partnerships in high-need schools and districts so that new teachers are prepared to teach effectively in the areas where they are most needed.
- Expand preparation programs and increase candidate supports in areas of highest need, including mathematics, science, computer technology, special education, and teaching of English language learners as well as support for minority candidates and recruits who commit to teaching in hard-to-staff schools.
- Expanded pathways into teaching for para-professionals and other students via community college to college teacher preparation program articulation and student supports.
- Strengthen supports for program graduates, including mentoring assistance and ongoing professional development opportunities to support their growing content knowledge and instructional skill needed to prepare students to meet the new academic standards.



2. Support stronger accountability for all teacher education programs and pathways:

- Encourage serious external quality review of campus-based programs, including professional accreditation.
- Insist on rigorous standards for all programs that prepare teachers – including both university-based and field-based programs – against a common set of professionally acceptable standards for teaching.
- Provide support for examining the outcomes of individual teacher education programs, including placement efforts and outcomes, feedback from graduates and employers about preparedness, and graduates' practices on the job.

3. Contribute to high quality professional development:

- Continue to expand the supply of high quality professional development that is meeting teacher needs, especially in the most educationally needy school districts, such as the California Subject Matter Projects, professional development support for the pursuit of National Board Certification, and training for teacher leaders who assume roles as mentors, curriculum leaders, and
- Support new training programs for administrators that emphasize teaching and learning, instructional leadership, and the design of more effective schools that better support student and teacher learning.

In addition to supports for teacher education on college and university campuses, it will be important for all members of California's education and policymaking communities to support policies that will help attract and retain qualified and competent teachers for every child, including:

- Higher and more equalized salaries for fully qualified teachers (competitive with salary levels of accountants) and more equal allocations of teaching resources across districts.
- Expanded APLE loans and CAL T Grants that support the preparation of prospective teachers, especially for short-age fields and locations.
- Targeted incentives for improving working conditions (smaller pupil loads, more shared planning and professional development time, more adequate teaching resources, more personalized school designs, and stronger mentoring) in hard-to-staff schools.
- Reciprocity with other high standards states and recruitment from states with surpluses of qualified teachers.
- Streamlined licensing and hiring systems and a redesigned licensure testing system featuring a parsimonious set of valid, high-quality tests that are strongly related to teaching ability and easily available to candidates at reasonable cost.

- Incentives for eliminating the hiring of unqualified teachers, including phasing out of emergency permits and waivers over the next five years and re-allocation of funds currently used to support sub-standard pathways into teaching for the support of high quality preparation programs.

The support of elementary and secondary school teaching is a vital mission for institutions of higher education both for its influences on future college students and its influences on the strength of the nation as a whole. Work on the pedagogy of teaching in the disciplines and the professions within higher education departments and schools is equally important to the preparation of future teachers and all other graduates of colleges and universities. To create powerful teaching in education, institutions throughout this country will require the concerted effort of university and school-based faculty working with policymakers and community leaders who want to build a system of professional schools of education that rival our universities' schools of medicine, law, architecture, and engineering. It will also clearly require the leadership of university presidents and chancellors who agree with Vanderbilt University chancellor Joe Wyatt that, "Our nation's future depends on a high-quality public education system and a superior force of educators. There is no more important work."

REFERENCES

Adams, R., Hutchinson, S., & Martray, C. (1980, April). *A developmental study of teacher concerns across time*. Paper presented at the American Educational Research Association Annual Meeting, Boston, MA.

Adelman, Nancy E. (1986). *An exploratory study of teacher alternative certification and retraining programs*. Washington, DC: Policy Study Associates.

American Association for Employment in Education (AAEE) (1998). *Teacher supply and demand in the United States: 1997 Report*. Evanston, IL: Author.

American Council on Education. (1999). *To touch the future: Transforming the way teachers are taught: An action agenda for college and university presidents*. Washington, DC: Author.

Andrew, M. (1990). The differences between graduates of four-year and five-year teacher preparation programs. *Journal of Teacher Education*, 41, 45-51.

Andrew, M. D., & Schwab, R. L. (1995). Has reform in teacher education influenced teacher performance?: An outcome assessment of graduates of eleven teacher education programs. *Action in Teacher Education*, 17(3), 43-53.

Arch, E. C. (1989, March). *Comparisons of student attainment of teaching competence in traditional preservice and fifth-year master of arts in teaching programs*. Paper presented at the annual meeting of the American Educational Research Association, San Francisco, CA.

Armour-Thomas, E., Clay, C., Domanico, R., Bruno, K., & Allen, B. (1989). *An outlier study of elementary and middle schools in New York City: Final report*. New York: New York City Board of Education.

Ashton, P., & Crocker, L. (1986). Does teacher certification make a difference? *Florida Journal of Teacher Education*, 38(3), 73-83.

Ball, D., & Cohen, D. (1999). Developing practice, developing practitioners: Toward a practice-based theory of professional education. In L. Darling-Hammond & G. Sykes (Eds.), *Teaching as the learning profession: A handbook of policy and practice*. San Francisco: Jossey Bass.

Begle, E. G. (1979). *Critical variables in mathematics education*. Washington, DC: Mathematical Association of American and National Council of Teachers of Mathematics.

Bents, M., & Bents, R. (1990, March). *Perceptions of good teaching among novice, advanced beginner and expert teachers*. Paper presented at the Annual Meeting of the American Educational Research Association, Boston, MA.

Bliss, T. (1992). Alternative certification in Connecticut: Reshaping the profession. *Peabody Journal of Education*, 67 (3), 35-54 (Spring 1990, published 1992).

Beaudin, B. (1993). Teachers who interrupt their careers: Characteristics of those who return to the classroom. *Educational Evaluation and Policy Analysis*, 15(1), 51-64.

Beaudin, B. (1995). Former teachers who return to public schools: District and teacher characteristics of teachers who return to the districts they left. *Educational Evaluation and Policy Analysis*, 17(4), 462-475.

Brunsmann, B. & Carlson, R. (1999). *Annual report on the Praxis and SSAT examinations in English, mathematics and social science*. Sacramento, CA: California Commission on Teacher Credentialing.

California Commission for Teacher Credentialing (1998, June). *A report on issues involving the recruitment and retention of teachers prepared in other states*. Sacramento, CA: Author.

California Commission for Teacher Credentialing (1999, September 21). *Employment survey of newly credentialed teachers*. Sacramento, CA: Author.

California Department of Education, Educational Demographics Unit. (1999, October). *Statewide classroom teacher credential and experience report by county, 1998-1999*. Sacramento, CA: Author.

California Department of Finance. (1998). *California public K-12 projections by county, 1998 Series*. Sacramento, CA: Author.

Carter, K., & Doyle, W. (1987). Teachers' knowledge structures and comprehension processes. In J. Calderhead (Ed.), *Exploring Teacher Thinking*. London: Cassell, 147-160.

Choy, S. P., et al. (1993, July). *Schools and Staffing in the United States: Selected Data for Public and Private Schools, 1990-91*. Washington, DC: National Center for Education Statistics.

Cohen, D. & Das, H. (1996). *The need for teachers in California*. (Working paper series, Policy Analysis for California Education). Berkeley, CA: University of California at Berkeley.

Cooper, E. J. & Sherk, J. (1989). Addressing Urban School Reform: Issues and Alliances. *Journal of Negro Education*, 58 (3), 315-31.

Cornett, L. (1992). Alternative certification: state policies in the SREB states. *Peabody Journal of Education*, 67 (3), 55-83 (Spring 1990, published in 1992).

Council on School Performance (1997). *Teachers with advanced degrees advance student learning*. Atlanta: Council for School Performance, Georgia State University.

Darling-Hammond, L. (1992). Teaching and knowledge: Policy issues posed by alternative certification for teachers. *Peabody Journal of Education*, 67 (3), 123-154.

Darling-Hammond, L. (1997). *Doing what matters most: Investing in quality teaching*. New York: National Commission on Teaching and America's Future.

Darling-Hammond, L. (2000a) *Solving the dilemma of teacher, supply, demand, and quality*. New York: National Commission on Teaching and America's Future.

Darling-Hammond, L. (2000b). *Teacher quality and student achievement: A review of state policy evidence*. Seattle: Center for the Study of Teaching and Policy, University of Washington.

Darling-Hammond, L., Hudson, L., & Kirby, S. N. (1989). *Redesigning teacher education: Opening the door for new recruits to science and mathematics teaching*. Santa Monica: The RAND Corporation.

Darling-Hammond, L., Wise, A. E., & Klein, S. (1995). *A license to teach: Building a profession for 21st century schools*. Boulder: Westview Press.

Denton, J. J., & Peters, W. H. (1988). *Program assessment report curriculum evaluation of a non-traditional program for certifying teachers*. Unpublished report. College Station, TX: Texas A&M University.

Doyle, W. (1986). Teacher education as part-time work. *Teacher Education Quarterly*, 13(1), 37-40.

Druva, C. A., & Anderson, R. D. (1983). Science teacher characteristics by teacher behavior and by student outcome: A meta-analysis of research. *Journal of Research in Science Teaching*, 20(5), 467-479.

Dyal, A. B. (1993). *An exploratory study to determine principals' perceptions concerning the effectiveness of a fifth-year preparation program*. Paper presented at the annual meeting of the Mid-South Educational Research Association, New Orleans, LA.

Ebmeier, H., Twombly, S., & Teeter, D. J. (1991). *The comparability and adequacy of financial support for schools of education*. *Journal of Teacher Education*, 42, 226-235.

Evertson, C., Hawley, W., & Zlotnick, M. (1985). Making a difference in educational quality through teacher education. *Journal of Teacher Education*, 36(3), 2-12.

Feiman-Nemser, S., & Parker, M. (1990). Making subject matter part of the conversation in learning to teach. *Journal of Teacher Education*, 41(3), 32-43.

Ferguson, R. F. (1991). Paying for public education: New evidence on how and why money matters. *Harvard Journal on Legislation*, 28(2), 465-498.

Ferguson, R. F., & Ladd, H. F. (1996). How and why money matters: An analysis of Alabama schools. In Helen Ladd (Ed.), *Holding Schools Accountable*: 265-298. Washington, DC: Brookings Institution.

Fetler, M. (1997, January). Where have all the teachers gone? *Education Policy Analysis Archives*, 5 (2). [On-line], <http://olam/ed.asu.edu/epaa/v5n2.html>.

Fetler, M. (1999, March 24). High school staff characteristics and mathematics test results. *Education Policy Analysis Archives*, 7. [On-line], <http://epaa.asu.edu>.

Ford, Lillie. (1999, October). California Commission on Teacher Credentialing. Personal correspondence.

Fuller, E. J. (1999). *Does teacher certification matter? A comparison of TAAS performance in 1997 between schools with low and high percentages of certified teachers*. Austin: Charles A. Dana Center, University of Texas at Austin.

Glassberg, S., & Sprinthall, N. A. (1980). Student teaching: A developmental approach. *Journal of Teacher Education*, 31(2), 31; 35-38.

Gomez, D. L., & Grobe, R. P. (1990, March). *Three years of alternative certification in Dallas: Where are we?* Paper presented at the annual meeting of the American Educational Research Association, Boston, MA.

Goodlad, J. (1990). *Teachers for our nation's schools*. San Francisco, CA: Jossey Bass.

Grady, M., Collins, P., & Grady, E. (1991, October). *Teach for America: Evaluation report 1991 summer institute*. Unpublished report.

Grey, L., Cahalan, M., Hein, S., Litman, C., Severynse, J., Warren, S., Wisan, G., & Stowe, P. (1993). *New teachers in the job market*. 1991 update. Washington, D. C.: U. S. Department of Education, Office of Educational Research and Improvement.

Greenwald, R., Hedges, L., & Laine, R. (1996). The effects of school resources on student achievement. *Review of Educational Research*, 66 (3), 361-396.

Grossman, P. (1989). Learning to teach without teacher education. *Teachers College Record*, 91 (2), 191-208.

Grossman, P. (1990). *The making of a teacher: Teacher knowledge and teacher education*. New York : Teachers College Press, Teachers College, Columbia University.

Guyton, E., & Farokhi, E. (1987). Relationships among academic performance, basic skills, subject matter knowledge and teaching skills of teacher education graduates. *Journal of Teacher Education* 38 (5), 37-42.

Hansen, J. B. (1988). *The relationship of skills and classroom climate of trained and untrained teachers of gifted students*. Unpublished doctoral dissertation, Purdue University.

Hawk, P., Coble, C. R., & Swanson, M. (1985). Certification: It Does Matter, *Journal of Teacher Education*, 36 (3), 13-15.

Howard, R., Hitz, R., & Baker, L. (1997). *Comparative study of expenditures per student credit hour of education programs to programs of other disciplines and professions*. Montana State University-Bozeman.

Howey, K. R., & Zimpher, N. L. (1989). *Profiles of preservice teacher education*. Albany, NY: State University of New York.

Jelmberg, J. (1995). College-based teacher education versus state-sponsored alternative programs. *Journal of Teacher Education*, 47 (1), 60-66. (Jan-Feb 1996).

Knoblock, G. A. (1986). Continuing professional education for teachers and its relationship to teacher effectiveness. (Doctoral dissertation, Michigan State University, 1986). *Dissertation Abstracts International*, 46 (02), 3325A, (University microfilms no. AAC85-29729)

Lenk, H. A. (1989). *A case study: The induction of two alternate route social studies teachers*. Unpublished doctoral dissertation, Teachers College, Columbia University.

Los Angeles County Office of Education. (1999, May). Teacher quality and early reading achievement in Los Angeles County public schools. *Trends: policy issues facing Los Angeles County public schools*, 6 (2).

Lutz, F. W., & Hutton, J. B. (1989). Alternative teacher certification: Its policy implications for classroom and personnel practice. *Educational Evaluation and Policy Analysis*, 11 (3), 237-254.

McKibbin, M. D., & Schrup, M. G. (1995). Alternative certification program options in CA. *Issues in Teacher Education* 4 (1), 5-11.

McKibbin, M. D. (1998). *Teaching internship programs: Alternative preparation and licensure in California: Purposes, procedures and performance*. Sacramento, CA: California Commission on Teacher Credentialing.

McKibbin, M. D., & Giblin, H. (1999, March). *A study of the effectiveness of the Education Specialist District Intern Pilot Program in Los Angeles Unified School District: A report to the Legislature*. Sacramento, CA: California Commission on Teacher Credentialing.

Miller, L., & Silvernail, D. (1994). Wells Junior High School: Evolution of a professional development school. In L. Darling-Hammond (Ed.), *Professional development schools: Schools for developing a profession*. NY: Teachers College Press.

Mitchell, N. (1987). *Interim evaluation report on the alternative certification program*. (REA87-027-2). Dallas, TX: DISD Department of Planning, Evaluation and Testing.

National Assessment of Educational Progress (1994). *1992 NAEP Trial State Assessment*. Washington, D.C.: U.S. Department of Education.

National Board for Professional Teaching Standards (NBPTS) (1989). *Toward high and rigorous standards for the teaching profession*. Detroit: Author.

National Center for Education Statistics (NCES). (1993). Recent College Graduates Survey, 1991. *The Digest of Education Statistics*. Washington, DC: U.S. Department of Education.

- National Center for Education Statistics (NCES) (1996). *Schools and Staffing in the United States: A Statistical Profile, 1993-94*. Washington, DC: U.S. Department of Education.
- National Center for Education Statistics (NCES). (1997). *America's teachers: Profile of a profession*. Washington, DC: U.S. Department of Education.
- National Center for Education Statistics (NCES) (1998). *Projections of education statistics to 2007*. Washington, DC: U.S. Department of Education.
- National Commission on Teaching and America's Future (NCTAF) (1996). *What matters most: Teaching for America's future*. New York: Author.
- Nelson, H., & Schneider, K. (1999). *Survey and Analysis of Teacher Salary Trends, 1998*. Washington, DC: American Federation of Teachers.
- Organization for Economic Cooperation and Development (OECD) (1995). *Education at a glance: 1995*. Paris: Author.
- Perkes, V .A. (1967-1968). Junior high school science teacher preparation, teaching behavior, and student achievement. *Journal of Research in Science Teaching*, 6 (4), 121-126.
- Pogodzinski, J. M. (1999). *The teacher shortage: Causes and recommendations for change*. San Jose: Department of Economics, San Jose State University.
- Rottenberg, C. J., & Berliner, D. C. (1990, March). *Expert and novice teachers' conceptions of common classroom activities*. Paper presented at the Annual Meeting of the American Educational Research Association, Boston, MA.
- Sanders, S. L., Skonie-Hardin, S. D., & Phelps, W. H. (1994, November). *The effects of teacher educational attainment on student educational attainment in four regions of Virginia: Implications for administrators*. Paper presented at the Annual Meeting of the Mid-South Educational Research Association.
- Shapiro, M. (1993). *Who will teach for America?* Washington, DC: Farragut Publishing Company.
- Shields, P. M., Esch, C., Humphrey, D. C., Young, V. M., Gaston, M., & Hunt, H. (1999). *The status of the teaching profession: Research findings and policy recommendations. A report to the Teaching and California's Future Task Force*. Santa Cruz, CA: The Center for the Future of Teaching and Learning.
- Shin, H. (1994). *Estimating future teacher supply: An application of survival analysis*. Unpublished manuscript. Paper presented at the Annual Meeting of the American Educational Research Association, New Orleans, LA.
- Schrag, P. (1999). *Back to Basics*. San Francisco, CA: Jossey-Bass Inc.

Shulman, L. (1987). Knowledge and teaching: Foundations of the new reform. *Harvard Educational Review*, 57 (1), 1-22.

Silvernail, D., & Imbimbo, J. (1999). *Prepared to teach? Key findings of the New York City Teacher Survey*. New York: New Visions for Public Schools Policy and Research Series.

Skipper, C. E., & Quantz, R. (1987). Changes in educational attitudes of education and arts and science students during four years of college. *Journal of Teacher Education*, 38 (3), 39-44.

Stoddart, T. (1992). An alternate route to teacher certification: Preliminary findings from the Los Angeles Unified School District Intern Program. *Peabody Journal of Education*, 67 (3).

Stone, B. & Mata, S. (1998, April). *Fast-track teacher education: Are we adequately preparing teachers for California's class-size reduction?* Paper presented at the annual meeting of the American Educational Research Association, San Diego, CA.

Taylor, J. K., & Dale, R. (1971). *A survey of teachers in the first year of service*. Bristol: University of Bristol, Institute of Education.

Tierney, D. (1993). *A study of the employment patterns of recent graduates of California teacher education programs and the employment decisions of a selected sample of California school districts*. Unpublished study. Sacramento: California Commission on Teacher Credentialing.

Turley, S. & Nakai, K (1998, April). *When emergency permits abound: Student teaching in the wake of California's class size reduction initiative*. CSU Long Beach and UC Irvine. Paper presented at the annual meeting of the American Educational Research Association, San Diego, CA.

Wright, D. P., McKibbin, M., & Walton, P. (1987). The effectiveness of the teacher trainee program: An alternative route into teaching in California. Sacramento, CA: California Commission on Teacher Credentialing.

Zeichner, K. (1993, February). Traditions of practice in U.S. preservice teacher education programs. *Teaching and Teacher Education*, 9, 1-13.

Zumwalt, K. (1990). Alternative routes to teaching: Three alternative approaches. *Journal of Teacher Education*, 42 (2), 83-92. (Mar-Apr 1991).