



Archived Information
PLANNING AND EVALUATION SERVICE

**Preparing and Supporting New Teachers:
A Literature Review**

Prepared for:

U. S. Department of Education
Planning and Evaluation Service
Washington, D.C.

Prepared by:

SRI International
Menlo Park, CA

2000

U.S. DEPARTMENT OF EDUCATION ~ OFFICE OF THE UNDER SECRETARY



PREPARING AND SUPPORTING NEW TEACHERS: A LITERATURE REVIEW

Prepared by:

SRI International
Daniel C. Humphrey
Nancy Adelman
Camille Esch
Lori M. Riehl
Patrick M. Shields
Juliet Tiffany

Prepared for:

Ms. Elizabeth Eisner
Planning and Evaluation Service
U.S. Department of Education
Office 6W210
400 Maryland Avenue, S.W.
Washington, DC 20202

SRI Project 10343
Task Order No. 27
RTI/SRI Subcontract No. 3-36U-6742

September 2000

CONTENTS

Chapter I. Introduction	1
References for Chapter I	3
Chapter II. Improving Teacher Education	5
Traditional Teacher Preparation Prior to the Mid-1980s	5
Teacher Education Reform Initiatives: Mid-1980s to Early 1990s	8
Teacher Education Reform: The Mid-1990s to the Present	12
Trends in Research on Teacher Education	17
Partnerships—An Important Feature of Current Reforms in Teacher Education.	20
Impacts and Outcomes of Teacher Preparation Reform Efforts: 1985-99	30
References for Chapter II	32
Chapter III. Strengthening the Initial Certification of Teachers	37
Defining Certification and Licensing	38
Shortcomings of the Current System	38
New Requirements and Emerging Reforms	40
Cut Scores	50
Performance-Based Assessment of Teaching	53
Research on the Impact of New Licensing and Certification Requirements	56
Needed Research and Methodological Issues	58
References for Chapter III	60
Chapter IV. Building Alternative Routes into the Profession	63
Incidence of Alternative Routes to Licensure	64
General Characteristics of Alternative Programs	72
Descriptions of Alternative Programs and Their Evaluations	74
Evaluations of Alternative Programs	83
Needed Research and Methodological Issues	85
References for Chapter IV	89
Chapter V. Supporting New Teachers' Induction into the Profession	95
Incidence of State Efforts to Reform the Profession	96
Characteristics of Induction Programs	106
Impacts/Outcomes	116
Lessons Learned	122
Methodological Issues	124
References for Chapter V	125

CONTENTS (Concluded)

Chapter VI. Conclusion: The State of the Research	131
What the Research Tells Us	131
Research and the Era of Accountability	132
References for Chapter VI	135

EXHIBITS

Chapter II

Exhibit II-1	Average Course Unit Requirements for Education Majors	7
--------------	---	---

Chapter III

Exhibit III-1	Broad Academic Requirements for the Initial Teaching Certificate ...	42
Exhibit III-2	Assessment Requirements for Initial Teacher Licensure	48
Exhibit III-3	State Minimum Passing Scores on the ETS Praxis Pre-Professional Skills Tests (PPST)	51
Exhibit III-4	State Minimum Passing Scores on the ETS Praxis Content Area Tests and the Professional Knowledge Test	52

Chapter IV

Exhibit IV-1	Incidence of Alternative Licensure Programs	67
Exhibit IV-2	Percentage of Teachers Receiving Licenses through Alternative Programs, 1993-98	71
Exhibit IV-3	Percentages of New Texas Public School Teachers, by Route and Ethnicity, 1996-97	78

Chapter V

Exhibit V-1	Incidence of State Efforts to Reform Induction: History, Funding, and Description	99
Exhibit V-2	Incidence of State Efforts to Reform Induction: Key Program Characteristics.....	103

I. INTRODUCTION

In the 2000-2001 school year, we are 17 years into successive waves of educational reform that began in 1983, when the National Commission on Excellence in Education issued its influential report *A Nation at Risk*. Specific reform strategies and emphases have waxed and waned during this period—for example, increased high school graduation requirements, organizational restructuring of schools, debate over the effectiveness of various pedagogical approaches, establishment of the National Education Goals, and “systemic” reform as represented by the development, alignment, and implementation of statewide content and performance standards for what students should know and be able to do.

Very recently, reform attention has zeroed in on teachers—their preparation and their ongoing professional development. Ample evidence of this focus emerged at the September 1999 National Education Summit, where the following statement of commitment was made:

To ensure a high quality teacher in every classroom, governors, business leaders, and education leaders will work together in our states to strengthen the entry and exit requirements of teacher-preparation programs and require them to demonstrate that graduates are prepared to teach to the state’s academic standards, and are technologically literate. (National Education Summit. 1999)

In President Clinton’s call to put 100,000 new teachers in America’s classrooms, in the reauthorized Higher Education Act’s focus on increased state capacity to support teachers, and in numerous states’ own initiatives (Hirsch, Koppich, & Knapp, 1998), the combination of strengthening and expanding the teaching workforce has come to be seen as the one best hope of improving the achievement of American students (NCTAF, 1996).

Current recommendations emphasize the development of teachers as caring, accomplished professionals, coupled with the goal of radically improving the interaction between teachers and students (e.g., Darling-Hammond, 1997). The assumption underlying these efforts is that what happens between teacher and student is at the core of the educational enterprise; consequently, the best hope of raising student achievement dramatically is to make substantial changes in the quality of interaction between teachers and students.

Policies targeting improved teaching and better classrooms reflect both smart politics and sound research. National opinion polls show teacher quality as one of the two most important policy-relevant problems in America's schools (RNT, 1999). Research also has shown that teachers' skills and knowledge are key determinants of students' opportunities to learn (Ferguson, 1998; Haycock, 1998). In short, as policy-makers struggle to craft solutions to the problems confronting schools, they are turning to policies that reflect the will of the majority of the public and that have some basis in research.

But as policy-makers seek to implement policies focusing on improving teachers, they face a new challenge: simultaneously increasing the quality and the quantity of the teacher workforce. Holding all students to higher standards of performance calls for teachers with new skills and knowledge. Rising student enrollments and efforts to reduce class size require a larger teaching workforce. The tension involved in formulating policies that meet both these objectives is apparent in much of the ensuing discussion.

In this document, we review what is known about a series of efforts to improve the teacher workforce. We begin with a discussion of teacher preparation, then review initial certification and alternative certification policies, and then turn to induction support for new teachers. In each section, we describe the extent and nature of relevant reform initiatives, describe their defining characteristics, and review what is known about their impacts. We also discuss major methodological issues and raise questions for further research.

References for Chapter I

- Darling-Hammond, L. (1997). *Doing what matters most: Investing in quality teaching*. New York: National Commission on Teaching and America's Future.
- Ferguson, R. (1998). Can schools narrow the Black-White test score gap? In C. Jencks & M. Phillips (Eds.), *The Black-White test score gap*. Washington, DC: The Brookings Institution.
- Haycock, K. (1998, Summer). Good teaching matters: How well-qualified teachers can close the gap. *Thinking K-16*, 3(2), 1-2. Available on the World Wide Web: <http://www.edtrust.org/K16.pdf>
- Hirsch, E., Koppich, J. E., & Knapp, M. S. (1998). *What states are doing to improve the quality of teaching: A brief review of current patterns and trends*. Seattle, WA: Center for the Study of Teaching and Policy.
- National Commission on Teaching and America's Future (NCTAF). (1996). *What matters most: Teaching for America's future*. New York: Author.
- National Education Summit. (1999). 1999 action statement. Retrieved November 3, 1999, from the World Wide Web: <http://www.summit99.org/press/actionstatement.html>
- Recruiting New Teachers, Inc. (RNT). (1999). *Learning the ropes: Urban teacher induction programs and practices in the United States*. Belmont, MA: Author.

II. IMPROVING TEACHER EDUCATION

Within the context of increasing attention to issues of teacher quality, reform of the ways in which we prepare teachers has received particular attention. In the mid- to late 1980s, the work of the Holmes Group (now the Holmes Partnership)—a voluntary association of education deans from 100 major research universities—resolved to make teacher preparation a priority on their own campuses. However, the Holmes Group initiative lost momentum before making a noticeable impact on the structure of teacher education in the states and on university campuses (Fullan, Galluzzo, Morris, & Watson, 1998). In the mid-1990s, the National Commission on Teaching and America's Future (NCTAF) a national commission comprised of educators at all levels—from teachers to union leaders to congressional representatives, offered a blueprint for meeting the objectives of improving teacher preparation (NCTAF, 1996). According to NCTAF, our system for preparing teachers is broken and in need of a serious overhaul if we are to have the high-quality teachers that our children deserve.

However, despite these and other serious discussion about the need to strengthen teacher preparation programs, there are major roadblocks to overcome—some of them within institutions of higher education and some in the policy environment. For example, as the National Association of State Boards of Education (NASBE) points out, policy-makers face the challenge of raising standards for teacher preparation on the eve of serious teacher shortages as the baby boom generation retires (presentation by Virginia Roach at National Partnership for Excellence and Accountability in Teaching Forum, October 5, 1999).

The research presented in this chapter is organized around three time periods: (1) the period prior to the onset of several stages of education reform efforts that followed the publication of the influential report *A Nation at Risk* in 1983; (2) the first wave of reform initiatives directed specifically at teacher preparation, roughly from 1985 to the early 1990s; and (3) the second reform wave that carries us forward to the present.

Traditional Teacher Preparation Prior to the Mid-1980s

Teacher education programs are offered by about 1,300 public and private colleges and universities in the United States.¹ These include public land grant institutions, public

¹ Data from ED's Integrated Postsecondary Education Data System (IPEDS) show that 1,140 institutions of higher education (IHEs) awarded bachelor's degrees in education in 1995-96. In 1994-95, the number

non-land-grant institutions, sectarian liberal arts colleges, private independent colleges, and private universities. Over 60 percent of the institutions conferring bachelor's degrees in education in 1995-96 were private. However, 74 percent of the education degrees awarded in that year were from public institutions of higher education (IHEs).

Generally speaking, the largest proportion of America's teachers are prepared in master's-degree-granting, state-sponsored colleges and universities serving a particular region of a state. For example, in Maryland, the IHE with the largest number of teacher candidates is Towson University in the Baltimore suburbs. Towson's history is typical of many teacher preparation institutions. In 1866, it was established as a 2-year normal school to prepare high school graduates to teach in K-8 schools. In 1935, the school became the Maryland State Teacher College at Towson, offering the baccalaureate degree in multiple fields. University status and the authority to offer master's degrees came in 1976.

Most teachers who are in classrooms today were prepared to teach by schools, colleges, and departments of education during the 1960s, 1970s, and 1980s. During that period, teacher education programs typically required prospective teachers to enroll in a combination of liberal arts and education courses. Education courses traditionally included the social and psychological "foundations" underlying teaching and learning, curriculum courses, training in instructional strategies, and student teaching (AACTE, 1988).²

Teacher preparation programs leading to state certification differed for elementary and secondary school candidates. The typical program for prospective elementary school teachers involved a total of about 130 semester hours³. According to the American Association of Colleges for Teacher Education (AACTE), the typical program for undergraduates preparing to be secondary school teachers in the early to mid-1980s

was 1,152, indicating a gradual decline in the number of institutions that are preparing teachers. However, a recent report from the Center for Education Information shows a different trend, asserting that the number of colleges and universities offering initial preparation programs for K-12 teachers grew from 1,287 in 1984 to 1,354 in 1999. The 1998-99 NASDTEC Manual reports 1,363 schools of education.

² The AACTE reports cited in this section are in the organization's RATE series, which provided data on the characteristics of schools, colleges, and departments of education (SCDEs) for 8 years from the late 1980s through the mid-1990s. RATE reports were based on surveys distributed to a random sample of programs that were members of AACTE. Response rates were generally decent (70 percent range), but not as high as NCES standards require.

³ Generally 1 semester hour or unit is equivalent to one class period of in-class work per week for one semester. Sometimes graduate or laboratory courses require 3 hours of in-class time for one semester hour unit.

required them to complete 135 semester hours—approximately one course more than elementary education majors (AACTE, 1987).

**Exhibit II-1
AVERAGE COURSE UNIT REQUIREMENTS FOR EDUCATION MAJORS**

Requirements	Semester Credits: Elementary Education Majors	Semester Credits: Secondary Education Majors	Comments
General studies	58	52	First 2 years
Professional education	42	16	
Academic major	--	39	
Academic minor or concentration	20	18	
Student teaching	10	10	12–14 weeks
Total credits	130	135	

Source: American Association of Colleges for Teacher Education (1987).

Of the credits in professional education for elementary education majors, “teaching methods” generally accounted for 18 credits, including 6 in how to teach reading and 3 each in the other core elementary school subjects of math, social studies, natural science, and language arts. AACTE noted that prospective secondary school teachers often enrolled in more courses than required in order to complete their academic majors/minors and the courses required by the state for certification.

Since 1954, many schools, colleges, and departments of education (particularly those in the large, public institutions that produce many teachers) have voluntarily sought accreditation through the National Council for Accreditation of Teacher Education (NCATE). NCATE sets standards of quality for teacher education programs. Institutions that elect to participate in an NCATE review make elaborate preparations that can take a year or more and involve faculty in the college of arts and sciences as well as teacher education. NCATE forms teams of outside reviewers who visit the campus for several days and prepare a report that includes recommendations for needed improvements. In the 1980s, examples of the 18 standards that NCATE was using included (1) the requirement that programs maintain no more than an 18:1 student-teacher ratio in student teaching and other practicum components and (2) the requirement that the program admit only students who had maintained a 2.5 GPA in the first 2 years of college (NCATE,

1997). Within the national teacher education community, NCATE accreditation confers status on a program. In some states, teacher certification boards were known to issue teaching licenses to students who graduated from NCATE-approved institutions without actually examining their college transcripts (Gollnick & Kunkel, 1986).

Teacher Education Reform Initiatives: Mid-1980s to Early 1990s

During this approximately 10-year period, several prominent individuals and groups critiqued the general state of teacher education programs, proposed improvements, and, in some cases, undertook plans of action to change the status quo. At the time, criticisms of the traditional approach were based sometimes on research and sometimes on opinion.

Research-based reports

- Research indicated that many of the skills learned in pedagogy courses were keyed to the student teaching experience and never used again (Evertson, Hawley, & Zlotnik, 1985).
- Courses in pedagogy most often focused not on context-specific principles (e.g., how to teach high- and low-ability students, how to teach in urban classrooms) but on generic ones (Shulman, 1987).
- Teacher education curricula reflected a lack of unifying mission or clarity of goals (Howey & Zimpher, 1989).

Opinion

- Teachers complained that their professional education programs failed to prepare them on how to maintain discipline, teach especially difficult topics, motivate students, and respond to the problems of students from varied backgrounds (Carnegie Forum on Education and the Economy, 1986).
- Professional education courses were “intellectually demeaning” and discouraged talented students from entering the teaching profession (National Endowment for the Humanities, 1990).
- Education courses depended on lectures to tell prospective teachers that they should avoid overuse of lectures when they became teachers (The Holmes Group, 1986).

One of teacher education’s severest critics during this period was veteran teacher educator John Goodlad. On the basis of a study of 29 institutions, he pointed out that one factor contributing to the lack of quality in teacher education programs was the lack of social status of schools, colleges, and departments of education relative to that of universities’ academic departments and other professional schools. He also noted that in

many universities, many teacher preparation courses were taught by adjunct, part-time faculty rather than by tenured professors (Goodlad, 1990).

Goodlad and others also critiqued teacher education programs for their relatively low standards in admitting students—commonly a 2.5 GPA overall in the first 2 years of college (Goodlad, 1990; Goodlad, Soder, & Sirotnik, 1990). However, throughout the 1980s, the policy trend was toward greater selectivity by schools, colleges, and departments of education. In 1990, at least 21 states required applicants to take tests—typically basic skills (ETS’s National Teacher Exam, for example) or college entry exams (SAT or ACT)—for admission into teacher education programs (ETS, 1990). States set their own passing-score levels. Today, 36 states plus the District of Columbia and the U.S. Virgin Islands have shifted to using a newer ETS basic-skills instrument—Praxis I—for admission to teacher education programs. We discuss the current situation with respect to teacher testing in more detail in the section of this review covering from 1995 to the present.

Some teacher educators and researchers are critical of the use of tests for admission to teacher education programs. Howey and Zimpher (1989), for example, pointed out that raising admission standards is a relatively weak policy response to a perceived problem. First, they argue, the criteria used have limited predictive validity in terms of how students will succeed as teachers. Second, tightening the standards did little to assure that the teacher education programs themselves were rigorous and challenging.

A durable finding from surveys of teacher candidates over the decades has always been that student teaching is the most useful part of their preparation. But in the late 1980s and early 1990s, researchers also began to critique and question traditional approaches to this practical experience. Research findings and calls for reforms were not necessarily consistent with each other:

- Research indicated that, as a result of student teaching, candidates became more negative in their attitudes toward students and less interested in soliciting student ideas (Joyce, 1988).
- Student teachers tend to mimic the styles and attitudes of their cooperating teachers, who are the strongest influence on the student teaching experience. However, cooperating teachers often contradict the pedagogical skills taught in education schools, thus confusing the student teacher (Joyce, 1988; The Holmes Group, 1986; Edmundson, 1990).
- The role and importance of student teaching should be increased (Evertson, et al., 1985; Joyce, 1988).

In terms of the liberal arts programs that prospective teachers take, critics had for years alleged that education majors took a weak content base for the subjects that they were preparing to teach. Researchers began to explore this assertion during the 1980s and found the following, for example:

- Teacher candidates (including secondary school candidates) enrolled in fewer upper-level courses and fewer total courses in such disciplines as English, the natural sciences, math, history, and foreign languages (Olson, 1990).
- The number of science courses completed by teacher candidates was positively related to their later effectiveness as science teachers (Druva & Anderson, 1983).

The research base for assertions on the relationship between a strong liberal arts background and excellence in teaching performance has been thin, although more rigorous evidence is beginning to emerge (see, for example, the discussion later in this chapter on the recent report of the American Council on Education’s Presidents’ Task Force on Teacher Education and the discussion in “Research on the Impact of New Licensing and Certification Requirements” in Chapter III). Indeed, as policy pressure to increase liberal arts requirements for teachers (particularly secondary school teachers) built up in the 1980s, several highly respected researchers argued that there was little empirical evidence that teacher candidates needed deeper subject matter knowledge than what they generally already needed to be certified (Shulman, 1987; Evertson, et al., 1985).

Nevertheless, *belief* in the value of a strong liberal arts education for all teachers has been strong enough to lead to widespread change in state teacher education policies since the mid-1980s. Spurred on by the recommendations of groups such the Carnegie Forum on Education and the Economy and the Holmes Group, states began to take action. In 1990, 12 states—including California, New York, and Texas—had approved policies requiring at least some prospective teachers (usually those aspiring to teach grades 9-12 or 7-12) to select a major in the arts and sciences (Adelman, 1991). By 1995, the Council of Chief State School Officers reported that 19 states required prospective secondary teachers to major or minor in an academic area. CCSSO’s 1998 update raised the number to 21 states. Connecticut requires an academic major for all teacher candidates (Council of Chief State School Officers, 1998).

The 1986 report of the Carnegie Forum on Education and the Economy went even farther in its recommendations for the improvement of teacher education, advocating that all prospective teachers undertake a purely liberal arts program at the baccalaureate level,

reserving all professional coursework and training for a 2-year master's degree program. This proposal is still being hotly debated in the states and on the campuses of institutions that prepare teachers. One article estimates that 300 teacher preparation programs offer extended training programs (Darling-Hammond, 1998). Nevertheless, many prominent teacher educators reject the idea of adding a fifth year or fifth and sixth years as a route into teaching, for various reasons. According to Goodlad (1990), "Such measures increase the cost of becoming a teacher. When forgone salaries are considered, increasing the preservice period by one year actually doubles the cost of preservice education." One major conclusion from a 4-year effort called the Teacher Education and Learning to Teach (TELT) study was that changing teacher education program *structures* (i.e., 4-year vs. extended program) did not produce noticeable differences in teacher candidates' beliefs or knowledge about teaching practice. The conceptual orientation of a teacher education program could have an impact, but, more often than not, teacher candidates' beliefs and knowledge at the end of the program "were largely a function of their entering beliefs and knowledge" (National Center for Research on Teacher Learning, 1993).

However, in some places, the cumulative effects of state policies that increased both the academic and professional course requirements for teacher candidates are de facto making it nearly impossible for undergraduate students who wish to obtain a state teaching license to complete their bachelor's degree in 4 years. Maryland, with its new and rigorous requirements designed to make every teacher a teacher of reading, is a good case in point. Georgia faces a similar issue as its IHEs confront the implementation of the Board of Regents' 1998 Principles and Actions for the Preparation of Educators, which ultimately will require teacher education programs to "guarantee" their graduates. In both cases, the additional requirements make it difficult to attempt completion of all coursework in 4 years. As undergraduate education spills over into a fifth year, schools, colleges, and departments of education, as well as policy-making bodies, are likely to be revisiting the possibility of 5- or 6-year combined bachelor's and master's programs.

In the mid-1980s and early 1990s, some researchers rejected the decades-old debate about the proper balance between content and pedagogy in the preparation of teachers, arguing that the distinction was artificial and actually detrimental to the improvement of teaching. The federally funded National Center for Research on Teacher Learning (NCRTL) at Michigan State University took a leadership role in developing a promising line of inquiry on the relationship between teachers' subject matter knowledge and their pedagogical knowledge. On the basis of their research, they asserted the following:

- Teachers need both content knowledge and pedagogical subject matter knowledge. It is the blend of these two types of knowledge—plus understanding of how different children learn—that allows good teachers to help students disentangle their misconceptions and construct meaning from academic tasks (Kennedy, 1990).
- Regardless of the richness of their own subject matter background, teachers (or prospective teachers) frequently do not understand academic content in ways that allow them to explain things clearly to children (Ball, 1988).
- Because of their own educational experiences, teachers (and prospective teachers) develop different understandings of the nature of a subject. For many, mathematics is factual and routine. For others, it is a set of ideas or a method of reasoning (McDiarmid, Ball, & Anderson, 1989).

One implication of the Michigan State research was to point out that professors in the academic disciplines, as well as those in schools, colleges, and departments of education, have a large influence on how teachers teach. As a result of their research, Michigan State faculty set out to demonstrate a new approach to teacher education based on the idea of Professional Development Schools (promoted by the Holmes Group) involving school-university partnerships in the preparation of teachers and the continuing professional development of both practicing teachers and university faculty.

This model represented a synthesis of reform ideas about the improvement of teacher education in the early 1990s, and it continues to expand across the nation to this day. At that time, reform of teacher education and reform of K-12 education were proceeding on parallel, nonconnecting tracks. In the K-12 sector, the standards movement was born and took a number of years to grow up. By the mid- to late 1990s, the two reform sectors were beginning to converge.

Teacher Education Reform: The Mid-1990s to the Present

In 1994, the Rockefeller Foundation and the Carnegie Corporation joined forces to support the National Commission on Teaching and America's Future (NCTAF). The Commission issued its report—*What Matters Most: Teaching for America's Future*—in 1996. This research-based document (the Commission's Executive Director, Linda Darling-Hammond, states that several hundred research studies were reviewed) offered a policy-making agenda to improve American education that rested on three central arguments:

- What teachers know and can do is one of the most important influences on what students learn.

- Recruiting, preparing, and retaining good teachers is the central strategy for improving our schools.
- School reform cannot succeed unless it focuses on creating the conditions in which teachers can teach and teach well.

The NCTAF report put teacher quality issues front and center on the education reform stage in a way that earlier calls to improve the teaching profession had only partially succeeded in doing. Perhaps it was a matter of timing. Standards-based systemic reform efforts in most states had been steadily aligning many state K-12 curriculum and assessment policies, but in the mid-1990s, attention was just beginning to turn to the alignment of teacher licensure and certification and to teacher preparation. In fact, the national evaluation of the National Science Foundation's Statewide Systemic Initiatives (SSI) found that although some of the 25 participating states attempted to engage higher education in their systemic reform activities, they were largely unsuccessful in creating lasting relationships or in influencing the ways in which teachers are prepared (Zucker et al., 1998).

NCTAF suggested that assuring a high-quality teacher for every classroom must rely on a "three-legged stool" of high standards in all phases of the teaching career. One leg of that stool is accreditation of teacher education programs⁴. In the mid-1990s, the National Council for the Accreditation of Teacher Education (NCATE) revised its program review standards, aligning them with the curriculum standards developed by content area professional associations (e.g., National Council of Teachers of Mathematics). A decade-old report on teacher education noted that fewer than 500 institutions were NCATE accredited (Howey & Zimpher 1990). The new NCATE standards are currently being piloted, and there is considerable apprehension on many campuses about this process. Some states, such as Maryland, will now for the first time require all public teacher education programs to become NCATE accredited. [In the past, fewer than half of all teacher preparation institutions have been nationally accredited, although accredited institutions train about two-thirds of all new teachers (NCTAF, 1996).]

NCATE is a powerful player in national efforts to reform teacher education, but it is not without its critics. Dill (1998), for example, points out that analyses of teacher certification examination results in three states (including the low pass rates in Massachusetts) found that graduates of NCATE-accredited institutions fared no better

⁴ The other two legs of the stool are initial licensing (INTASC) and advanced certification (NBPTS) (NCTAF, 1996).

than graduates of nonaccredited teacher education programs. In the face of more stringent NCATE requirements and policy-driven mandates, some institutions (e.g., Michigan State University, Syracuse University, and the University of Delaware) that prepare teachers have mounted a protest, forming a new accrediting organization called the Teacher Education Accreditation Council (TEAC). TEAC currently has 62 members and affiliates (TEAC, 2000). Many of TEAC's members are small colleges for which the NCATE process is prohibitively expensive. However, some larger institutions have switched allegiance for philosophical reasons. TEAC, which was to undergo ED review to become an official accrediting body in 1999-2000, plans to adapt the concept of audit teams used in Great Britain and other European countries to review publicly funded universities. One difference between TEAC and NCATE is TEAC's intention to encourage colleges to rigorously define a quality program in their own context and undertake their own self-assessment, which the external audit teams will verify.

Tests also have become an increasingly prominent part of the teacher preparation process as the 1990s have progressed. In 1987, 13 states had no formal testing system in place for teacher candidates and 9 states used their own custom-made tests for their state's teacher candidates (OERI, 1987). In 1998-99, only seven states had no test requirements as part of the licensing process and tests used by states are much more standardized (Education Trust, 1999). Two publishers produce the tests that teacher candidates take. The Educational Testing Service markets four examinations: (1) Praxis I, a basic-skills test in reading, writing, and mathematics; (2) Praxis II, composed of subject area content tests; (3) the Core Battery, which examines general knowledge, professional knowledge, and communications; and (4) the older National Teacher Exam (NTE), which some states still require. The Core Battery and the NTE are being phased out. ETS is piloting a new comprehensive teacher test, Praxis III, in partnership with Ohio; early findings suggest that the test is a valuable assessment tool, but is too expensive to use for all teacher candidates at \$800 per teacher for the assessment (Villegas, 2000). The other publisher, National Evaluation Systems, designs state-specific examinations.

A common pattern of teacher testing found in the states is the use of Praxis I as an admissions test to the teacher education major (typically, a candidate would take the test in the sophomore year of college) and use of Praxis II as an exit exam/licensing requirement. States and/or campuses set the passing scores. Critics argue that the teacher tests are too easy and that the passing scores are benchmarked very low in most states. For example, on the Praxis II mathematics content tests, teacher candidates in

Pennsylvania and Georgia can pass with fewer than 50 percent of the items answered correctly (Education Trust, 1999).

ETS recently conducted a study on the impact of teacher testing on the quality of prospective teacher candidates (Gitomer, Latham, & Ziomek, 1999). By linking SAT and ACT scores to the scores of candidates taking the company's Praxis series, this study also was able to provide a more precise estimate of the academic ability of education majors in comparison with the general college population. (Previous research of this type has relied on SAT- and ACT-related surveys of high school students about their intended college majors—flawed data because many minds are changed in the first 2 years of college.) The study also analyzed student grades.

By the authors' own admission, the design of this ETS study requires many caveats—e.g., defining academic ability as an SAT or ACT score. Nevertheless, they argue that other research has made the link between teachers' verbal scores on standardized tests and student achievement (Ehrenberg & Brewer, 1995; Ferguson, 1998). Methodologically, the ETS study linked SAT and ACT college admissions test data from 1977-95 with data from more than 300,000 teacher candidates who took one or more tests in the Praxis series between 1994 and 1997. Their comparison analyses include (1) the SAT/ACT scores of all college-bound seniors with Praxis I takers and those Praxis takers who passed (based on the local cut score) and (2) the SAT/ACT scores of college graduates with Praxis II takers and those who passed. Their findings include the following:

- College students who pass Praxis I have SAT/ACT scores that are comparable to those of all college students in math and higher than those of all college students in the verbal/English area.
- College students who pass Praxis II (most likely as a step toward licensure) have SAT/ACT scores that are more similar to those of college entrants than to those of college graduates. In other words, those who choose a teaching career are generally not as high achieving as their college peers with respect to SAT scores.
- Praxis passing rates are higher for students who attend NCATE-accredited teacher education programs.
- Elementary education majors who pass Praxis II have SAT/ACT scores that are significantly lower than the average for all college graduates. However, English and mathematics majors who pass Praxis II (indicating that they are seeking certification in a content area) have significantly higher SAT/ACT scores than all college graduates.

The ETS study was able to disaggregate data by race and the authors conclude that if cut scores on teacher tests are raised, as many policy-makers in states are recommending, the quality of the teaching pool (as measured by SAT and ACT scores) will rise, “but the supply and diversity of the pool will fall...dramatically” (Gitomer et al., 1999, p. 3).

As we indicated in an earlier section of this chapter, some of the premises that were driving teacher education reform initiatives in the 1985-90 period rested on a weak research base. Throughout the 1990s, that base has been gradually strengthened and is currently driving policy, although the studies generally have not been specifically about teacher preparation programs. For example, the very recent report of the American Council on Education’s (ACE) Presidents’ Task Force on Teacher Education summarizes and cites several critical studies that support its findings and recommendations to college presidents (ACE, 1999):

- With respect to the issue of how important teacher quality is to student success, Rivkin, Hanushek, and Kain (1998) used Texas data to demonstrate that the influence of teachers on student achievement is far greater than any other variable. Their findings duplicate the research of Sanders and Rivers (1996) using Tennessee data.
- The Task Force asserts that, in the field of mathematics, the research connection has been made between more (1) college-level content courses, (2) certification in the discipline taught, and (3) effective teaching. (They cite Monk, 1994; Goldhaber & Brewer, 1999; Rowan, Chiang, & Miller, 1997.) The Goldhaber and Brewer study is based on reanalyses of the National Education Longitudinal Study: 88.
- Furthermore, a link has been made between the reading proficiency levels of teachers and the learning levels of their students (Ferguson & Ladd, 1996; Ferguson, 1998). To the Task Force, the math and reading research results are clear indicators that the standards for admission to teacher education must be strengthened.

The ACE Task Force commissioned its own study to analyze the characteristics of successful teacher preparation programs (Scannell, 1999). This work identified six relevant characteristics:

- (1) Arts and sciences faculty and education faculty work together.
- (2) The central administration of the IHE and school leaders work together.
- (3) There is an effective process of admission to teacher candidacy.
- (4) There is an induction process.

- (5) Program elements (e.g., subject matter learning and clinical practice) are well articulated.
- (6) There is a credible evaluation process for program quality and outcomes. [The Task Force offers a separate finding that acknowledges the teacher preparation system's weakness in assessing the quality of both graduates and programs, but points to trends in the states that call for more demanding, performance-based assessments (Sykes, 1999).]

The ACE report is an indicator that higher education has recognized that the next decade will be one of heightened accountability for the teacher preparation sector.

Trends in Research on Teacher Education

Research on teacher education is not particularly robust. Many studies have used small cohorts to investigate particular strategies for teacher preparation or to examine particular variables that are hypothesized to influence the practice of teacher candidates. A few newer research projects are just beginning to undertake comprehensive analyses of what constitutes "exemplary" teacher education. For example, AACTE has published a series of case studies of unique teacher education programs such as those offered by the Bank Street College of Education in New York City and Alverno College in Milwaukee, WI. Similarly, a federally funded study is examining teacher education policies and practices in a discrete set of states and institutions within states. In general the research on teacher education has been qualitative, with little emphasis on programmatic outcomes or accountability.

In this section, we rely primarily on syntheses of trends in research on teacher education in recent years. During the 1990s, much of the academic research on teacher preparation has focused on what it means to become a teacher, and many of the studies that are cited in research syntheses are micro ethnographic studies of an individual case or a small cohort of teacher candidates and beginning teachers (see, for example, Bullough, 1997). A number of themes run through this research:

- Prior experience and beliefs have a profound impact on the kind of teacher a candidate becomes (Bullough cites Griffiths & Tann, 1992; Pajares, 1992; and Johnston, 1992, among others).
- The nested contexts within which beginners learn to be teachers are important contributors to their success and satisfaction. Today, these contexts are often disconcerting. Novice teachers today are caught up in a postmodern world that Hargreaves (1994) describes as characterized by "accelerating change, intense compression of time and space, cultural diversity, technological complexity, national insecurity, and scientific uncertainty." The school system that they will

teach in, on the other hand, “continues to pursue deeply anachronistic purposes within opaque and inflexible structures.”

- In the 1990s, teacher preparation programs placed a great emphasis on the use of writing to document and uncover the developing conceptions of teaching in teacher candidates. Researchers reported positive outcomes from the use of many forms of writing: logs, journals, diaries, reflective reports, and autobiographical sketches (Bullough, 1997).
- “Action research,” in which various combinations of college faculty, teacher candidates, and practicing teachers identify “real” problems and work together to find answers, became a popular tool in teacher education, as did teaching “cases” that describe specific school and classroom issues in need of resolution and are used as the basis for discussion and professional growth for both preservice and inservice teachers (Bullough, 1997; Cochran-Smith & Lytle, 1999).

These lines of research are interesting and engage many teacher educators in communities and networks of scholars that are professionally rewarding. There is a humanistic quality to these research strands that is captured by the frequent use of terms such as “reflection” and “personal beliefs.” As Ducharme and Ducharme (1996) note, “While debate about what constitutes quality research continues, many scholars in the 1990s would recognize such areas of inquiry [e.g., reflective interpretations of beginning teachers’ experiences] as legitimate forms and subjects of *research* and would not term them *nonresearch*.” Certainly, the research questions asked and the lessons that have been learned through this body of research are not assessment or accountability driven and do not provide “hard” data about the quality or competence of new teachers.

There are newer research initiatives in teacher education that do not yet turn up in research syntheses. One is the Contextual Teaching and Learning (CTL) Project funded by ED’s Office of Vocational and Adult Education (OVAE). The partners in this research work are Ohio State University, Bowling Green State University, the Holmes Partnership, and USA Today Education. According to the project Web site, CTL is “a conception of teaching and learning that helps teachers relate subject matter content to real world situations....” CTL emphasizes problem solving, teaching and learning in multiple contexts, “self-regulated” learning, cooperative learning, and authentic assessment. The overall objective of the project is to reform selected teacher education programs around the CTL concept using a process from the research of long-time teacher educators Howey and Zimpher as the framework. The project has commissioned papers, but no findings have been published.

Another strand of research involves an examination of the programmatic and structural characteristics of several teacher preparation programs that many researchers and practitioners point to as centers of excellence in the preparation of new teachers who are learner and learning centered (Darling-Hammond, 1999). The institutions studied were Alverno College in Milwaukee, Bank Street College in New York, Trinity University in San Antonio, University of California at Berkeley, University of Southern Maine, University of Virginia, and Wheelock College in Boston. From interviews, observations, and the gathering of “reputational” evidence, the researchers concluded that these preparation programs have several things in common:

- A common, clear vision of good teaching that is apparent in all coursework and clinical experiences.
- A core curriculum grounded in substantial knowledge of child and adolescent development, learning theory, cognition, motivation, and subject matter pedagogy taught in the context of practice.
- Extended clinical experiences (at least 30 weeks), which are carefully chosen to support the ideas and practices presented in simultaneous, closely interwoven coursework.
- Well-defined standards of practice and performance that are used to guide and evaluate coursework and clinical work.
- Strong relationships, common knowledge, and shared beliefs among school- and university-based faculty.
- Extensive use of case study methods, teacher research, performance assessments, and portfolio evaluation to ensure that learning is applied to real problems of practice. (Darling-Hammond, 1999, pp. 233-234)

Darling-Hammond (2000) comments that taken together, the aforementioned elements of these particular programs allow them to prepare teachers to meet the needs of diverse learners while also teaching for understanding thereby continually producing high quality teachers.

In the mid-1990s, the U.S. Department of Education funded the National Partnership for Excellence and Accountability in Teaching (NPEAT). NPEAT has supported research projects on various topics related to teaching quality, including some concerning preservice teacher education. Reports from these studies are not yet available. One study—*The Study of Incentives and Impediments to the Improvement of Teaching*—is focusing on state and higher education policies and practices that may help or hinder the preparation and ongoing support of high-quality teachers (presentation by Barnett Barry at NPEAT Forum, October 5, 1999). In this study, Connecticut has

emerged as an exemplar in the reform of policies and practices related to teacher education, induction, and continuing professional support. Researchers have identified several features of teacher preparation efforts in Connecticut that appear to be related to good results. Structural dimensions include support from top university leadership for high-quality teacher education; funding based on needs and results, not just head counts; commitment of teacher education faculty to teaching (as opposed to research); and making teacher preparation a 5-year program. Dimensions of institutional culture are also important, such as the selectiveness of the teacher preparation program, candidate recruitment strategies that target honors students, getting the attention of arts and sciences faculty, and the salaries and status of teacher education faculty in comparison with other parts of the institution as indicators of the value placed on preparing teachers. Structural and cultural patterns in the other states and institutions in this study are disheartening.

Policy recommendations that are emerging from this study include (1) joint appointment of arts and sciences/education school faculty, (2) analysis of higher education funding for teacher education, and (3) networking arts and sciences faculty who want to be involved with the improvement of teaching and student outcomes across IHEs within a given state to achieve critical mass. What is happening in schools, colleges, and departments of education at Connecticut's IHEs is just one part of a larger teacher policy initiative that has involved raising starting salaries for teachers, an improved induction program, and rigorous requirements for ongoing professional development.

In general, research directions for improving teacher preparation in the 1990s have focused on questions, issues, and methods that yield little guidance for the design of evaluations that are concerned with outcomes and accountability. Evaluatively speaking, the teacher education sector has regulated itself for the past 35 years through the accreditation process. Losing accreditation, as occasionally happens to an institution, is embarrassing but has not often made headlines, and the majority of IHEs that are authorized to prepare teachers for state certification have not even participated in NCATE review.

Partnerships—An Important Feature of Current Reforms in Teacher Education

We have deliberately assigned discussion of partnerships to its own section of this chapter, both because it is a theme in Title II of the Higher Education Act and because the strengthening of various types of relationships in the service of improved teacher

preparation has been an important strategy during the 1990s. There are two important kinds of partnerships at work in the field: (1) partnerships between IHEs and schools or school districts and (2) partnerships between education faculty and arts and sciences faculty.

Professional Development Schools (PDSs) are currently the most common type of partnership between IHEs and schools or districts, and a large research literature has grown up around them. As Bullough (1997) notes, the PDS is “an old idea that was reborn through the influence of the Holmes Group.” Its roots are in the laboratory schools that were established on university campuses and thrived for several decades in the early to mid-20th century (e.g., the John Dewey Laboratory School at the University of Chicago). According to Lieberman and Miller (1990), the goals of the PDS movement are to:

- Provide a context for rethinking and reinventing schools for the purpose of building and sustaining the best educational practices.
- Contribute to the preservice education of teachers and induct them into the teaching profession.
- Provide for continuing development and professional growth of experienced inservice teachers.

The most recent and thorough research synthesis on PDS is by Valli, Cooper, and Frankes (1997). They identified 57 studies, which they grouped and reviewed in six categories related to the research focus. Seven of these studies focus on teacher education, and 23 (by far the largest category) focus on collaborative alliances. They also offer a methodological critique of the 57 studies overall. In terms of the studies that looked at teacher education in the PDS context, Valli et al. report the following:

- The focus in the studies is on student teachers and classroom teachers/mentors. The role of university faculty in the PDS relationship is not a theme.
- Lemlech and Hertzog-Foliart (1993) studied the development of “collaborative, problem-focused reflection as a method of teacher education” in a single school that was participating in an American Federation of Teachers network. Student teachers participated in a series of school-based, problem-solving clinics that were co-designed by school and university faculty. The instructional materials were case studies that required the teacher candidates to apply data-based decision-making and evaluation strategies. To evaluate this approach to teacher preparation, researchers used qualitative methods (observation, interviews, videotapes, journal analysis) to determine effects on both student teachers and practicing teachers. The findings about the model were positive, suggesting that collegial, reflective practice develops steadily over time if certain conditions are

present, such as structured, collaborative inquiry, time for purposeful interactions, and acknowledgment of shared expertise by school and university faculty.

- Stanulis (1995) conducted case studies of 2-year relationships between five teacher candidates and their cooperating teachers in which the classroom teachers learned from university faculty how to be cognitive coaches, mentors, and guides to reflective practice for the college students. The research study specifically examined the effects of mentoring on both practicing teachers and student teachers. University faculty and classroom teachers worked together to achieve consensus about issues related to teaching and learning and theory and practice. The “messages” that emerged were then passed on to the student teachers by the cooperating teachers during mentoring sessions that were videotaped and analyzed. This approach to the clinical teacher education experience was judged successful in four out of five of the mentoring relationships. The researcher called for more inquiry into issues such as criteria for selecting mentors and the integration of the preservice and inservice professional development of teachers.
- Yopp, Guillaume, and Savage (1993-94) looked at cohort groups of fifth-year undergraduate teacher candidates placed in four elementary schools that were implementing elements of PDS philosophy, such as schoolwide mentoring and role expansion for teachers, administrators, and university faculty. Participants completed surveys to elicit their perceptions about effects of the innovations on the student teachers. Like other studies, this one concludes that time, trust, and incentives are key variables in establishing a successful PDS. Their data also suggested that grassroots initiation of the PDS (rather than imposition by policy or bureaucracy) was an important factor that facilitated successful implementation in this case.
- Woloszyk and Hill (1994) questioned PDS and non-PDS student teachers about their beliefs with regard to elements of the Holmes Group’s PDS model. Only 4 of 42 items on the survey discriminated well between the two groups. For two of these four items, non-PDS student teachers expressed beliefs that were more consistent with the PDS philosophy than did the PDS group.
- Teitel (1992) looked at restructuring of the college program as a result of participation in a teacher preparation partnership what Valli, Cooper, & Franks call “second order” change effects of PDS. The study found that PDS efforts, which involved about half of the college’s students who were at the student teaching level, did not influence the structure of the teacher education program. Reasons included marginalization, lack of resources, lack of personal involvement of most faculty, and resentment of the attention that participants received from IHE administrators.
- Driscoll, Benson, and Livneh (1994) used qualitative methods to analyze the content of collaborative planning and inquiry in a PDS. They were looking for discrepancies in perspective between participating college faculty and school-based personnel as an indicator of the theory-practice gap. The barriers that

they identified included a number of logistical inhibitors to collaboration, such as scheduling and time allocations and the school's need to maintain order.

- Shen (1994) conducted intensive case studies, which Valli et al. describe as “methodologically rigorous.” This researcher was interested in the perspectives of practicing teachers on teacher preparation and how those views aligned or contrasted with the structural reform vision of the policy and research literature. The key findings were that (1) teachers in PDSs did not have in their heads a vision of an “exemplary site” for teacher education that matched the model in the PDS literature, and (2) the centrality of inquiry, as laid out in the standard PDS model, was not part of the teachers' expectations for teacher education reform. Time was identified as a critical barrier to implementation of strategies that might modify the teachers' viewpoints.

As Valli et al. (1997) point out, the results reported in the research studies cited above tend to support the effectiveness of a teacher education reform strategy involving new roles for classroom teachers (i.e., as partners in the teacher preparation process with IHE professors and administrators). The studies do not suggest that the PDS concept is having much impact on changing the structure of teacher education programs per se. They do suggest that considerable dialogue is needed before university faculty and classroom teachers can agree on issues like the importance of reflective practice, instructional approaches, and the structure of the student teaching experience.

In another section of their research review on PDS, Valli et al. examined studies that looked at collaborative alliances. Teitel (1993) studied a successful collaboration that involved the state education agency (SEA) as a third-party facilitator for partnership relationships between IHEs and schools. Over a 3-year period, the SEA modified an initially top-down, rigid, and ineffective approach to its linking role into one that was more flexible, consultative, and inclusive, with positive results. Strategies that the SEA adopted included a competitive application process, requiring evidence of commitment to the collaboration from schools and IHE, and increasing the amount of technical assistance available to collaborating partners.

Most of the 23 studies on collaborative alliances involved relationships between schools and IHEs. The most common arrangement in these studies was one university partnered with multiple schools. The greatest amount of activity in the alliances related to establishing new governance structures. The experiments studied are characterized as ad hoc, rather than carefully preplanned. In most cases, no arts and sciences faculty were involved. Common tensions existed around roles and responsibilities and the direction and sequence of the change process (Valli et al., 1997).

In any change process, incentives are important variables. Valli et al. note that in collaborative alliances between schools and IHEs, incentives for teachers are easier to provide than incentives for college faculty. Release time, for example, motivates teachers. Faculty, on the other hand, are caught up in the higher education reward system, which still values research and publishing over all else on most campuses (Valli et al., 1997). The analysts conclude, “We could find little evidence of changed rewards and incentive structures for teacher educators” (p. 288).

The Valli et al. summary of research on school-university partnerships for the preparation of new teachers confirms the pattern of research that we have reported in other sections of this chapter. The research base for teacher education rests on a shaky underpinning of many very small studies that were not rigorously designed and executed. In their methodological critique of all 57 studies, Valli et al. sorted the studies by whether or not they were based on an explicit theory, used rigorous methodological elements to ensure validity of results, and linked conceptually to other studies or replications of prior work, with the following results:

- About half of the studies stated a theoretical basis for the research questions and designs. For example, Teitel (1992) used interorganizational relationship theory to examine how a PDS relationship does or does not bring about renewal in both colleges of education and participating schools. The results of the research were disappointing in terms of substantive effects on the institutions. At the colleges and universities, PDS involvement was an isolated phenomenon. Involved faculty were perceived to exclude others, and noninvolved faculty resented the extra attention the PDS effort received from top administrators. Valli et al. (1997) point out that although this study did not validate the idea of simultaneous institutional renewal through the PDS concept, the explanatory power of its theoretical framework helps us understand that the process of renewal through a PDS is a variation on previous efforts to change organizations that have been well studied (e.g., the literature on organizational change in K-12 schools; the literature on organizational change on business and industry).
- About half presented evidence in support of the validity of their findings, despite the fact that Valli et al. applied a very liberal definition of methodological rigor. Thus, only about half of the studies reviewed mentioned qualitative research design elements such as triangulation of data sources and tests of intercoder reliability or quantitative design elements such as statistical analyses or use of a control group. The other half of the studies were purely descriptive.
- Only nine studies could be “liberally” categorized as extensions or replications of cited precedents, and even these primarily cited the previous work of the author(s). This fact is worrisome because, as Valli et al. point out, development

of a solid knowledge base in any research domain requires incremental construction whereby each new research effort acknowledges and builds on the research that has gone before.

The meta-analysis work of Valli et al. is complemented by a slightly more recent research synthesis prepared for the 1999 National Society for the Study of Education Yearbook (Whitford & Metcalf-Turner, 1999). They describe the proposed standards by which NCATE intends to rate the quality of PDS efforts when an IHE undergoes its NCATE review. The draft standards document identifies four basic functions of a PDS:

- (1) Clinical preparation of new teachers.
- (2) Continuing professional development of school and university faculty.
- (3) Support of children's learning.
- (4) Support of research directed at the improvement of teaching and learning.
(NCATE, 1997, cited in Whitford & Metcalf-Turner, 1999, p. 262)

It then goes on to identify critical conditions that must be present in a PDS relationship: an agreement on mission among the stakeholder groups; a commitment to the “critical attributes” of a PDS (learning community; collaboration; accountability and quality assurance; organization, roles, and structure; and equity); a positive working relationship and a basis for trust between partners; achievement of quality standards by partner institutions, as evidenced by regional, state, national, or other review; and an institutional commitment of resources to the PDS from the school and university. Two levels (threshold and mature) of standards and quality indicators have been developed for each of the critical attributes (NCATE, 1997, cited in Whitford & Metcalf-Turner, 1999, p. 262). Thus, for the attribute on commitment of resources, NCATE review teams will look for evidence, for example, that “Resources are clustered to create new roles, structures, and opportunities.” Examples of indicators for this standard are “University faculty spend no less than one day per week at the PDS” and “Interns are clustered in school sites” (NCATE, 1997, cited in Whitford & Metcalf-Turner, 1999, p. 263). The NCATE Standards Project began a pilot of this rating system, which includes 10 standards and 3 to 10 indicators for each, in 1998.

PDSs are not the only model for partnerships, although they represent the largest (if flawed) body of research studies in this area. In 1995, AACTE sponsored *RATE VIII: Teaching Teachers—Relationships with the World of Practice*. This report was the last in a series of studies that surveyed a random sample of teacher education institutions annually, using a set of core items each time, supplemented by items relating to a theme.

The study team included well-respected teacher educators who also conduct research on teacher preparation: Kenneth Howey, Richard Arends, Gary Galluzzo, Sam Yarger, and Nancy Zimpher. The 1995 RATE study achieved a response rate of 70 percent.

Core items in all the RATE studies included institutional data in the following areas:

- Degree levels offered.
- Institutional category: public, public land grant, private, church-related status.
- Mean total enrollment.
- Mean enrollment in education units.
- Affiliation with NCATE.
- Deans' and faculty's perceptions of quality indicators of teacher preparation programs.

RATE VIII (Howey, Arends, Galluzzo, Yarger, 7 Zimpher, 1995) examined a variety of ways that the sampled IHEs were involved with P-12 schools. Examples of findings included the following:

- The authors were surprised that as many as 25 percent of responding education faculty reported that they received “considerable” (not defined in the report) assistance with program design and formal instruction of preservice teachers from teachers in partner schools (p. 16).
- Two-thirds to three-fourths of responding faculty indicated that their dean or education head had little capacity to support partner activities with time, money, or materials (p. 17).
- About half of faculty respondents indicated that there was good agreement among P-12 educators and higher education faculty about the desired nature of learning, teaching, schooling, and how teachers learn—which means, of course, that about half reported disagreements to some extent in this area (p. 19).
- More than 40 percent of responding institutions indicated that they were in sustained relationships with specially designated P-12 schools (some of which were PDSs). In 76 percent of these relationships, one or more faculty members were assigned to a school on a regular basis, and 95 percent reported assigning multiple preservice students to an individual school. Participation in joint research and/or development efforts characterized 81 percent of the relationships (p. 31).

All the partnership relationships discussed so far have involved P-12 schools and schools, colleges, or departments of education in IHEs. There are also separate partnership initiatives under way that seek to engage arts and sciences faculty and

education faculty in discussions and activities such as the revision of college courses for future teachers. Discipline-based courses for future elementary school teachers is one specific issue for these partnerships. Because P-6 teachers must be generalists, their undergraduate academic program requirements tend to be diffuse and unrelated. On a few campuses that participate in partnership initiatives, arts and sciences and education faculty are inventing new ways to strengthen the content background of these teacher candidates. Three of the key initiatives addressing this issue are described below.

For a number of years, the National Science Foundation has provided substantial support to colleges and universities for the establishment of Collaboratives for Excellence in Teacher Preparation (CETP). The goal of CETP is to improve the quality of mathematics and science teachers for K-12 schools through joint development of new courses by college of education and college of arts and sciences faculty. The projects involve multiple institutions in various configurations, e.g., nine public IHEs that prepare teachers in Maryland, a community college-university feeder system, and the public school district in Philadelphia. Over time, 33 collaboratives have received funding of up to \$1 million per year for 5 years. In addition, some campuses have received \$200,000 supplements to track graduates into the early years of teaching. The external evaluation of CETP has been a 4-year effort that began with document review, site visits to the first three cohorts of grantees, and surveys of a sample of faculty and student participants in Cohort 1. An interim report was accepted by NSF in 1997 (NSF, 1997). Some key findings included the following:

- All funded projects have developed and implemented new science and mathematics content and methods courses. Most also developed related field experiences (p. 3).
- Faculty participation in CETP required significant amounts of time and could, therefore, attract only committed “pioneers,” many of them already tenured and therefore less concerned about the traditional reward structure in higher education institutions (p. 14). Reaching a second tier of faculty and/or institutionalizing the effort appears problematic (p. 21).
- Of those faculty who did become involved, 94 percent reported impact on their pedagogy, 88 percent reported impact on their collegial interactions, 82 percent reported impact on their interactions with students, and 80 percent reported impact on their selection of course content (p. 15).
- Recruiting preservice teacher preparation students to CETP courses proved difficult. Most of the participating students were white females, 18 to 24 years old, who were seeking a teaching credential in elementary education (pp. 8-9).

The final year of the CETP evaluation involved additional surveys (principal investigators, sample of faculty participants, teacher preparation program chairpersons); analyses using a database for which all grantees are required to update data annually; and repeat site visits to five collaboratives, focusing on the GPRA indicators developed by NSF for the CETP program. The contractor also developed a comparison-campus design, surveying more than 50 IHEs that had profiles similar to CETP institutions but had not received this NSF money. The final report emphasized the advantages enjoyed by CETP institutions with few school district partners. Those CETP projects had higher levels of faculty involvement, more positive student outcomes, and a greater likelihood of institutionalization (Ruskus, Matson, & Perakis, 2000).

A second partnership initiative, Project 30, is a national initiative to redesign the way that future teachers are educated. Membership in the project group requires commitment to joint action of arts and sciences faculty and education faculty in collaborative curriculum design. The “30” refers to the number of IHEs in the original group, which first came together in 1988. Today, 32 institutions are involved, and others are eager to join, in part because of a new consciousness on campuses about co-responsibility for the preparation of high-quality teachers for P-12 schools (Project 30, 1991). The campuses represent a cross-section of all the types of institutions that prepare teachers in the United States.

Project 30 does not promote a single model of curriculum redesign. Instead, it has identified five themes for campuses to consider as they enter into dialogues about improving teacher preparation: (1) subject matter understanding; (2) general and liberal education; (3) pedagogical content knowledge; (4) international, cultural, and other human perspectives; and (5) increasing representation of underrepresented groups in teaching. These themes provide a common core for discussions when the campuses come together at national meetings. Activities on individual campuses are unique and needs-based. Examples include the following (all drawn from Project 30, 1991).

- Through a survey of school administrators, the University of Georgia determined a need for elementary school teachers with special competence in mathematics and science. The Project 30 team developed a new “career track” within the undergraduate program for K-4 mathematics and science resource teachers. Arts and sciences and education faculty worked together to revise courses or develop new ones and to develop appropriate public school internships for the students. Ventures such as this involve institutional politics and require considerable negotiation, both on the campus and with the state teacher certification office.

- The University of Maryland’s Project 30 team developed a capstone course for seniors majoring in life science and science education. The theme of the course is global climate; it is designed to help seniors see their discipline within a broader liberal arts framework.
- At the University of Pennsylvania, the Project 30 team has been part of a larger initiative to reorganize undergraduate and graduate programs in teacher education, putting teacher research at the center. Teacher-researcher groups consisting of three or four student teachers, their cooperating teachers, and a Penn faculty member meet weekly to read, discuss, and write about issues of theory and practice. Cross-school teacher-researcher groups meet monthly to share ideas and findings.

From the outset, Project 30 has had the intellectual support of AACTE, the American Conference of Academic Deans, and the Council of Colleges of Arts and Sciences. Originally, it had financial support from several foundations; now, participating campuses pay an annual membership fee of \$295. Campus-based activities are often supported with small grants from state, federal, or foundation sources. To date, there has been no external evaluation of what the Project 30 teams have accomplished on their campuses.

A newer initiative to bring arts and sciences and education faculty together around the issue of improving teacher preparation is the Council for Basic Education/AACTE’s Standards-based Teacher Education Project (STEP). This initiative differs from Project 30 because it is grounded in the goal of aligning teacher preparation requirements with a state’s P-12 content and performance standards. In addition, the states selected to participate in the project (Georgia, Maryland, Indiana, Kentucky) each have state higher education policy initiatives that are conceptually based on establishing a seamless P-16 state education system. Although its foundation funding allows the project to work directly with only a few campuses in a state, it also operates in a state’s higher education policy arena. For example, in Georgia and Maryland, decision-makers and policy-makers from state governing boards and the state’s overarching P-16 initiatives regularly participate in STEP meetings and activities. These connections to state policy leaders help ensure that any promising lessons learned by the participating campuses are promoted and disseminated statewide.

STEP staff have developed a basic process to assist campuses in addressing the standards-based alignment issues. The process is adaptable to the policy context and stage of reform activity on each campus and in the state. Maryland and Georgia have decided to use part of their Title II funding to support expansion of the STEP process to

more campuses. The author of this chapter of the research review serves as external evaluator to the STEP initiative. The evaluation is formative and is designed to (1) assist campuses in developing self-assessment systems for tracking progress with STEP objectives and (2) assist STEP staff in refining and improving the STEP process.

Impacts and Outcomes of Teacher Preparation Reform Efforts: 1985-99

The evaluative frame of mind has not yet penetrated teacher education. On the basis of available research, we can describe what has been *undertaken* in the name of reforming teacher preparation during the past 15 years. However, it is nearly impossible to describe or summarize whether these undertakings have been effective. For example, in many states, policy reforms in the late 1980s strengthened the content knowledge base of aspiring secondary school teachers by requiring them to have an academic major, but we do not have the follow-through studies to show whether this reform has made a difference in teaching practices in P-12 classrooms or in outcomes for P-12 students. We are not alone in coming to this conclusion:

From the evidence that exists, we find that despite recent efforts to improve preservice education, these programs typically provide insufficient opportunity for teachers to develop the capacities they need to manage dilemmas effectively as agents of change. Most evidence is anecdotal. Comprehensive, in-depth analyses of curriculum, instructional processes, and program organization are rare. (Smylie, Bay, & Tozer, 1999, p. 47)

One unifying theme in reform activity that emerges from the literature is an increase in contacts among stakeholder sectors—schools, colleges, or departments of education; K-12 schools; arts and sciences faculty—through various types of partnerships that represent a range in terms of comprehensiveness (e.g., small groups of faculty working with a small group of teachers vs. a fully developed PDS in which arts and sciences and education faculty work with practicing teachers to prepare new teachers). In a limited number of “best practice” sites, the Professional Development School is where all of these stakeholders come together around the goal of improving teaching and learning for everybody from kindergartners to professors of biology. Certainly, PDS is now part of the mainstream reform vocabulary—ensconced as policy in some states. However, the research literature illustrates that implementations of PDS are highly variable, and there are no coherent outcome data to demonstrate that teachers who are trained in the PDS environment are more successful as new teachers, stay in the profession longer, or produce successful students.

Throughout this period, the teacher education sector has largely been trying to reform itself, without much input or pressure from external sources. One characteristic of this approach has been the formation of numerous reform networks—the Holmes Group, the National Network for Education Renewal (John Goodlad), Project 30, the Renaissance Group, and so on—which may or may not have the same vision for what reformed teacher education should look like. These networks are under no compulsion to share what they have accomplished or to look critically at themselves.

Fullan et al.'s (1998) analysis of the “rise and stall” of the reform of teacher education programs in institutions that were members of the Holmes Group may be the single most valuable study that we examined. Through surveys and interviews, this research team examined the changes that had occurred in 100 programs in the decade from 1985 to 1995. Their overall conclusion was that, although some changes were adopted and implemented, the essential structures and substance of teacher education programs were not altered in any systematic or systemic way. Instead, individual campuses put in place new policies and practices (such as new admission requirements to teacher education, more rigorous assessment of teacher candidates, partnership relationships with at least one PDS) that did not require an entire school, college, or department of education to leave the comfort zone of established operations and relationships (Fullan et al., 1998).

In the past 20 years, we have witnessed a sea change in the policy environment of P-12 education. The state level of the educational governance system wields far more influence today than it did in 1980, and the federal “bully pulpit” and incentive funding are well established. Local control of K-12 education is far more circumscribed, regulated, and accountable than it used to be; however, teacher education—and higher education in general—is still in the pre-1980 era in most states. The local control is at the campus level. Only in the past 2 or 3 years have a few states begun to adopt comprehensive, statewide policy initiatives directed at improvements in the preparation of teachers as a lever for improving P-12 student outcomes. The discretionary grant programs in Title II of the federal Higher Education Act are the incentive funds that allow ED to support the policy actions of governors and state boards of higher education to hold states and institutions of higher education accountable for the teachers they produce. *To Touch the Future*—the new report of the ACE Presidents’ Task Force—is a clear indicator that the standards-based reform movement has gained the attention of higher education in general and teacher preparation programs in particular.

References for Chapter II

- Adelman, N. (1991). *Issue brief on the preservice training and continuing professional development of teachers*. Washington, DC: Policy Studies Associates.
- American Association of Colleges for Teacher Education (AACTE). (1987). *Teaching teachers: Facts & figures*. Washington, DC: Author.
- American Association of Colleges for Teacher Education (AACTE). (1988). *RATE II: Teaching teachers: Facts & figures*. Washington, DC: Author.
- American Council on Education (ACE). (1999). *To touch the future: Transforming the way teachers are taught*. Washington, DC: Author.
- Ball, D. (1988, September). *Research on teaching mathematics: Making subject matter knowledge part of the equation*. East Lansing, MI: National Center for Research on Teacher Education.
- Bullough, R. (1997). Becoming a teacher: Self and the social location of teacher education. In B. Biddle, T. Good, & I. Goodson, *International handbook of teachers and teaching*, Volume 3(I). Dordrecht, The Netherlands: Kluwer Academic Publishers.
- Carnegie Forum on Education and the Economy. (1986). *A nation prepared: Teachers for the 21st century*. Report of the Task Force on Teaching as a Profession. New York: Carnegie Corporation.
- Cochran-Smith, M., & Lytle, S. (1999, October). The teacher research movement: A decade later. *Educational Researcher*, 28(7).
- Council of Chief State School Officers. (1998, December). *Key state education policies on K-12 education standards: Standards, graduation, assessment, teacher licensure, time and attendance*. Washington, DC: Author.
- Darling-Hammond, L. (1998). Teachers and teaching: Testing policy hypotheses from a National Commission report. *Educational Researcher*, 27(1).
- Darling-Hammond, L. (1999). The future of teacher evaluation. In *The education of teachers: Ninety-eighth yearbook of the National Society for the Study of Education*, Part I (pp. 221-256). Chicago, IL: National Society for the Study of Education.
- Dill, W. (1998, November-December). Guard dogs or guide dogs? Adequacy vs. quality in the accreditation of teacher education. *Change*, 30(6).
- Driscoll, A., Benson, N., & Livneh, C. (1994). University-school district collaboration in teacher education: Outcomes and insights. *Teacher Education Quarterly*, 21(3).

- Druva, C. A., & Anderson, R. D. (1983). Science teacher characteristics by teacher behavior and by student outcomes: A meta-analysis of research. *Journal of Research in Science Teaching*, 20(5).
- Ducharme, E. R., & Ducharme, M. K. (1996). Needed research in teacher education. In J. Sikula (Ed.), *Handbook of research on teacher education* (pp. 1030-1046). New York: Macmillan.
- Edmundson, P. (1990, May). A normative look at the curriculum in teacher education. *Phi Delta Kappan*, 71(9).
- The Education Trust. (1999, Spring). *Not good enough: A content analysis of teacher licensing examinations*. Washington, DC: Author.
- Educational Testing Service (ETS). (1990). *The education reform decade*. Princeton, NJ: Author, Policy Information Center.
- Ehrenberg, R., & Brewer, D. (1995). Did teachers' verbal ability and race matter in the 1960s? Coleman revisited. *Economics of Education Review*, 14(1).
- Everton, C. M., Hawley, W. D., & Zlotnik, M. (1985, May-June). Making a difference in educational quality through teacher education. *Journal of Teacher Education*.
- Ferguson, R. (1998). Can schools narrow the Black-White test score gap? In C. Jencks & M. Phillips (Eds.), *The Black-White test score gap*. Washington, DC: The Brookings Institution.
- Ferguson, R., & Ladd, H. (1996). How and why money matters: An analysis of Alabama schools. In H. Ladd (Ed.), *Holding schools accountable: Performance-based reform in education*. Washington, DC: The Brookings Institution.
- Fullan, M., Galluzzo, G., Morris, P., & Watson, N. (1998). *The rise and fall of teacher education reform*. Washington, DC: American Association of Colleges for Teacher Education.
- Gitomer, D., Latham, A., & Ziomek, R. (1999). *The academic quality of prospective teachers: The impact of admissions and licensure testing*. Princeton, NJ: Educational Testing Service.
- Goldhaber, D., & Brewer, D. (1999). Teacher licensing and student achievement. In M. Kanstoroom & C. Finn (Eds.), *Better teachers, better schools*. Washington, DC: Thomas B. Fordham Foundation.
- Gollnick, D., & Kunkel, R. (1986, December). The reform of national accreditation. *Phi Delta Kappan*, 68(4).
- Goodlad, J. I. (1990). *Teachers for our nation's schools*. San Francisco: Jossey-Bass.

- Goodlad, J., Soder, R., & Sirotnik, K. (Eds.). (1990). *The moral dimensions of teaching*. San Francisco: Jossey-Bass.
- Griffiths, M., & Tann, S. (1992). Using reflective practice to link personal and public theories. *Journal of Education for Teaching, 18*(1).
- Hargreaves, A. (1994). *Changing teachers, changing times: Teachers' work and culture in the postmodern age*. New York: Teachers College Press.
- The Holmes Group. (1986). *Tomorrow's teachers*. East Lansing, MI: Author.
- Howey, K., Arends, R., Galluzzo, G., Yarger, S., & Zimpher, N. (1995). *RATE VIII: Teaching teachers—Relationships with the world of practice*. Washington, DC: American Association of Colleges for Teacher Education.
- Howey, K., & Zimpher, N. (1989). *Profiles of preservice teacher education: Inquiry of the nature of programs*. Albany, NY: State University of New York Press.
- Johnston, S. (1992). Images: A way of understanding the practical knowledge of student teachers. *Teaching & Teacher Education, 8*(2).
- Joyce, B. (1988, September-October). Training research and preservice teacher education: A reconsideration. *Journal of Teacher Education, 39*(5).
- Kennedy, M. (1990, February). *A survey of recent research literature on teachers' subject matter knowledge*. East Lansing, MI: National Center for Research on Teacher Education.
- Lemlech, J., & Hertzog-Foliart, H. (1993). Linking school and university through collegial student teaching. *Teacher Education Quarterly, 20*(4).
- Lieberman, A., & Miller, L. (1990). Teacher development in professional practice schools. *Teachers College Record, 105*(92).
- McDiarmid, G. W., Ball, D., & Anderson, C. (1989). *The knowledge base for beginning teachers*. Elmsford, NY: Pergamon Press.
- Monk, D. (1994). Subject area preparation of secondary math and science teachers and student achievement. *Economics of Education Review, 13*(2).
- National Center for Research on Teacher Learning. (1993, November). *An annotated bibliography: Findings on learning to teach*. East Lansing, MI: Author.
- National Commission on Teaching and America's Future (NCTAF). (1996). *What matters most: Teaching for America's future*. New York: Author.

- National Council for Accreditation of Teacher Education (NCATE). (1987, December). *NCATE standards for the accreditation of professional education units*. Washington, DC: Author.
- National Council for Accreditation of Teacher Education (NCATE). (1997, September). *Draft standards for identifying and supporting quality Professional Development Schools*. Washington, DC: Author.
- National Endowment for the Humanities. (1990). *Tyrannical machines: A report on educational practices gone wrong and our best hopes for setting them right*. Washington, DC: Author.
- National Science Foundation (NSF). (1997, May). Preliminary findings report from the evaluation of NSF's Collaboratives for Excellence in Teacher Preparation Program. Washington, DC: Division of Research, Evaluation and Communication.
- Olson, L. (1990, December 12). Teaching our teachers: Colleges of education under increasing attack as weak link in the drive to improve nation's schools. *Education Week*, 10(15).
- Pajares, M. (1992). Teachers' beliefs and educational research: Cleaning up a messy construct. *Review of Educational Research*, 62(3).
- Project 30. (1991). *Year two report: Institutional accomplishments*. Newark, DE: University of Delaware.
- Rivkin, S., Hanushek, E., & Kain, J. (1998). *Teachers, schools, and academic achievement*. National Bureau of Economic Research, Working Paper Number 6691.
- Rowan, B., Chiang, F., & Miller, R. (1997, October). Using research on employees' performance to study the effects of teachers on students' achievement. *Sociology of Education*, 70.
- Ruskus, J., Matson, B., & Perakis, S. (2000). *Collaboratives for excellence in teacher preparation: Summative evaluation*. Arlington, VA: National Science Foundation.
- Sanders, W., & Rivers, J. (1996). *Cumulative and residual effects of teachers on future academic achievement*. Knoxville, TN: University of Tennessee Value-Added Research and Assessment Center.
- Scannell, D. (1999). *Models of teacher education*. Washington, DC: American Council on Education.
- Shen, J. (1994, February). *A study in contrast: Visions of preservice teacher education in the context of a Professional Development School*. Paper presented at the annual meeting of the American Association for Colleges for Teacher Education, Chicago, IL.

- Shulman, L. (1987, February). Knowledge and teaching: Foundations of the new reform. *Harvard Educational Review*.
- Smylie, M. A., Bay, M., & Tozer, S. E. (1999). Preparing teachers as agents of change. In *The education of teachers: Ninety-eighth yearbook of the National Society for the Study of Education, Part I* (pp. 18-62). Chicago, IL: National Society for the Study of Education.
- Stanulis, R. (1995). Classroom teachers as mentors: Possibilities for participation in a Professional Development School context. *Teaching and Teacher Education, 11*.
- Sykes, G. (1999). No standards or new standards? The future of certification. In R. Roth (Ed.), *The role of the university in the preparation of teachers*. Philadelphia: Falmer Press.
- Teitel, L. (1992). The impact of Professional Development School partnerships on the preparation of teachers. *Teaching Education 4*(2).
- Teitel, L. (1993). The state role in jump-starting school/university collaboration: A case study. *Educational Policy, 7*(1).
- Valli, L., Cooper, D., & Franks, L. (1997). Professional development schools and equity: A critical analysis of rhetoric and research. In M. Apple (Ed.), *Review of research in education: 22*. Washington, DC: American Educational Research Association.
- Whitford, B. L., & Metcalf-Turner, P. (1999). Of promises and unresolved puzzles: Reforming teacher education with Professional Development Schools. In *The education of teachers: Ninety-eighth yearbook of the National Society for the Study of Education, Part I* (pp. 257-278). Chicago, IL: National Society for the Study of Education.
- Woloszyk, C., & Hill, R. (1994). *Restructuring teacher preparation: Seminar and related activities within a secondary Professional Development School*. (ERIC Document Reproduction Service No. ED 374 076)
- Yopp, H., Guillaume, A., & Savage, T. (1993-94). Collaboration at the grass roots: Implementing the Professional Development School concept. *Action in Teacher Education, 15*(4).
- Zucker, A., Shields, P., Adelman, N., Corcoran, T., & Goetz, M. (1998). *A report on the evaluation of the National Science Foundation's Statewide Systemic Initiatives (SSI) Program*. Washington, DC: National Science Foundation.

III. STRENGTHENING THE INITIAL CERTIFICATION OF TEACHERS

The certification and licensing of teachers is not a new idea. In the 19th century and well into the 20th century, teacher certification and licensing were a decidedly local matter. By the turn of the century, new teachers typically were examined and licensed to work by towns or counties, while the states offered certification to experienced and successful teachers. States often prepared examinations to help local communities determine who should be licensed, but the towns or counties administered the exams (Monroe, 1911). Over time, licensing and certification have become increasingly a state responsibility. More recently, national organizations have begun to play a more prominent role in teacher certification.

In addition to the increasing centralization of teacher certification and licensing, preparation requirements for teachers have increased. Differential preparation for elementary and high school teaching did not formally begin until the turn of the century (Monroe, 1911). As recently as the 1960s, it was not uncommon to find veteran elementary school teachers who had received only 2 years of training in a state normal school—institutions largely responsible for the training of teachers. More recently, some state requirements for licensure have been increasing to include the earning of a bachelor's degree in a discipline and a year of preparation. Some new national programs for certification are further increasing the demonstrated competency and knowledge base that teachers must have for national certification. Although most states still require only 4 years of preparation, the historical trend toward increasing the amount of education necessary to become a teacher is clear.

Given this historical context of increasing centralization of certification and licensing functions and increasing education requirements to become a teacher, this chapter examines the current state of licensing and certification. We begin with a clarification of the terms “licensing” and “certification.” Next, we turn to research on existing licensing and certification requirements, beginning with a review of the research on the shortcomings of the current system. We then review the variety of reform initiatives under way and catalog the specific efforts in the states. Next, we look at the patterns of reform across the states and identify common models and strategies. This is followed by a review of the research on the impacts of certification and licensing reforms on teaching and learning. We end with a discussion of the gaps that still exist in the research on licensure and certification.

Defining Certification and Licensing

“Teacher certification” and “teacher licensing” are often used interchangeably, although some have made efforts to draw a distinction between the two terms (Galbraith & Gilley, 1985; Roth, 1996). Until the mid-1980s, teacher certification was “the education system’s process for assuring that public school teachers possess minimum qualifications” (American Association for Colleges of Teacher Education, 1986, cited in Roth, 1996). With the emergence of standards-based reform, the advocacy of the Carnegie Task Force on Teaching as a Profession, and the creation of the National Board for Professional Teaching Standards (NBPTS), efforts were under way to define certification as something more than licensing. In this conception, licensing is limited to the minimum requirements the state sets for an individual to teach in a public school, whereas certification signifies recognition that an individual meets certain high professional standards (Earley, 1987; Smith, 1990, cited in Roth, 1996). Despite these efforts, state documents typically refer to certification rather than licensing, suggesting that the distinction has not taken hold (Roth, 1996). For purposes of this review, we will refer to licensing as meeting state requirements to teach in a public school and certification as formal recognition of meeting high professional standards.

Shortcomings of the Current System

Typically, modern teacher licensing requirements include completion of a college degree, some form of clinical teaching experience, and often some type of formal testing. On the face of it, the vast majority of the nation’s teachers appear to be well qualified to teach. In 1998, 93 percent of elementary teachers held a regular license or advanced certification. Among departmentalized teachers, 92 percent reported that they had a regular license or advanced certification in the field in which they taught the most courses (Lewis, Carey, Bartfai, Farris, & Smerdon., 1999).

Despite these numbers, critics have argued that chronic shortages of certain subject area teachers, particularly mathematics and science, have been met by “lowering standards instead of increasing incentives to teach” (Darling-Hammond & Ball, 1997). Citing 1990 data from the Schools and Staffing Survey, they point out that 21 percent of all secondary teachers do not have even a minor in their main teaching field. In addition, out-of-field teachers teach 48 percent of high school students taking physical science. In 1998, 82 percent of full-time grade 7-12 mathematics teachers reported having a major or minor in mathematics (Lewis et al., 1999). Out-of-field teachers and unlicensed teachers

are disproportionately located in schools with high percentages of poor and minority students (Shields et al., 1999; Darling-Hammond, 1999b).

Darling-Hammond (1999b) argues that these disparities in the qualifications of teachers result in disparities in student performance:

...after controlling for student characteristics like poverty and language status, the strongest predictor of state-level student achievement in reading and mathematics on the NAEP was each state's proportion of well-qualified teachers (as defined by the proportion with full certification and a major in the field they teach). A strong negative predictor of student achievement was the proportion of teachers on emergency certificates.

This evidence suggests that serious problems are associated with teachers who lack preparation, but there is also no shortage of criticism of the quality and effectiveness of the existing licensing and certification system.

Although state licensing systems are designed to protect the public interest by ensuring that only qualified individuals enter the profession, the commonly held belief is that most newly licensed teachers are not well prepared to teach (Shields et al., 1999; Roth, 1996). According to critics:

- Licensing systems are not well defined or based on research.
- Licensing requirements include few credit hours of professional studies.
- Program approval processes concentrate on reviewing course documents instead of examining the content and delivery of coursework.
- Most states have numerous kinds and levels of certificates. (Clark & McNergney, 1990; Watts, 1982, cited in Roth, 1996)

In addition, most state systems are vulnerable to the whims of the state political process. State legislatures frequently add or subtract requirements for teacher licensing, resulting in a haphazard change process and an emphasis on detailed course requirements (Roth, 1996; Goodlad, 1990). Goodlad argues that these detailed course requirements intrude on the ability of teacher education programs to change and improve. At the same time, he notes that states often waive these requirements during periods of teacher shortages (Goodlad, 1990).

General dissatisfaction with the quality of teacher preparation programs has resulted in a flurry of legislative changes in licensing and certification requirements. For example, states like Texas, Virginia, and California reduced professional education course requirements, indicating that teacher education courses were of little value. At the

same time, many states increased the number of alternative routes into the profession. We discuss alternative certification in the next chapter.

New Requirements and Emerging Reforms

The persistence and longevity of “standards-based reform” has led some observers to declare an “Era of Standards” (Roth, 1996). Although the development of content standards in the late 1980s and early 1990s has always had implications for teacher licensing and certification, major changes in state licensing and certification requirements are still developing. In this section, we discuss state efforts to improve teacher preparation through changes to licensing and certification requirements, as well as the use of teacher examinations. In addition, we discuss the major national certification efforts to improve the professionalism and skills of both new and veteran teachers.

New Licensing Requirements

One outgrowth of standards-based reform and general displeasure with the quality of teacher preparation is state action to alter licensing and certification requirements. Although state actions share the common purpose of improving the quality of new teachers, they have taken a variety of approaches. Eleven states do not recognize baccalaureate degrees in education and require all teachers, not just secondary school teachers, to earn a degree in a content area. Typically, those states require the completion of a fifth year of professional education preparation, including supervised student teaching. At the same time, 13 states require a degree in education in order to be licensed (NASDTEC, 1998). In general, the states are increasing requirements, including additional examination requirements.

Some states have overhauled their entire teacher licensing system. For example, Connecticut has instituted a three-tier, performance-based system of licensure. Teacher candidates must earn a bachelor’s degree in an academic field, complete a state-approved teacher preparation program, and pass a variety of examinations to earn a 2-year Initial Educator Certificate. After completing the Beginning Educator Support and Training (BEST) program and having their teaching skills assessed as part of that program, teachers can earn a Provisional Educator Certificate. Finally, teachers can earn a Professional Educator Certificate with the completion of additional course requirements. The Professional Educator Certificate must be renewed every 5 years, and renewal requires continuing coursework.

Individual colleges and universities have also been active in improving their preparation programs and increasing requirements. For example, since 1986, about 300 colleges have created extended teacher education programs. Students in these programs earn both a bachelor's degree in an academic field and a master's degree in education (Darling-Hammond, 1998). These programs have the advantage of offering teacher candidates more field experience and a 5-year focus on becoming a teacher.

In addition to the efforts on individual campuses, most states have altered and raised their licensing requirements in recent years or are considering new requirements. For example, during 1997-98, at least 10 states made significant changes. As Hirsch, Koppich, and Knapp (1998) reported:

- Alaska now requires that teaching certificate applicants attend an accredited higher education institution.
- Florida unveiled minimum competencies necessary to become certified.
- Mississippi modified its license requirements both for alternative certification and for applicants from an approved teacher education program.
- New Hampshire created the credential of master teacher.
- North Carolina diversified its certification procedures, creating a three-tiered system of initial, continuing, and advanced certification tied to performance assessments, including those of the National Board for Professional Teaching Standards (NBPTS).
- Oregon created new Teacher Standards and Practices license categories with a professional development requirement attached to credential renewal.
- Texas created additional certification provisions, allowing educators to teach outside of their subject area or grade level on satisfactory completion of an examination or other assessment of qualifications.
- Ohio, Indiana, and Maryland, among others, overhauled their licensing and accreditation systems to incorporate NCATE standards for teacher education accreditation, INTASC standards for beginning teacher licensing, and NBPTS standards for accomplished teaching.

Exhibit III-1 displays the current status of the states' broad academic requirements for teacher licensing. The vast majority of states have similar requirements for coursework in general education, subject matter, and pedagogy. However, there are differences among the states as to course requirements in special education, health and nutrition, and computer education.

Exhibit III-1
BROAD ACADEMIC REQUIREMENTS FOR THE INITIAL TEACHING CERTIFICATE
 (Note: All states require a BA/BS degree)

State	General Education	Studies of Subject Matter	Pedagogical Studies	Course work in:				Notes and/or Additional Requirements
				Special Education	Health, Drug, Alcohol	Computer Education	Nutrition	
Alabama	X	X	X	(1)		(1)		(1) Content but not a course
Alaska	(1)	(1)	(1)	(1)	(1)	(1)		(1) Included in approved programs
Arizona	X	X	X	(1)	(1)	(1)		(1) Skill required
Arkansas	X	X	X					
California		X	X	(1)	(1)	(1)	(1)	(1) Required for second stage
Colorado	X	X	X	X				
Connecticut	X	(1)	X	X				(1) Subject area major required
Delaware	X	X	X	X				
D.C.	X	X	X	X	X	X	X	
Florida	X	X	X	X				2.5 GPA in subject matter
Georgia	X	X	X	X				Teaching of reading required for many subjects
Hawaii	X	X	X					
Idaho	X	X	X					
Illinois	X	X	X	X				
Indiana	X	(1)	X	X	X			(1) Multicultural Education, Reading
Iowa	X	X	X					Human relations course & exceptional learner course
Kansas	X	X	X	X	X	X		
Kentucky	X	X	X	X	X	X		
Louisiana	X	X	X				(1)	(1) Elementary only
Maine	X	X	X	X		X		
Maryland	X	X	X	X				
Massachusetts	X	X	X	X	X	X		
Michigan	X	X	X	X		X		
Minnesota	X	X	X		X			

Exhibit III-1 (Continued)

State	General Education	Studies of Subject Matter	Pedagogical Studies	Course work in:				Notes and/or Additional Requirements
				Special Education	Health, Drug, Alcohol	Computer Education	Nutrition	
Mississippi	X	X	X	X				
Missouri	X	X	X	X		X		
Montana	X	X	X					
Nebraska	X	X	X	X				Human relations course
Nevada	X	X	X					
New Hampshire	X	X	X	X		X		
New Jersey	X	X	X					
New Mexico	X	X	X	X		X		
New York	X	X	X	X	(1)			(1) Elementary only
North Carolina	X	X	X	X		X		
North Dakota	X	X	X	X				
Ohio	X	X	X	X	(1)	X		(1) Elementary only
Oklahoma	X	X	X	X				
Oregon		X	X	X				
Pennsylvania	X	X	X	X		X		
Rhode Island	X	X	X	X	X		(1)	(1) For early and health education
South Carolina	X	X	X	(1)		(1)		(1) Included in approved program
South Dakota	X	X	X	X	(1)	(1)		(1) Elementary only
Tennessee	X	X	X	X	(1)	(2)	(1)	(1) Elementary and health K-12 only (2) Included in Professional Education core for all teachers
Texas	X	X	X	X	X	X		
Utah	X	X	X	X	X	X		
Vermont	(1)	(1)	(1)	(1)	(1)	(1)		(1) Included in approved programs
Virginia	X	X	X	X	X			
Washington		X	X	X	X	X		

Exhibit III-1 (Concluded)

State	General Education	Studies of Subject Matter	Pedagogical Studies	Course work in:				Notes and/or Additional Requirements
				Special Education	Health, Drug, Alcohol	Computer Education	Nutrition	
West Virginia	X	X	X	(1)		(1)		(1) Must meet competencies, not specific coursework
Wisconsin	X	X	X	X	X		X	
Wyoming	X	X	X	X		X		

Source: NASDTEC (1998).

Although general course requirements appear fairly similar, the states have been actively revamping their licensing systems. For example, states are introducing multi-tiered licensure and certification systems. As of 1998, 27 states required a second-stage certificate and 42 states offered one. Following Connecticut's lead in establishing a three-tiered system, other states are considering adding special certification requirements for master teacher status or providing financial incentives for NBPTS certification (discussed later).

Policy-makers in California used new certification programs to address the needs of an increasingly diverse student population. Enacted in 1992 and referred to as the Crosscultural, Language, and Academic Development/Bilingual Crosscultural, Language, and Academic Development (CLAD/BCLAD) system, the program put in place new credentialing and training requirements to prepare teachers for the increasing linguistic diversity in the state's classrooms. The CLAD credential is for teachers providing instruction in English for English language learners; the BCLAD credential is for teachers who will work with students in their primary language. In addition, teachers with CLAD or BCLAD certification can receive additional training to earn a specialist credential. Prospective teachers can receive a CLAD/BCLAD credential through completing a preservice program of professional preparation at an institution of higher education with a program judged to have met the state's Program Standards. Although the number of CLAD/BCLAD certificates has grown dramatically in California, the impact of the program on teaching and learning has not been evaluated.

Despite the trend toward more rigorous licensing requirements, state requirements vary. For example, three states have no student teaching requirements, although individual higher education institutions may have requirements. Illinois requires only 8 weeks of student teaching, whereas Wisconsin requires 18 weeks. Similarly, 33 states require some kind of field experience prior to student teaching, but 17 do not or leave it up to the discretion of the preparation program.

The states are likely to continue to move toward more rigorous licensing and certification requirements. In Maryland, a 1995 redesign of teacher education called for a year of field-based professional development, among other things, by the year 2000. The state is currently engaged in a comprehensive initiative to change state law as it applies to the licensure of teachers, administrators, and specialists.

Teacher shortages, or the fear of them, are the biggest threat to efforts to raise licensing requirements. Predictions about the need for new teachers in the future vary,

but many urban and rural schools that serve poor and minority students are currently short of licensed teachers. More than half of the teachers in Compton, California, schools hold emergency permits and have not completed a teacher preparation program. Seventy-five percent of newly hired teachers in the Los Angeles Unified School District hold emergency permits (Shields et al., 1999). Thus, because of the need to put adults in classrooms to teach students, licensing requirements are relaxed for those willing to work in hard-to-staff schools.

New Testing Requirements

As we discussed in the preceding chapter, one state response to the reform movement initiated in the 1980s was a resurgence of competency testing for teachers. Currently, almost all states require some type of test for teacher candidates. More recently, many states have sought to require more rigorous tests. Through it all, there has been no shortage of critics. Sykes and Plastrik (1993) argued that there is a basic divide between

relatively narrow, instrumental conceptions of teaching represented in state licensure examinations, district evaluation schemes, and the content of inservice education, and...the more diffuse social and intellectual concerns of the university based curriculum of teacher education. (p. 39)

As of 1998, 45 states required candidates to pass some type of basic-skills exam or general-knowledge exam for either admission to a teacher preparation program or an initial license. However, only 13 states required that candidates pass an examination designed to assess their teaching performance. At the same time, 30 states required that candidates pass a subject matter examination (NASDTEC, 1998). In general, the trend across the states is to increase the number of examinations or to replace existing examinations with more rigorous ones. In 1998, 18 states were considering new or revised exams for licensing. During the same year, 26 new exams and 4 new performance assessments were introduced in 16 states (NASDTEC, 1998). Exhibit III-2 lists the examinations given for licensing or admission to a teacher preparation program in each state.

Just recently, the Educational Testing Service announced that it is revamping its Praxis tests to reflect the standards for teachers written by subject matter associations. In addition, ETS is piloting a new test, Praxis III, designed to assess beginning teachers' classroom performance. Currently, 37 states use Praxis tests for licensing, although many require only the Praxis I basic-skills test (NASDTEC, 1998). The expectation is

that alignment of the Praxis tests with standards is a step toward a fully integrated, standards-based system (Bradley, 1999).

**Exhibit III-2
ASSESSMENT REQUIREMENTS FOR INITIAL TEACHER LICENSURE**

State	Basic-Skills Exam:					Subject Matter Exam	Praxis ¹	General-Knowledge Exam	Knowledge of Teaching Exam	Assessment of Teaching Performance	Notes
	Reading	Math	Writing	Spelling	Other						
Alabama	(1)	(1)	(1)	(1)		(2)			(2)	X	(1) For admission to program (2) Institution's exit exam
Alaska							X				
Arizona	X	X			(1)						(1) Grammar
Arkansas	X	X	X			X	X		X		
California	X	X	X			(1)	X			X	(1) Or completion of an approved subject matter program
Colorado	X	X	X		(1)	X		X	X		(1) Oral English proficiency
Connecticut	X	X	X			X	X				
Delaware	X	X	X				X				
D.C.	X	X	X			X	X			X	
Florida	X	X	X			X	X	X	X	X	
Georgia						X	X				
Hawaii	X	X	X			X	X		X	X	
Illinois	X	X	X		(1)	X					(1) Grammar
Indiana	X		X		(1)	X	X	X	X		(1) Listening
Kansas	X	X	X				X		X		
Kentucky	(1)	(1)	(1)	X		X	X	X	X	X	(1) Required for admission to teacher education
Louisiana	X	X	X		(1)	X	X	X	X	X	(1) Communication skills
Maine					(1)		X	X	X		(1) Communication skills
Maryland	X		X	X	(1)	X	X	X	X		(1) Listening
Massachusetts											Two-part exam covering communication and literacy skills and subject matter knowledge for the certificate
Michigan	X	X	X			X		(1)			(1) Elementary Certificate exam (subject area exam)
Minnesota	X	X	X		(1)		X				(1) PPST required
Mississippi	X	X	X		(1)	X	X	X	X		(1) Listening
Missouri	(1)	(1)	(1)	(1)		X	X				(1) For entry into the teacher profession
Montana	X	X	X				X				
Nebraska	X	X	X				X				
Nevada	X	X	X			X	X		X		

Exhibit III-2 (Concluded)

State	Basic-Skills Exam:					Subject Matter Exam	Praxis ¹	General-Knowledge Exam	Knowledge of Teaching Exam	Assessment of Teaching Performance	Notes
	Reading	Math	Writing	Spelling	Other						
New Hampshire	(1)	(1)	(1)				X				(1) Demonstrate competence by: (a) college recommendation; (b) possession of MA or higher; (c) certification from state requiring basic-skills test; (d) statement from college
New Jersey						X	X	(1)			(1) For elementary education
New Mexico	X	X	X		(1)		X	X	X		(1) Listening
New York							X	X	X		
North Carolina	(1)	(1)	(1)		(2)	X	X		X		(1) Prior to entry into teacher education (2) Listening
North Dakota	(1)							X	X		(1) Prior to entry into teacher education
Ohio	X	X	X			X	X	X	X		
Oklahoma	X	X	X			X	X			X	
Oregon	X	X	X			(1)	X	X	X	(2)	(1) Communication skills & general-knowledge exams for elementary (2) For Oregon graduates
Pennsylvania	X		X		(1)	X	X	(2)	X		(1) Listening (2) Includes math
Rhode Island	X	X	X	X			X	X	X		
South Carolina	X	X	X			X	X		X		
South Dakota	X	X	X			X				X	
Tennessee	X	X	X			X	X	X	X	X	
Texas	X	X	X			X	X		X		
Virginia	X	X	X			X	X	X	X		
Washington	(1)	(1)	(1)								(1) For some, required prior to entering teacher education
West Virginia	X	X	X			X	X			X	
Wisconsin	X	X	X				X				

Source: NASDTEC (1998). Unlisted states (Idaho, Iowa, Utah, Vermont, and Wyoming) did not cite any assessment requirements for the initial teaching certificate.

¹ Praxis information available on-line: <http://www.teachingandlearning.org/licnsure/praxis/index.html>

Cut Scores

Each state that tests teachers determines what constitutes a passing score. These passing scores, also referred to as cut scores, vary from state to state and from test to test. It is difficult to compare cut scores across all states, because the states do not administer the same tests. However, as Exhibits III-3 and III-4 illustrate, among the states we can compare, cut scores are set rather low.

Exhibit III-3
STATE MINIMUM PASSING SCORES ON THE ETS PRAXIS PRE-PROFESSIONAL SKILLS TESTS (PPST),
BY SCORE PERCENTILE: 1997-1998

PPST: Reading				PPST: Writing				PPST: Mathematics			
Nat'l %	Nat'l Score	Min. Pass Score		Nat'l %	Nat'l Score	Min. Pass Score		Nat'l %	Nat'l Score	Min. Pass Score	
100	190			100	190			100	190		
80	183			80	179			80	184		
60	180	178	VA	60	176	176	VA	60	180	178 176	VA HI
40	177	177 175 174 173	DoDEA; 176 - NC DE, HI, WI, USVI NH, OR KS, KY, ME, MN	40	174	174 173 172	WI, DoDEA, USVI DE, NC GA, KS, KY, MD, MN, MS, NE, NH, NV, TN	40	175	175 173 170	FL, OR, DoDEA; 174 – DE, KS; GA, KY, NC, WI; 172 – ME, NH, WV; 171 – NE MT, NV, USVI
20	172	172 170 169	DC, FL, GA, NV, WV AR, MS, MT, NE TN	20	171	171 170 168	AR, DC, FL, HI, OR, WV MT ME	20	169	169	AR, MN, MS, TN
0	100			0	100			0	100		
Minimum Observed Score = 152; Max. = 188 Median Score (50%) = 178				Minimum Observed Score = 151; Max. = 190 Median Score (50%) = 175				Minimum Observed Score = 150; Max. = 190 Median Score (50%) = 178			

Source: U.S. Department of Education. (no date).

Exhibit III-4
STATE MINIMUM PASSING SCORES ON THE ETS PRAXIS CONTENT AREA TESTS AND THE PROFESSIONAL KNOWLEDGE TEST, BY SCORE PERCENTILE: 1997-1998

Content Knowledge Tests												Professional Knowledge Test			
English/Language Arts				Mathematics				Social Studies				Professional Knowledge Test			
Nat'l %	Nat'l Score	Min. Pass Score		Nat'l %	Nat'l Score	Min. Pass Score		Nat'l %	Nat'l Score	Min. Pass Score		Nat'l %	Nat'l Score	Min. Pass Score	
100	200			100	200			100	200			100	690		
80	190			80	157			80	180			80	670		
60	181			60	144	147	OR	60	172			60	665		
40	172	172	CT	40	134	141	CT, DC, KY	40	162	162	CT	40	660	661	NC
		165	FL			137	MO			158	FL, OR				
		164	HI, OR			136	HI, TN			157	PA			653	PA
		163	GA			124	GA			154	HI				
20	162			20	121			20	153	153	NJ	20	652		
		158	MO; 157 – TN							152	MO, NV			649	NV; 648 – KY, LA; 645 – KS;
		155	NJ, WV							151	GA			644	IN; 643 – NJ; 642 – AR, HI, NH, NY; 630 – MT, NM
		153	PA; 142 – DC; 138 – KY							148	WV; 146 – KY; 145 – DC				
0	100			0	100			0	100			0	600		
Minimum Observed Score = 100; Max. = 200 Median Score (50%) = 176				Minimum Observed Score = 100; Max. = 200 Median Score (50%) = 139				Minimum Observed Score = 106; Max. = 200 Median Score (50%) = 166				Minimum Observed Score = 600; Max. = 685 Median Score (50%) = 663			

Source: U.S. Department of Education. (no date).

Exhibit III-3 does not include all of the many Praxis tests that states require, but it does point to the fact that in some states students may enter a teacher preparation program with a score that places them below the 20th percentile of all test takers on the Praxis I, a basic-skills test. Similarly, some states award licenses to teacher candidates with scores that place them below the 20th percentile on Praxis II, a test designed to measure content knowledge in the subject they will teach.

Performance-Based Assessment of Teaching

At the same time that the states have dramatically increased the number of tests that teachers are required to take for licensure, some states and national groups have attempted to introduce performance-based assessment of teaching into their licensing and certification systems. Spearheading the effort to define the standards for both beginning and experienced teachers and develop systems for assessing are three national organizations. Proponents argue that the National Council for Accreditation of Teacher Education (NCATE), the Interstate New Teacher Assessment and Support Consortium (INTASC), and the National Board for Professional Teaching Standards (NBPTS) are central to the national effort to increase the professionalism of teaching (Darling-Hammond, 1999a). The National Commission on Teaching and America's Future argued that together the standards "could become a powerful lever for change" (NCTAF, 1996, pp. 29-30). Having discussed NCATE's efforts in the preceding chapter, we turn to the work of INTASC and NBPTS in this section.

Interstate New Teacher Assessment and Support Consortium (INTASC)

INTASC was founded in 1987 by Connecticut Commissioner of Education Gerald Tirozzi and California Superintendent of Public Instruction Bill Honig (Roth, 1996). The consortium now includes representatives from 30 state education departments, teacher unions, and various national education organizations (Bradley, 1997). INTASC has developed a set of model standards for what every beginning teacher should know and be able to do, content-specific standards for licensure in core disciplines, and sample portfolio assessments for measuring new teachers' competence.

INTASC standards are articulated through 10 principles, each of which is further described in terms of knowledge, dispositions, and performances. These are the basis for subject-specific standards. The 10 principles are:

- Principle 1: The teacher understands the central concepts, tools of inquiry, and structures of the discipline(s) he or she teaches and can create learning experiences that make these aspects of subject matter meaningful for students.
- Principle 2: The teacher understands how children learn and develop, and can provide learning opportunities that support their intellectual, social and personal development.
- Principle 3: The teacher understands how students differ in their approaches to learning and creates instructional opportunities that are adapted to diverse learners.
- Principle 4: The teacher understands and uses a variety of instructional strategies to encourage students' development of critical thinking, problem solving, and performance skills.
- Principle 5: The teacher uses an understanding of individual and group motivation and behavior to create a learning environment that encourages positive social interaction, active engagement in learning, and self-motivation.
- Principle 6: The teacher uses knowledge of effective verbal, nonverbal, and media communication techniques to foster active inquiry, collaboration, and supportive interaction in the classroom.
- Principle 7: The teacher plans instruction based upon knowledge of subject matter, students, the community, and curriculum goals.
- Principle 8: The teacher understands and uses formal and informal assessment strategies to evaluate and ensure the continuous intellectual, social and physical development of the learner.
- Principle 9: The teacher is a reflective practitioner who continually evaluates the effects of his/her choices and actions on others (students, parents, and other professionals in the learning community) and who actively seeks out opportunities to grow professionally.
- Principle 10: The teacher fosters relationships with school colleagues, parents, and agencies in the larger community to support students' learning and well-being. (INTASC, 1992)

About half of the states are using the INTASC model standards. Other states, like California, have teaching standards that are closely aligned with the INTASC standards (Humphrey, Finnegan, & Shields, 1998). Although most states still base teacher licensing requirements on course-taking and basic-skills testing, there is increasing interest in performance-based licensing systems. The INTASC licensing system includes a subject matter examination, a test of teaching knowledge, and an assessment of classroom performance. Classroom performance is assessed through videotapes, sample lessons, assignments, and student work. INTASC is not designed to become a testing agency; rather, states will pay a fee for use of INTASC products.

National Board for Professional Teaching Standards (NBPTS)

In *A Nation Prepared: Teachers for the 21st Century*, the Carnegie Forum on Education and the Economy (1986) called for the creation of NBPTS. NBPTS was charged with establishing standards for what accomplished teachers should know and be able to do. In addition, NBPTS has developed and operated a national voluntary system to certify accomplished teachers. By 1997, NBPTS had certified just over 900 teachers, and it expects to certify 100,000 over the next decade (Darling-Hammond, 1999a).

The 63-member National Board developed standards around five major propositions. The propositions are elaborated in standards for each of 30 areas of subject matter discipline and developmental level. The propositions are:

- Teachers are committed to students and their learning.
- Teachers know the subjects they teach and how to teach those subjects to students.
- Teachers are responsible for managing and monitoring student learning.
- Teachers think systematically about their practice and learn from experience.
- Teachers are members of learning communities. (Darling-Hammond, 1999a)

By offering teachers certification based on these propositions and the standards that follow from them, NBPTS is making an explicit attempt to establish a system similar to board certification in medicine, architecture, and accounting (Darling-Hammond, 1999a).

Influences of INTASC and NBPTS

There is considerable evidence that both INTASC and NBPTS have made significant progress in influencing state and district policies, but also that much remains to be done if a standards-based system of teacher licensure and certification is to become a national reality. Twenty-four states have adopted INTASC standards as their own; 33 states are members of INTASC. A rapidly growing number of states and districts have incentives for teachers to pursue NBPTS certification, and 17 states now accept NBPTS certification as the basis for granting a license to an out-of-state teacher. As mentioned earlier, 41 states had partnerships with NCATE by 1997 (Darling-Hammond, 1999a).

There is also some evidence that INTASC- and NBPTS-influenced policy changes are having an impact on teacher preparation programs. Darling-Hammond (1999a) cites reports from the University of Arkansas at Monticello, the University of North Dakota, and George Washington University as examples. In addition, she points to Connecticut,

with its use of INTASC-based performance assessments in its licensing and certification system, as the state that has moved farthest toward a standards-based system.

It is perhaps too soon to expect a body of research on the impact of these emerging policy changes on teaching and learning. As Darling-Hammond (1999a) notes:

While evidence of the power of these tools for engendering more thoughtful practice is hopeful, we still do not know what combination of teacher development opportunities and school conditions are most likely to result in high-quality teaching of the sort anticipated by the standards and, in turn, in high levels of student learning. Nor do we know which combinations of conditions will be cost effective or whether these vary based on the context, state of teaching career, etc. . . . Finally, while there is substantial testimony that teachers learn a great deal by participating in these assessments, we do not know exactly what kind of learning takes place, under what circumstances, and how it can be harnessed to the cause of sustained professional development and widespread improvement in teaching. (p. 36)

Despite the lack of research that will answer these questions, there is a remarkable consensus among educational leaders and many policy-makers as to the promise of a standards-based system of teacher development.

Research on the Impact of New Licensing and Certification Requirements

The research on the impact of licensing and certification requirements is not easily distinguished from the research on teacher preparation described in the preceding section. Researchers use licensure as a proxy for teacher preparation or combine licensure, experience, and examination scores as a proxy for teacher quality. In any case, very little research has been done on the impact of licensing and certification on teaching and learning.

Although licensing requirements alone do not necessarily guarantee that teachers will be effective, the existing research suggests that rigorous licensing requirements, when combined with other factors, positively affect teaching and learning. Ferguson (1991) defined teacher expertise as teacher education, licensing examination scores, and experience. He found that teacher expertise accounted for more variation in student achievement than any other factor (43 percent of the total). Similarly, Greenwald, Hedges, and Laine (1996) found that teacher education, ability, and experience, along with small schools and lower pupil-teacher ratios, are associated with higher student achievement. A 1989 study of high- and low-performing schools in New York City found that teacher qualifications accounted for about 90 percent of the variation in

student achievement (Armour-Thomas, Clay, Bruno, & Allen, 1989, cited in Darling-Hammond & Ball, 1997).

Darling-Hammond's (1999b) analysis of NAEP data illustrated that the strongest predictor of state-level student achievement in reading and mathematics was each state's proportion of teachers with full certification and a major in the field they teach. In addition, she found that the proportion of teachers on emergency certificates was a strong negative predictor of student achievement. A recent SRI study (Shields et al., 1999) found that teachers holding emergency permits in California are concentrated in urban schools with large proportions of poor and minority students. In addition, the SRI study found that the percentage of teachers holding an emergency permit is highest in those schools with the lowest test scores.

Raising licensing requirements to extend teacher preparation programs appears to improve the confidence of new teachers and increase the likelihood that they actually enter the profession. Andrew and Schwab (1995) compared the graduates of 4- and 5-year programs at 11 universities. They found that graduates of 5-year programs felt better prepared than 4-year-program graduates. In addition, over 90 percent of 5-year-program graduates entered the profession, compared with 60 to 80 percent of 4-year-program graduates. After 3 years, 80 percent of 5-year-program graduates remained in teaching compared, with 50 to 70 percent of 4-year-program graduates.

The National Commission on Teaching and America's Future examined such studies of extended teacher preparation programs and concluded that the extended programs may be more cost-effective than traditional 4-year programs. The Commission estimated that for every 100 candidates who begin traditional 4-year programs, only 40 earn a degree and seek and find teaching jobs. Three years later, only 28 are still teaching. In contrast, the Commission estimated that 75 out of 100 candidates from extended preparation programs graduate, find jobs, and are still teaching after 3 years. The Commission also noted that the extended programs often were more ethnically diverse than traditional 4-year programs (Darling-Hammond, 1998; NCTAF, 1996).

Despite these positive findings, a recently released RAND study on teacher shortages in Texas found that teachers entering the profession with advanced degrees have higher attrition rates than those entering with a bachelor's degree (Kirby, Naftel, & Berends, 1999). This finding suggests that teachers with advanced degrees may have greater opportunities in the nonteaching employment market.

Thus, the research on licensure and certification is limited but generally points to the benefits of more rigorous standards and requirements. At the same time, a cautionary note is worth mentioning. Standard setting that is overly codified may restrict alternative practices and advances in the field of teaching. In addition, highly restrictive requirements could reduce access to the profession, particularly among groups that have traditionally not had opportunities to acquire the specified skills and knowledge (Darling-Hammond, 1999a). Therefore, raising standards and requirements for entrance into the teaching profession must be accompanied by efforts to increase opportunities for access to groups traditionally underrepresented in the profession. In addition, much more needs to be known about the impact of new requirements and standards on the profession and on student learning.

Needed Research and Methodological Issues

The rapid pace of change in state requirements for licensure and certification has outpaced research on the impact of those changes on teaching and learning. As a result, there are numerous research questions that are not fully addressed in the literature. In addition, the existing research is limited by a tenuous link between licensing and teacher quality. However, as the requirements for teacher licensure are raised and certification for accomplished teachers becomes more prevalent, research on licensure and certification becomes increasingly important.

The research that needs to be conducted includes:

- **Impact of certification on master teachers.** Little is known about how the process of earning advanced certification changes teacher practice. In addition, little is known about what happens to teachers once they earn advanced certification.
- **Impact of performance assessments on teacher quality.** More needs to be known about the ability of new performance assessments to measure and enhance teacher quality. It is also unclear whether the new performance assessments prevent promising candidates from entering the profession, particularly among traditionally underrepresented groups.
- **Impact of extended programs on teacher quality and attrition.** Although the research seems to point to the benefits of extended programs, more longitudinal studies that compare teachers from traditional and extended preparation programs are needed. In particular, the research on teacher attrition and extended programs is too limited and somewhat contradictory.
- **Impact of extending field experience.** The research on extending the requirements for field experience for teacher candidates is limited. Much more

needs to be known about the amount and kinds of field experiences that produce high-quality teachers.

- **Impact of the concentration of emergency teachers.** We are only beginning to understand how large numbers of underprepared teachers affect schools, the teacher preparation system, and district support systems. In addition, the impact of high concentrations of emergency teachers on student achievement is only beginning to be understood.
- **Special preparation needs of urban teachers and teachers serving linguistically diverse students.** It is not clear what skills and knowledge best prepare teachers to work in urban schools serving poor, limited-English-proficient, and minority students. More needs to be known about the impact of special certification programs like California's CLAD/BCLAD.

Finally, policy-makers' recent attention to teacher quality issues is beginning to change the way they conceptualize teacher development. Increasingly, policy-makers are breaking down the barriers between teacher preparation and licensing, induction, and professional development and advanced certification. In particular, policy-makers are beginning to view licensing as just a step along a continuum rather than an end point or the completion of higher education's responsibility for teacher quality. As this conception of licensing and certification matures, we are likely to see a variety of new policies aimed at elevating the status of the teaching profession. Refinement of such policy changes requires a much richer research base on licensing and certification than currently exists. In particular, large-scale longitudinal studies of teacher development systems are needed if policy-makers are to understand the impact of their actions on teaching and learning.

References for Chapter III

- American Association of Colleges for Teacher Education (AACTE). (1986). *Teacher certification*. Washington, DC: ERIC Clearinghouse on Teacher Education.
- Andrew, M., & Schwab, R. (1995). Has reform in teacher education influenced teacher performance? An outcome assessment of graduates of eleven teacher education programs. *Action in Teacher Education, 17*, 43-53.
- Armour-Thomas, E., Clay, C., Bruno, D., & 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.
- Bradley, A. (1997, May 21). Licensure pact pays dividends for teaching. *Education Week, 16*, 5.
- Bradley, A. (1999, October 24). Tests to reflect new teachers' subject savvy. *Education Week, 19*, 9.
- Clark, D. L., & McNergney, R. F. (1990). Governance of teacher education. In W. R. Houston, M. Haberman, & J. Sikula (Eds.), *Handbook of research on teacher education* (pp. 101-118). New York: Macmillan.
- Darling-Hammond, L. (1998). Teachers and teaching: Testing policy hypotheses from a National Commission report. *Educational Researcher, 27*(1), 5-15.
- Darling-Hammond, L. (1999a). *Reshaping teaching policy, preparation and practice: Influences of the National Board of Professional Teaching Standards*. Washington, DC: AACTE Publications.
- Darling-Hammond, L. (1999b). *Solving the dilemmas of teacher supply, demand, and standards – How we can ensure a competent, caring, and qualified teacher for every child*. Retrieved October 15, 1999, from the World Wide Web: <http://www.tc.columbia.edu/~teachcomm/CONFERENCE-99/SOLVING/>
- Darling-Hammond, L., & Ball, D. L. (1997, June). *Teaching for high standards: What policymakers need to know and be able to do*. National Commission on Teaching and America's Future. Consortium for Policy Research in Education.
- Earley, P. M. (1987). State and federal report: The importance of state-level activities. *Teacher Education Quarterly, 14*(3), 105-107.
- Ferguson, R. (1991). Paying for public education: New evidence on how and why money matters. *Harvard Journal of Legislation, 28*(1), 465-498.
- Galbraith, M. W., & Gilley, J. (1985). An examination of professional certification. *Lifelong Learning, 9*(2), 12-15.

- Goodlad, J. I. (1990). *Teachers for our nation's schools*. San Francisco: Jossey-Bass.
- Greenwald, R., Hedges, L., & Laine, R. (1996). The effect of school resources on student achievement. *Review of Education Research*, 66(2), 361-396.
- Hirsch, E., Koppich, J. E., & Knapp, M. S. (1998). *What states are doing to improve the quality of teaching—A brief review of current patterns and trends*. Seattle, WA: Center for the Study of Teaching and Policy.
- Humphrey, D., Finnegan, K., & Shields, P. (1998). *The consistency and coherence of standards for California teachers*. Menlo Park, CA: SRI International.
- Interstate New Teacher Assessment and Support Consortium (INTASC). (1992). *Model standards for beginning teacher licensing and development: A resource for state dialogue*. Washington, DC: Council of Chief State School Officers.
- Kirby, S. N., Naftel, S., & Berends, M. (1999). *Staffing at-risk school districts in Texas: Problems and prospects*. Santa Monica, CA: RAND Corporation.
- Lewis, B. P., Carey, N., Bartfai, N., Farris, E., & Smerdon, B. (1999). *Teacher quality: A report on the preparation and qualifications of public school teachers*. (Statistical analysis report, Fast Response Survey System NCES 1999.) Washington, DC: U.S. Department of Education, National Center for Education Statistics.
- Monroe, P. (Ed.). (1911). Certification of teachers. *A cyclopedia of education* (pp. 560-563). New York: The Macmillan Co. (Republished Detroit: Gale Research Company, 1968.)
- National Association of State Directors of Teacher Education and Certification (NASDTEC). (1998). *The NASDTEC manual on the preparation and certification of educational personnel* (4th ed.). Seattle: Kendal/Hunt.
- National Commission on Teaching and America's Future (NCTAF). (1996). *What matters most: Teaching for America's future*. New York: Author.
- Roth, R. A. (1996). Standards for certification, licensure, and accreditation. In J. Sikula (Ed.), *Handbook of research on teacher education* (2nd ed., pp. 242-278). New York: Macmillan.
- Shields, P. M., Esch, C. E., 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.
- Smith, D. C. (1990). Accreditation of teacher education institutions: An interview with Richard Kunkel. *Journal of Teacher Education*, 41(4), 3-6.

Sykes, G., & Plastrik, P. (1993, May). *Standard setting as educational reform* (Trends and issues paper No. 8). Washington, DC: ERIC Clearinghouse on Teacher Education and American Association of Colleges for Teacher Education.

U.S. Department of Education. (no date). *The initial report of the Secretary on the quality of teacher preparation*. Washington, DC: Author.

Watts, D. (1982). Can campus-based preservice teacher education survive? *Journal of Teacher Education*, 33(4), 35-39.

IV. BUILDING ALTERNATIVE ROUTES INTO THE PROFESSION

Alternative routes to teaching are generally programs designed to entice persons from various occupational and life experiences to become teachers, thereby increasing the quantity and diversity of applicants to the profession (Feistritzer, 1993, 1998; Stoddart, 1993; Wise, 1994; McKibbin & Ray, 1994). Although this definition has changed considerably over the past 20 years (Feistritzer, 1997), a majority of the programs conceived of from the mid-1980s through the late 1990s seem to fall into the above category. Hawley (1992) asserts that, ultimately, alternative certification is a form of *alternative licensure* because it allows persons to circumvent the traditional university-based programs and appeal directly to the state for a teaching license.

Alternative teacher education programs proliferated in the mid-1980s, when projected teacher shortages pushed many state education departments and school districts to create ways of obtaining a teacher for every classroom (Feistritzer, 1993; Dial & Stevens, 1993). Feistritzer (1994) questioned whether the shortages really exist; however, the market for alternative certification seems to be continually growing. The irony of the simultaneous growth of alternative programs and raised standards for teachers across the nation has not gone unnoticed (Dill, 1996). A tension has developed between those who applaud alternative certification and those who disdain it because they feel that it weakens the teaching profession.

The multiple efforts to increase alternative routes to teaching have led to more focused programs in urban areas where the most prominent shortages remain unmitigated, in spite of more than enough teacher education graduates (Feistritzer, 1993; Natriello & Zumwalt, 1993; McKibbin & Ray, 1994; Dill, 1994; Stafford & Barrow, 1994; Keltner, 1994). Since not enough traditionally certified teachers choose to teach or continue teaching in urban districts, some alternative programs are designed to increase the flow of urban minorities into teaching positions in urban districts. Although shortages of teachers also exists in numerous rural areas, especially in the South, alternative programs are just beginning to address this issue. Of the programs mentioned in this literature review, only two, Teach for America and Troops to Teachers, report placing teachers in rural areas.

State governments decide whether alternative methods of certification will be allowed. Typically, state education agencies encourage institutions of higher education to start new programs, or, in some cases, IHEs create programs themselves in an effort to

attract new candidates. The recruitment and alternative certification processes also take place on a national level. Although the states ultimately license teachers, national programs work with states or districts to place teachers in urban or rural areas.

This chapter examines alternative certification and its current status in the realm of teacher education. First, we describe the incidence of efforts to create alternative routes to certification: the numbers of programs available throughout the states and the numbers of teachers certified by alternative means. We then discuss the general characteristics of alternative programs and describe key programs from throughout the United States, including evaluation data where available. We then outline what is known about the impacts and outcomes of the alternative certification programs. Finally, we examine the methodologies of studies on alternative certification and how they influence the conclusions we can make about alternative certification.

Incidence of Alternative Routes to Licensure

Determining the number of alternative routes depends on how they are classified. Feistritzer (1993), who has been collecting information on alternative programs for the National Center for Education Information (NCEI) since 1983, established a classification system in an effort to categorize the myriad state-run alternative programs. Feistritzer & Chester (1998, 2000) note a large increase in the number of states accepting alternative certification from 1983 through 1997: in 1983, 8 states allowed alternative certification programs; by 1999, 40 states and the District of Columbia had 117 state-run programs. Feistritzer and Chester (2000) estimate that since 1983, state-run alternative certification programs have licensed 125,000 persons.

In contrast to Feistritzer's estimate, an American Association of Colleges for Teacher Education (AACTE) publication, *Alternative Paths to Teaching: A Directory of Postbaccalaureate Programs* (1996), catalogues 328 alternative programs run by colleges and universities. In both publications, programs vary from fairly traditional, university-based programs requiring coursework and an internship to the less traditional Troops to Teachers program organized by the Department of Defense. Since university programs do not consistently report enrollment and graduation numbers, we only have a rough idea of how many students receive teacher licenses through university-run alternative programs.

Exhibit IV-1 provides a list of selected programs available in 45 states, as described in Feistritzer and Chester (1998). Not included are programs involving small numbers of

teachers (e.g., eminence credential programs) or very common “alternative” programs, such as state-to-state transfer, changing or adding of subject areas, and most emergency credential programs (except for high-incidence states).

Unfortunately, consistently reported numbers for the various alternative programs do not exist. Both states and IHEs frequently fail to gather or report complete information on the number of graduates or enrollees in each program. Some states and IHEs did not collect data in certain years; other states and IHEs collect information only on certain programs for which they are required to report or collect data. In addition, Feistritzer and Chester (2000) note that their efforts to collect information are confounded by the 30 different titles used for initial teacher certification and the more than 50 titles states use to describe their second-stage teacher certification. Still, Feistritzer and Chester have some of the most reliable numbers in the nation for alternative programs.

Exhibit IV-2 shows the percentages of teachers receiving alternative licenses within high-incidence states. Although we can say with certainty that California and Texas have higher *numbers* of alternatively certified teachers than most states, we can only estimate the overall statewide percentages of alternatively certified teachers who are currently teaching. Some states have very high percentages of alternatively certified teachers (e.g., New Jersey was at 27 percent in 1995-96), but the high percentages do not necessarily equate to a large number of teachers.

Nationally, very few teachers receive licenses through alternative programs. In Texas and California, where the largest alternative programs exist, alternatively certified teachers account for an average of only 5 percent (California) to 15 percent (Texas) of the teachers receiving certificates (the percentages do not include emergency permits). From 1985 to 1995, Texas licensed 19,455 teachers through its programs—a number that would not even total a year’s worth of new teacher candidates from the state (Feistritzer & Chester, 1998). California’s 1999-2000 budget included \$11.0 million to provide for 7,300 interns throughout the state (Shields et al., 1999). For the 1997-98 school year, the 146 university internship programs in California provided approximately 4,500 teachers, and district internship programs had just under 1,500 teachers in five districts (Shields et al., 1998).

In New Jersey, where the *percentage* of alternatively certified teachers is much higher than in California and Texas, the 27 percent figure represents only about 600 to 700 teachers who are being alternatively licensed throughout the state in a given year (Feistritzer & Chester, 1998). National programs, such as Teach for America (TFA) and

Troops to Teachers (TTT), contribute comparatively small numbers of teachers. For 1998-99, 1,400 TFA teachers were to be placed in 13 regions (TFA, 1999). From 1994 to 1998, 3,000 teachers from the TTT program were placed in classrooms across the nation (Feistritzer & Chester, 1998).

**Exhibit IV-1
INCIDENCE OF ALTERNATIVE LICENSURE PROGRAMS**

State and Programs	Motivation for Creating the Program	Location of Teaching Assignment	Level of Support	Primary Responsibility
Alabama (1) Fifth-year Alternative Program	(1) Quality-controlled alternative route	(1) No restrictions	(1) None	(1) IHE
Alaska (1) University of Alaska Southeast M.A.T.	(1) Attract career changers	(1) No restrictions	(1) None	(1) IHE
Arizona (1) Alternative Secondary Certificate (2) Emergency Certificate	(1) Increase the applicant pool (2) Shortage	(1) No restrictions (2) Districts with documented shortages	(1) Mentors (2) None	(1) LEA (2) LEA
Arkansas (1) Alternative Certification Program (2) Probationary Provisional Certificate	(1) Increase the pool of minority applicants in shortage areas (2) Increase the applicant pool	(1) Districts with documented need for alternative programs (2) Districts with documented shortages	(1) Mentor for 1 year (2) None	(1) SEA (2) SEA
California (1) District Intern Certificate (2) University Intern Credential (3) Pre-Internship Certificate (4) Emergency Permit	(1) Supply and demand (2) Subject area shortages (3) Undertrained teachers (4) Shortage	(1) Districts with supply problems in certain subjects (2) Same as above (3) Same as above (4) Same as above	(1) Mentors (2) Support team (3) Support team (4) None	(1) LEA (2) IHE and LEA (3) LEA (4) LEA
Colorado (1) Alternative Teacher Program	(1) Attract career changers and minority applicants.	(1) No restrictions	(1) Support team	(1) LEA and/or IHE
Connecticut (1) Alternative Route to Teacher Certification	(1) Attract career changers and increase applicant quality	(1) No restrictions	(1) Beginning Educators Support and Training	(1) SEA
Delaware (1) Delaware Alternative Route to Certification	(1) Ease the path to a credential for district employees	(1) Must work for district	(1) Mentor and supervision	(1) Consortium
District of Columbia (1) Provisional Teacher Program (2) Teach for America	(1) Increase the applicant pool in shortage areas (2) Same as above	(1) Up to a 5-year commitment to the district (2) 2-year commitment to TFA	(1) Support team (2) Support team	(1) LEA (2) LEA and TFA
Florida (1) Temporary Certificate	(1) Increase the applicant pool in shortage areas	(1) No restrictions	(1) None	(1) SEA

Exhibit IV-1 (Continued)

State and Programs	Motivation for Creating the Program	Location of Teaching Assignment	Level of Support	Primary Responsibility
Georgia (1) Teach for America (2) Post-baccalaureate Non-Degree Preparation Programs (3) Preparation Program for Military Personnel (4) Provisional Certification	(1) Increase the applicant pool (2) Same as above (3) Same as above (4) Same as above	(1) 2-year commitment to TFA (2) No restrictions (3) No restrictions (4) No restrictions	(1) None (2) None (3) None (4) None	(1) IHE, LEA, and TFA (2) IHE (3) IHE (4) IHE
Hawaii (1) Alternative Program for Shortage Areas	(1) Increase the applicant pool in shortage areas	(1) Must work for district	(1) None	(1) IHE
Idaho (1) Secondary Field Centered Teacher Training Program	(2) Increase the applicant pool	(1) Must work for designated district for 2 years	(1) Mentors	(1) IHE, SEA, and LEA
Illinois (1) The Clinical Model Program (2) Teachers for Chicago	(1) Increase the applicant pool of minorities and career changers (2) Increase the pool of minority applicants in shortage areas	(1) Must work for designated district for 2 years (2) 2- to 4-year commitment to Chicago district	(1) Support team (2) Mentors and stipend for courses	(1) IHE and LEA (2) IHE and LEA
Kansas (1) Post baccalaureate Program to Alternative Certification	(2) Increase the applicant pool in shortage areas	(1) Must work for district	(1) None	(1) IHE
Kentucky (1) Exceptional Experience Option (2) Alternative Certification (3) Experimental Secondary Teacher Preparation Program	(1) Increase the applicant pool (2) Ease the process for career changers (3) Increase the applicant pool in certain subject areas	(1) No restrictions (2) No restrictions (3) No restrictions	(1) None (2) Mentors (3) Mentors	(1) LEA (2) LEA and IHE (3) LEA and IHE
Louisiana (1) Temporary Teaching Assignment	(1) Increase the applicant pool	(1) No restrictions	(1) None	(1) LEA
Maine (1) Transcript Analysis	(2) Increase the applicant pool	(1) No restrictions	(1) None	(1) SEA
Maryland (1) Resident Teacher Certificate	(1) Increase the applicant pool	(1) No restrictions	(1) None	(1) LEA
Massachusetts (1) Certification Review Panel (2) Waiver	(1) Ease the process for non-traditional candidates (2) Shortage	(1) No restrictions (2) No restrictions	(1) None (2) None	(1) SEA (2) LEA

Exhibit IV-1 (Continued)

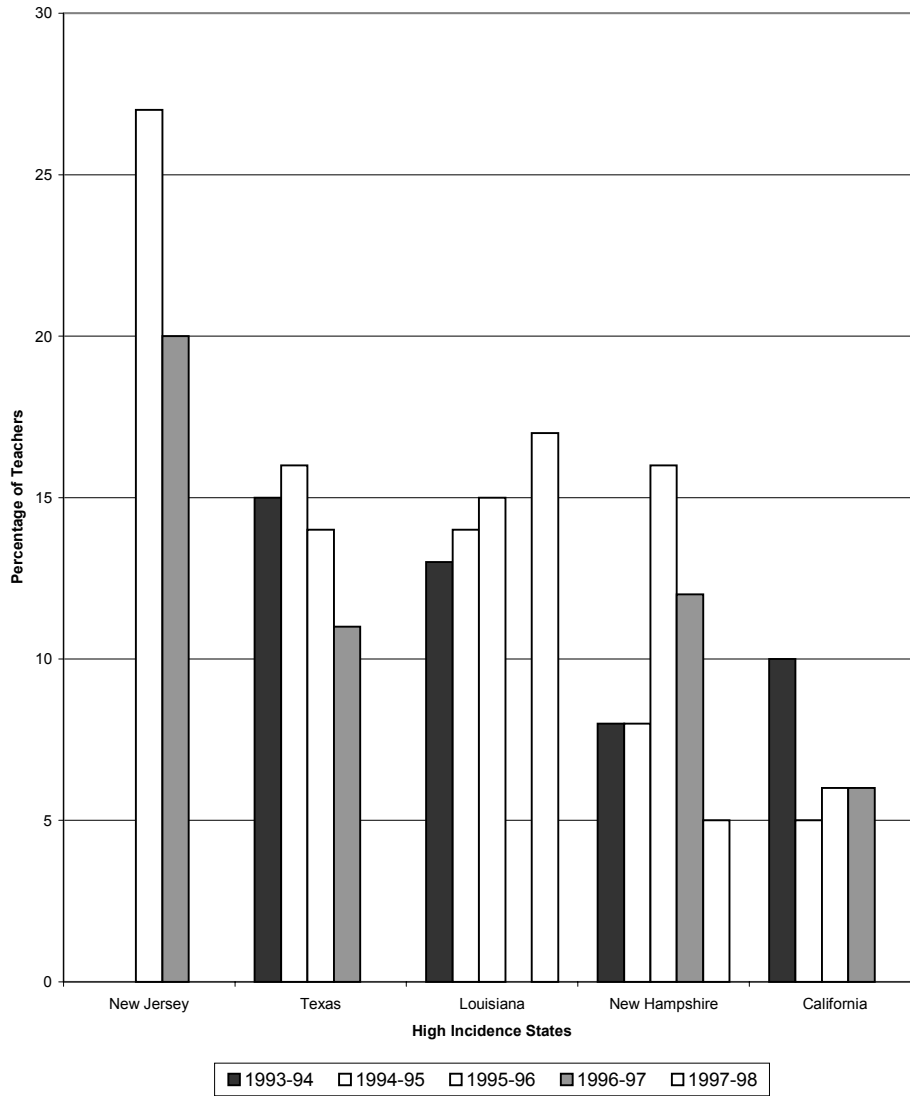
State and Programs	Motivation for Creating the Program	Location of Teaching Assignment	Level of Support	Primary Responsibility
Michigan (1) Michigan's Alternative Routes to Teacher Certification (MARTC) (2) Emergency Permit	(1) Increase the applicant pool in shortages and subject matter areas (2) Shortage	(1) No restrictions (2) Must work for district with documented shortages	(1) Supervision (2) None	(1) Collaborative (2) SEA
Minnesota (1) Alternative Preparation to Teacher Licensure Program	(1) Increase the pool of minority and nontraditional applicants	(1) Must work for district	(1) Supervision	(1) SEA
Mississippi (1) Alternate Route Provisional Certificate	(2) Increase the applicant pool	(1) No restrictions	(1) Mentors	(1) SEA
Missouri (1) Alternative Certification Program	(1) Increase the applicant pool	(1) No restrictions	(1) Mentors	(1) IHE
New Hampshire (1) Provisional Certification Plan (2) Individual Professional Development Plan (3) Emergency Permission to Employ	(1) Career changers (2) Critical shortage (3) Shortage	(1) No restrictions (2) No restrictions (3) No restrictions	(1) Mentors (2) None (3) None	(1) SEA and LEA (2) SEA (3) SEA
New Jersey (1) Provisional Teacher Program	(1) Increase the quality and quantity of applicants	(1) No restrictions	(1) Support team	(1) LEA, IHE, and SEA
New Mexico (1) Alternative Licensure	(1) Increase the applicant pool	(1) No restrictions	(1) None	(1) LEA, IHE, and SEA
New York (1) Temporary License	(1) Shortage	(1) No restrictions	(1) None	(1) SEA
North Carolina (1) Modified Licensure Plan (2) Lateral Entry Provisional License	(1) Increase the applicant pool in shortage areas (2) Increase the applicant pool	(1) Must work for district (2) Same as above	(1) None (2) None	(1) LEA (2) IHE
North Dakota (1) Emergency License	(1) Shortage	(1) No restrictions	(1) None	(1) SEA
Ohio (1) Internship Certification Program	(1) Increase the applicant pool	(1) No restrictions	(1) Mentors	(1) LEA and IHE
Oklahoma (1) Alternative Placement Program	(1) Increase the applicant pool in shortage areas	(1) Must work in the state after program	(1) None	(1) SEA
Oregon (1) Interim Teacher License and License of Accomplishment	(1) Increase the applicant pool in shortage areas	(1) Must work in certain subject areas	(1) None	(1) SEA

Exhibit IV-1 (Concluded)

State and Programs	Motivation for Creating the Program	Location of Teaching Assignment	Level of Support	Primary Responsibility
Pennsylvania (1) Teacher Intern Program	(1) Increase the minority and career changer applicant pool in certain subject areas	(1) Must find a job in a district and work for 3 years	(1) Mentors	(1) IHE
South Carolina (1) Critical Need Conditional Certificate	(1) Shortage	(1) Must work for district	(1) None	(1) SEA
South Dakota (1) Alternative Certification	(1) Shortage	(1) Must find a job in a participating district	(1) None	(1) SEA and IHE
Tennessee (1) Alternative Preparation for Licensure (2) Permit to Teach	(1) Attract career changers (2) Alleviate documented shortage	(1) No restrictions (2) Must work for district with a documented shortage	(1) Mentors (2) None	(1) IHE (2) SEA
Texas (1) Alternative Teacher Certification	(1) Increase the applicant pool	(1) Must agree to teach in participating district	(1) Mentors	(1) Collaboration
Utah (1) Alternative Preparation for Teaching Program	(1) Increase the applicant pool	(1) No restrictions	(1) Mentors	(1) Consortium
Vermont (1) License by Evaluation (2) Waiver	(1) Increase the applicant pool (2) Shortage	(1) No restrictions (2) No restrictions	(1) None (2) None	(1) SEA (2) SEA
Virginia (1) Alternate Route to Licensure	(1) Ease the path to a credential for district employees	(1) Must work for district	(1) None	(1) IHE, LEA, and SEA
Washington (1) Internship Program (2) Troops to Teachers	(1) Increase the applicant pool (2) Increase applicants in shortage and subject areas	(1) Must be hired by a participating district (2) No restrictions	(1) Supervision (2) Mentors	(1) IHE and LEA (2) Collaboration
West Virginia (1) Alternative Program for the Education of Teachers (APET) (2) Emergency License	(1) Increase the applicant pool (2) Shortage	(1) No restrictions (2) No restrictions	(1) Supervision (2) None	(1) Varies (2) IHE
Wisconsin (1) Permits	(1) Documented shortage	(1) No restrictions	(1) None	(1) Not specified
Wyoming (1) Portfolio Certification (2) Temporary Employment Permit	(1) Increase the applicant pool (2) Shortage	(1) No restrictions (2) No restrictions	(1) None (2) None	(1) SEA (2) SEA

Source: Feistritzer and Chester (1998).

**Exhibit IV-2
PERCENTAGE OF TEACHERS RECEIVING LICENSES THROUGH ALTERNATIVE
PROGRAMS, 1993-98**



Source: Feistritz and Chester (1998).

District-run and university-based programs also tend to have small numbers of teachers certified through their programs. The Teachers for Chicago program has had a total of 315 interns since it began in 1992 (Gallegos, 1995a, 1995b). In California, the Paraprofessional Teacher Training Program (PTTP) had 573 participants, who were working with 28 California community colleges or California State University (CSU) campuses from 1994 through 1998 (Shields, Marsh & Powell, 1998). Approximately 210 teachers had completed the program as of 1997; more than half had full credentials (Shields et al., 1998). Nationwide, approximately 149 programs enroll more than 9,000

paraprofessionals, about 75 percent of whom are from minority groups (Ponessa, 1996). Overall, the alternatively certified teachers account for only a small number of newly minted teachers each year. Unfortunately, because of the lack of consistent reporting by states and IHEs, we do not know exactly what percentage of new teachers are alternatively certified on a national level.

General Characteristics of Alternative Programs

The many alternative programs defy classification. Internships, for example, are not the same from state to state, and states that allow for internships often have universities that, in turn, create additional requirements. The alternative certification programs in Exhibit IV-1 are classified according to “motivation for the program,” “location of teaching assignment,” “level of support” (referring to mentorships and/or monetary help), and “primary responsibility” (meaning fiscal and design responsibility).

A state’s decision to allow the creation of alternative programs is often prompted by a need. Hawley (1992) notes that

the justifications [alternative certification] range from a concern to fill otherwise unfillable positions (the last resort view) to a goal of replacing college- and university-based programs with on-the-job training run by state or local education agencies. (p. 6)

The motivation behind a program often determines its entry and exit requirements, as well as its duration. In most cases, the motivation for an alternative program is a drastic teacher shortage. Other motivations include a desire to recruit teachers from underrepresented groups or other professions. In New Jersey, for example, the Provisional Teacher Program (PTP) began when the state eliminated emergency credentials in an effort to attract better candidates and provide support for teachers who were being hired in districts with shortages (Feistritzer, 1997; Smith, 1991). Texas developed its Alternative Certification Program (ACP) in Houston in response to a projected teacher shortage; a secondary purpose of the program was to recruit more minorities (Feistritzer, 1997; Dill, 1994). In 1991, Wisconsin piloted Experimental and Innovative Teacher Education Programs to give institutions of higher education more room to experiment with their teacher education programs. Similarly, Connecticut’s Alternate Route has the dual purpose of recruiting high-quality teachers and creating change in the state’s 14 traditional teacher education programs (Bliss, 1992).

Many alternative programs are location specific. Depending on the motives generating the program, a teacher candidate may have to make a short- or long-term

commitment to work in an understaffed district. The Teachers for Chicago program recruits teachers to work in the district while they receive money for tuition toward their master's degree. Once recruits receive their credential, they are required to work in the Chicago school district for 2 to 4 years (Gallegos, 1995a; Knauth, 1994). Pennsylvania's Teacher Intern Program also requires newly credentialed participants to work in the district for 3 years, and the Provisional Teacher Program in Washington, D.C., requires up to a 5-year commitment (Feistritzer & Chester, 1998). Teach for America teachers commit to the program for 2 years (Kopp, 1994). Paraprofessional programs frequently require their participants to come from within a particular district, as well as to stay in the district for a period of time once the program is ended (e.g., programs in Minnesota, California, Delaware, and Virginia).

Programs designed to alleviate shortages often require participants to have a job in a district before they can receive support or take courses. Similarly, university-run programs are usually implemented in collaboration with particular districts.

Alternatively certified participants receive various levels of support. The Teachers for Chicago program (TFC) provides its interns with highly qualified mentor teachers who must possess a master's degree and agree to a 2- or 4-year commitment to the program. TFC participants also receive a salary and a stipend for their courses at a local institution of higher education (Gallegos, 1995b). At the other extreme, emergency credential programs rarely provide support in the form of mentors, common coursework with peers, or funds for courses. Some programs provide monetary assistance to participants. Internship programs, for example, usually pay interns a teacher's salary (although usually reduced) while they intern (e.g., Texas's ACP).

Finally, responsibility for alternative programs generally falls to one or more of the following three agencies: institutions of higher education (IHEs), state education agencies (SEAs), or local education agencies (LEAs). Responsibility usually entails some form of financial support (or financial management, as is usually the case with IHEs) and control over program design. According to the selected information in Exhibit IV-1, LEAs have primary responsibility for 13, or 19 percent, of the 67 alternative programs, IHEs for 18 percent, SEAs for 31 percent, and combinations of two or more agencies for 32 percent. The high percentage of programs that are managed by SEAs or a combination of agencies indicates the level of state interest in changing teacher education requirements.

Descriptions of Alternative Programs and Their Evaluations

As mentioned in the preceding section, alternative programs vary considerably, depending on a state's needs and requirements for licensure. State education departments and colleges sometimes disagree over what an alternative teacher education program should look like (Dial & Stevens, 1993). Some national programs work with state agencies (Troops to Teachers); others work more closely with needy districts (Teach for America). Similarly, state-, district-, and university-run programs seem to overlap, depending on a community's needs, the program's goals, and the fiscally responsible agent's requirements. Feistritzer (1993) provides nine classifications for state-run programs with examples for each classification; however, rather than profile all programs, we will examine particularly noteworthy national, state, and district and university programs.

National Programs

National programs are either those run by the federal government or programs that use a national recruitment strategy. Although both the programs discussed below work with specific districts or regions, they recruit applicants on a national scale.

Teach for America (TFA). TFA is one of the most prominent national programs to date. Founded in 1990 by Yale graduate Wendy Kopp, TFA receives funding from a variety of sources but relies mostly on private and corporate grants (Lawton, 1991). Candidates, who are accepted after a rigorous screening process, must apply for employment in a "partnered school district." They then attend a "Professional Teacher Residency Program," which takes place over 2 years. The program incorporates professional development derived from standards-based associations such as the National Association of State Directors of Teacher Education and Certification (NASDTEC), the National Board for Professional Teacher Standards (NBPTS), and the Interstate New Teacher Assessment and Support Consortium (INTASC) (Kopp, 1994).

Evaluations of TFA are extremely sparse, despite the organization's decade-long work of placing teachers in classrooms across the United States. One qualitative study inadvertently ended up with a number of TFA members in its cohort. When interviewing alternatively certified teachers about their reasons for teaching, the researchers found that a majority of the TFA teachers chose to join the organization because they did not know what else to do after college (Stevens & Dial, 1993).

Without an evaluation to determine the program's quality, debate continues over TFA members' qualifications to teach. Fueled by a former member's criticisms (Schorr, 1993), Stanford Teacher Education Program director Linda Darling-Hammond (1994) wrote a well-publicized critique of the program's flaws, thereby starting what turned out to be an onslaught of criticism against TFA and its training program. Whereas Schorr's (1993) criticisms tend to focus on the lack of good preservice training, Darling-Hammond (1994) and Arthur Wise (1994) of the National Council for Accreditation of Teacher Education (NCATE) increase the range of criticism to include the organization's philosophies, fiscal problems, and overall disregard for children.

On the other hand, Kopp (1994) reports that districts with TFA members have consistently asked for additional members the next year. In most cases, TFA teachers have been "well-received" by school and district officials, even when, in some cases, not all the TFA members remained in the district (Lawton, 1991). Other TFA supporters applaud the program's experimental nature and note that the program members' 10 percent attrition rate is favorable when compared with 25 to 50 percent attrition rates that normally plague TFA member districts (Lawton, 1991).

Troops to Teachers (TTT). TTT is another national-level innovation in teacher certification. When defense spending was cut and a projected teacher shortage loomed after the mid-1980s, the Department of Defense and the Department of Education established the TTT program in 1992 to place discharged military personnel into classrooms (Keltner, 1994; Taylor, 1994). The program collaborates with state education departments in an effort to place teachers in districts that need them most. Low-income districts that hire a program participant receive \$50,000 in decreasing amounts over 5 years to help offset the teacher's salary (Taylor, 1994). In addition, participants receive a stipend of \$5,000 to help pay for any courses that must be taken toward obtaining a credential (Patterson, 1995). Teachers must agree to work in a Title I district with shortages for 5 years; if they leave before the 5 years are completed, they must repay TTT (Taylor, 1994).

The National Center for Education Information (NCEI) conducted a national survey of TTT participants (Feistritz & Chester, 1998). Survey findings show that the program has increased the diversity of teacher candidates: 90 percent of the TTT participants are male, and 29 percent are from a minority group. Twenty-nine percent of TTT teachers teach mathematics, and 24 percent teach in inner-city schools. These numbers are higher than the national averages for mathematics teachers (13 percent) and those who teach in

an urban area (16 percent). NCEI further reports that TTT teachers believe in higher standards for students (74 percent) and feel that socioeconomic background does not hinder a student's ability to achieve at the highest level possible (57 percent, versus 46 percent for all teachers). The percentage of those planning to continue teaching (55 percent) is perhaps influenced by the program's stipulation that teachers work in Title I districts for 5 years (Feistritzer & Chester, 1998).

State Programs

States have most of the fiscal responsibility for education and therefore have more programs aimed at recruiting teachers. New Jersey, Texas, and California have statewide programs that have reduced teacher shortages while increasing teacher diversity.

Provisional Teacher Program (PTP). New Jersey's Provisional Teacher Program (PTP) began in 1984. The statewide program recruits college graduates, who immediately begin phase one of a three-phase introduction to teaching. Most applicants must pass either the appropriate subject area specialty test (e.g., Praxis II) or a general knowledge test to enter the program.⁵ Once in the program, candidates must complete 200 hours of coursework, teach full time for 34 weeks, and work with a mentor teacher (Natriello & Zumwalt, 1993; Feistritzer, 1997).

The program supplies approximately one-fifth of the teachers hired in New Jersey and is generally considered one of the more successful alternative certification programs (Natriello & Zumwalt, 1993; Feistritzer, 1997). Murnane et al. (1991, cited in Dill, 1996) found three positive outcomes in the New Jersey "experiment": "(1) Many college graduates are interested in teaching but find the structure of undergraduate programs inappropriate for them, (2) alternative programs serve well the goals of minority recruitment, and (3) attrition of alternative route individuals is lower than attrition of traditional undergraduate candidates."

However, even the well-established New Jersey program has critics. A former director of PTP's professional development center at Trenton State College argued that the program produces poorly trained teachers because school districts are forced to prepare and support PTP teachers without enough money or personnel to do the job well (Smith, 1991). In addition, Smith found a shortage of available mentors for PTP

⁵ Candidates desiring to teach in certain subject areas are exempt from this requirement: namely, some foreign languages, earth sciences, health education, psychology, and vocational education (Feistritzer & Chester, 2000).

teachers. Allegro (1992) confirmed that additional mentor teachers are needed if the program is to succeed. Dial and Stevens (1993) found that the alternatively certified teachers were not necessarily less qualified, but that the program was poorly managed.

Natriello and Zumwalt collected data on PTP from 1987 to 1991. They compared new teachers from PTP with those from traditional programs and focused on three issues: background characteristics, preference for place to teach (urban, suburban, rural), and where teachers taught for their first 4 years. The cohort included elementary teachers and secondary English and mathematics teachers from both PTP and traditional programs. The researchers found that, compared with teachers who went through traditional programs, PTP-trained teachers were better prepared to teach in urban schools because of their background characteristics and preferences for teaching in urban communities. The alternatively certified teachers were also more likely to be racial or ethnic minorities from urban communities (Natriello & Zumwalt, 1993).

Alternative Certification Programs (ACPs) in Texas. Texas began alternative certification in 1989, when the state's legislature decided to eliminate shortage requirements on alternative teacher education programs (Feistritzer & Chester, 1998). Dill (1994) classifies the Texas ACPs into three categories: district programs, higher education programs, and intermediate education service centers (IESCs). The local school district model, such as the one used in Houston, was the first to be developed. Dallas, Pasadena, and Fort Worth have since adopted similar programs (Dill, 1994). The school district provides its own professional development, which emphasizes the district's needs (e.g., working with urban, at-risk youth), thereby focusing the trainee's coursework accordingly. ACP teachers work as interns with mentor teachers (Dill, 1994; Dill & Stafford, 1992; Stafford & Barrow, 1994). The candidates are screened on the basis of GPA, references, background checks, basic-skills test scores, and interviews. Once in the program, interns are supervised by their principal and trained through professional development courses (Stafford & Barrow, 1994). As they go through this process, interns give up a portion of their pay to the district to offset the cost of training (Dill, 1994).

In the higher education model, universities collaborate with districts to offer interns intensive coursework (Dill, 1994). Unlike the district model, where interns are chosen by the districts, interns in the higher education program must find work independently. For a university-based intern, the process of finding a position can be time-consuming and intimidating. In some cases, interns find a position after the school year has begun. Once

they find a position, they teach under the close supervision of mentor teachers. Colleges and universities bear the cost of the program and receive funding through student tuition (Dill, 1994).

The intermediate education service centers combine college-level training from consultants and specialists and supervision by professors (Dill, 1994). More so than the previous two models, the IESC model relies on the intern’s relationship with a mentor teacher. Interns are completely on their own to locate a mentor teacher and a vacancy at a school; similar to the higher education model, the intern pays the university tuition for the program’s cost (Dill, 1994). One successful version of an IESC is an offshoot of the Troops to Teachers program, the Army’s Texas Military Teacher Initiative. In 1992, the Army worked directly with the state in targeting three districts that suffered from teacher shortages, were close to universities, and had certification programs in place: El Paso, San Antonio, and Killeen/Waco (Keltner, 1994). The training program was established and maintained by Army personnel, and more than 150 teachers were placed in classrooms (Keltner, 1994).

**Exhibit IV-3
PERCENTAGES OF NEW TEXAS PUBLIC SCHOOL TEACHERS,
BY ROUTE AND ETHNICITY, 1996-97**

Route to Initial Certification			
	Traditional Programs	Alternative	Out-of-State
New teachers	66.1%	14.3 %	19.6 %
By Route to Initial Certification and Ethnicity			
	Traditional Programs	ACP	Out-of-State
White	73.2 %	58.7 %	87.5 %
Hispanic	21.3 %	28.4 %	5.5 %
African American	5.5 %	12.9 %	5.5 %

Source: Feistritz and Chester (1998), p. 11.

The number of teachers prepared through ACPs in Texas appears to be growing. Exhibit IV-3 shows that 14 percent of new teachers come from alternative programs. The figures for Houston are even higher: Stafford and Barrow (1994) report that 28 percent of the district’s teachers were certified through ACP between 1985 and 1993. Furthermore, “in any given academic year, about 50 percent of teaching vacancies are filled by ACP interns” (Stafford & Barrow, 1994, p. 194). In 1993, 25 programs were certifying 2,500 teachers each year (Dill, 1994). As Exhibit IV-3 illustrates, ACP interns tend to be more likely to match their students’ ethnic backgrounds, as well. Overall, 91 percent of

Texas's teachers are white, whereas 41 percent of the ACP teachers are from minority groups (Feistritz & Chester, 1998).

Smith (1991) makes comparisons between PTP and ACP and the problems with each. As with the New Jersey program, Smith believes that Texas's ACP puts too much strain on the district without reciprocation. He cites the Dallas Independent School District as an example of a district with drained resources, where only 54 percent of the interns were certified at the end of one year (Smith, 1991). On the other hand, supporters argue that interns are better able to receive assistance in a "*real* situation—full-time teaching in a real classroom with real, often at-risk students" (Dill & Stafford, 1992, p. 74).

Houston, Marshall, and McDavid (1993) studied Houston's program by comparing traditionally versus alternatively prepared teachers' perceptions of their first year of teaching in the district. The 2-year study focused on problems faced by first-year teachers, the assistance provided by mentors, and participants' desire to continue teaching at the end of their first year. The sample included 69 traditionally certified teachers and 162 alternatively certified teachers; the fact that the study did not control for background characteristics of the participants may have influenced study results. Findings generally indicate that the two cohorts differed in perceived problems, assistance provided, and satisfaction with teaching after 2 months; however, after 8 months, virtually no difference remained between the two cohorts (Houston et al., 1993).

A statewide evaluation of Texas's ACPs yielded inconclusive data (Irons & Wale, 1988, cited in Dill, 1996). However, Barnes, Salmon, and Wale (1990, cited in Dill, 1996) found that interns were highly motivated, enthusiastic, and more likely to pass the certification tests than their traditionally certified counterparts. Two districtwide evaluations in Houston and Dallas found that the programs had flaws but were worth continuing (Goebel, 1986; Hutton, 1987; both cited in Dill, 1996). In Houston, principals and administrators looked on interns favorably, and most interns intended to return. In Dallas, the program did not drastically affect the teacher shortage, but it did produce high-quality teachers. Also, the evaluation found that mentors and supervisors play a critical role in the development of interns (Hutton, 1987, cited in Dill, 1996).

Alternative Certification in California. California's statewide effort encompasses multiple district and university internship programs. The state's main purposes for such programs are to increase the diversity of teachers and alleviate a teacher shortage. Stoddart (1992) notes that "the alternative route program in California is not a

replacement for college-based teacher education; it is a context-specific recruitment policy” (p. 115). The California Aerospace and Defense Worker Placement Assistance Program (which is affiliated with Troops to Teachers) and the Southern California Math and Science Teacher Corps are efforts to increase the number of mathematics and science teachers by recruiting former aerospace and defense workers. The two programs have produced more than 230 potential teachers to serve in California’s schools (Shields et al., 1998).

California’s internship programs provide the largest number of alternative candidates other than teachers holding emergency permits. University internship programs provide a support team and schedule coursework for interns in a district. Collaboration with a district allows interns to receive a salary while they complete courses at the university. District programs partner interns with mentors, but interns are on their own to pursue college coursework or go to district-provided professional development. Interns receive a salary, as they would in a university program, and the district provides a professional development schedule that interns are encouraged to follow (Shields et al., 1998; McKibbin, 1998).

District-based internship programs are currently under way in San Francisco Unified School District (SFUSD) and Los Angeles Unified School District (LAUSD). In San Francisco, collaboration has been established between a SFUSD principal and the local California State University (CSU). Interns spend their mornings in classrooms and attend courses at the university in the afternoons (Shields et al., 1999). LAUSD’s 2-year program provides interns with free coursework, a group of 20 to 30 peers with whom to converse, and a practical approach to learning how to teach. Retention rates are high for LAUSD’s interns, 88 percent of whom continue teaching after completing the program.

Stoddart (1992) evaluated LAUSD’s internship program. Using demographic data from LAUSD’s personnel division and information from the “Teacher Education and Learning to Teach” study (TELT), Stoddart investigated the program’s abilities to meet its projected goals. Stoddart found that the program decreased the proportion of emergency-credentialed teachers in participating schools and did not adversely affect the recruitment of traditionally certified teachers. The program effectively recruited mathematics and science teachers, as well as teachers with “substantial preparation” in their academic field. Stoddart also found that the program’s attrition rate was lower than the national average. The only negative finding was that although interns spent a similar

amount of time on coursework as did their traditional counterparts, the courses given by the district were not as academically rigorous as university courses (Stoddart, 1992).

Karge, Young, and Sandlin (1992) studied a university-based internship program in southern California. Their sample of 47 teachers in 11 districts compared beginning teachers (those with credentials teaching for their first year) and intern teachers (those who were enrolled in intern programs). In this particular program, the local CSU provided coursework and supervision, and the district supplied a salaried position, a mentor, and district supervision. Researchers administered a survey, observed classrooms, and interviewed 31 percent of the subjects. The 23 interns were more satisfied with the support they received during their first year than were the 24 beginning teachers. Interns felt supported in the areas of supervision, coursework, and district support systems. Researchers rated teachers during the classroom observations on the basis of classroom environment, teacher-student involvement, and classroom management. Researchers consistently rated beginning teachers higher than interns (Karge et al., 1992).

California's statewide analyses of three groups of teachers (interns, probationary teachers, and emergency teachers) found "no statistically significant differences" on five out of six criteria (McKibbin, 1988, cited in Dill, 1996). In only one area, that of "cognitive activity," did interns score significantly lower; however, they scored much higher on retention rates (80 percent) than the other two groups (40 percent).

California also offers programs designed to prepare paraprofessionals to become licensed teachers. Similar programs are available in Wisconsin, New Jersey, Missouri, and Tennessee. California allocates \$1.5 million to its program in an effort to create new career ladders for paraprofessional educators who want to become teachers (McKibbin, 1998). The California program helps to "funnel members of minority groups and foreign-language speakers into a profession that badly needs diversity" (Ponessa, 1996, p. 1). Districts work with local colleges and universities to recruit from the pool of paraprofessionals. In general, programs require that candidates have finished at least a portion of their general education requirements toward a bachelor's degree. Most courses are held in the evenings and on weekends as the candidates continue to work at their schools.

District and University Programs

Most district programs tend to focus on relieving teacher shortages in urban areas. Generally, districts collaborate with local universities and colleges in an effort to get potential teachers into classrooms as soon as possible. Some programs require interns to pay tuition; others provide salary and benefits. As mentioned above, state-run alternative certification programs represent fewer than half of the programs available to potential teachers (Feistritzer, 1997). AACTE's (1996) catalogue of university-created programs gives descriptions of 328 programs for persons who have a bachelor's degree but lack teacher preparation. Overall, universities are expanding alternative programs. Next, we examine some noteworthy district and university programs.

The Teachers for Chicago Program (TFC), a 2-year graduate-level program, employs mentor teachers, schools, the local teachers' union, and local universities to selectively recruit, instruct, and retain teachers for the city (Gallegos, 1995a, 1995b; Knauth, 1994). Nine local colleges and universities work with TFC and master's candidates to provide the necessary coursework over three summers and throughout the year. Participating schools must have vacancies and principals who enthusiastically support the program (Gallegos, 1995b). Although effective recruiting is a key component of TFC's success, TFC is truly an alternative certification program in that interns are teaching to learn rather than the more traditional approach of learning to teach.

Although an external evaluation of TFC has been completed, only its most general findings have been published (Gallegos, 1995b; Knauth, 1994). Knauth (1994) reported that the mentor-intern relationship could be strengthened through a better definition of the mentors' duties. Interns were unsure as to the requests they could make of their mentors, and mentors reported great variation of activities they performed—in terms of both quantity and quality. In addition, the different agendas of the schools and the university programs sometimes create a conflict. Gallegos (1995b) reported that TFC successfully recruited and retained interns, that principals and mentors frequently noted the recruits' enthusiasm for the program, and that higher education institutions changed their programs to meet TFC's needs.

Norfolk State University's *Pathways to Teaching Careers* program began in an effort to address the lack of diversity in the teacher population. Norfolk State collaborates with Old Dominion University and Norfolk Public Schools to recruit Norfolk Public Schools' teacher aides and substitutes, especially minorities and males. After going through an intense screening process to gain admission into Norfolk State,

teacher candidates take courses at Old Dominion University. The program offers scholarships and grants that often cover up to 80 percent of the participant's tuition. Once they earn a credential, teachers apply to work in Norfolk Public Schools, where supervision and workshops continue. In one year, 66 of the initial 106 candidates became fully certified teachers; 92 of the 106 remained in the program (U.S. Dept. of Education, 1998). On the basis of the program's success at placing well-qualified teachers, Norfolk State University was awarded a \$255,000 grant to continue the program (U.S. Dept. of Education, 1999). Furthermore, the Virginia education board recently made it easier to obtain a teaching license through alternative means (Washington Post, 1999). The combination of federal and state efforts may allow the university to increase the size of its program while continuing to experiment with alternative routes to licensure.

Colorado State University runs an intensive 10.5-month internship program called *Project Promise*. University personnel believe that the program's success is based on the intensely competitive and rigorous applicant screening process. After surviving several interviews with multiple faculty members, candidates are asked to focus on rural, urban, middle, or secondary school placements. During their 22 weeks in a classroom, participants receive up to 50 observations from faculty members, who give specific and immediate feedback about their teaching. Faculty continue working with graduates for 2 years once they have been placed in a school. Over 90 percent of *Project Promise* graduates find employment; 80 percent of the participants remain in teaching for at least 5 years. A survey of program participants reveals that the participants are "highly satisfied" with the support they received, and districts prefer program graduates to other candidates (U.S. Dept. of Education, 1998).

Evaluations of Alternative Programs

Very few published evaluations have been conducted solely on alternative programs. Articles criticizing or supporting programs rarely have more than anecdotal information and citations of related studies and evaluations (Darling-Hammond, 1994; Smith, 1991; Schorr, 1993; Stafford & Barrow, 1994). Researchers have conducted studies comparing traditional certification and alternative certification, but very few large-scale studies or program-specific studies have been published.

Dill (1996) discusses several evaluations from the 1980s. The Florida State Department of Education (1988, cited in Dill, 1996) found that the low number of applicants for the state's alternative certification program was due to the ease of

obtaining temporary certificates. Evaluations of programs in North Carolina and Georgia further demonstrate that alternatively and traditionally certified teachers are similar in competence, National Teacher Examination (NTE) scores, and attitude. Hawk and Schmidt's (1989, cited in Dill, 1996) evaluation focused on mathematics and science teachers and found that participants in alternative and traditional programs were similar in their level of classroom competence and NTE scores. In Georgia, Hassard (1989, cited in Dill, 1996) found that by mid-year the two groups had comparable attitudes (on a scale of directive to student-centered attitudes). Mentors for both groups were found to be essential to the success of both programs and teachers. Finally, the evaluations of Dallas and South Carolina programs underscore the value of giving future teachers a realistic laboratory in which to learn about teaching (Million, 1987, cited in Dill, 1996).

In studies regarding subject matter knowledge, Ball and Wilson (1990, cited in Dill, 1996) found both alternative and traditional routes to be unsuccessful in training mathematics teachers who were capable of thoughtfully instructing youths in mathematics. Similarly, McDiarmid and Wilson (1991, cited in Dill, 1996) concluded that all teachers in their cohort, regardless of preparation, lacked sufficient knowledge of their subject matter to fully understand and teach it.

Most studies indicate that traditionally certified teachers are more likely to be female, white, middle-class, and younger than their alternatively certified counterparts. On average, alternative programs have a higher percentage of males, minorities, and people over age 30. Of the studies examined, only one (Shen, 1997) found differences in the gender of alternatively certified and traditionally certified teachers to be insignificant; however, like the other studies, Shen's found that a higher percentage of alternatively certified teachers were people of color. Findings also indicate that more alternatively certified teachers than traditionally certified teachers come from urban areas. Furthermore, Natriello and Zumwalt (1993) reported that alternatively certified teachers in New Jersey were more likely to be bilingual.

Adams and Dial (1993) studied the effects of demographics on teacher retention in an urban district in the Southwest. They found that gender, ethnicity, education, and certification route were significantly related to teacher retention. This study provides a comparison of alternatively and traditionally certified teachers, using a model that controls for gender, ethnicity, education, and age. Findings further show that certification routes were related significantly to teacher retention in this district. Traditional-program teachers were 19 percent more likely to leave the district than were alternative-program

teachers. In contrast, most TFA members tend to leave the teaching profession (Darling-Hammond, 1994; Wise, 1994; Stevens & Dial, 1993). Dial and Stevens (1993) note that “even if teachers remain in teaching but leave to teach in another district or state, the district’s investment is not returned” (p. 90).

Stoddart (1993) and Haberman (1994) argue that traditional programs have not produced a sufficient number of teachers who are willing and prepared to teach in inner cities; therefore, alternative programs are necessary to recruit teachers to work in urban schools. Stevens and Dial (1993) found that the alternative programs they studied increased the pool of qualified personnel who otherwise would not have become teachers. Most alternative programs better cater to career changers by allowing teacher candidates to work while taking courses and providing a level of flexibility that is not generally available in traditional programs. Teachers in alternative programs are more likely to prefer to teach and continue teaching in urban areas, and are less likely to see inner-city students as “culturally deficient” (Natriello & Zumwalt, 1993; Stoddart, 1993). Shen (1997) contradicts these findings: she found no difference in traditionally and alternatively certified teachers regarding their plans to remain teachers. Unlike in the other studies, a lower percentage of alternatively certified teachers reported treating teaching as a lifelong career.

Needed Research and Methodological Issues

More research on alternative certification is needed. As this literature review reveals, most of the existing research is based on small program evaluations and teacher perceptions. In general, much more needs to be known about alternative certification programs, participants, and impacts on teaching and learning.

Others have noted holes in the research. Hawley (1990, cited in Dill, 1996, p. 942) asserts the need for research in the “relationship between career knowledge in mid-career switchers and content knowledge in the classroom.” Quantitative research on attrition rates, the cost of different programs, and the effects of alternative certification and how it might improve teacher education are also necessary areas of research (Hawley, 1990, cited in Dill, 1996).

On the basis of his reading of alternative certification program evaluations, Hawley (1992) established 10 criteria in the form of questions by which to judge the effectiveness of alternative programs:

- (1) Can alternative certification substantially reduce the use of temporary certificates as a strategy for addressing teacher shortages?
- (2) Do alternative programs attract to teaching persons with needed qualities and interests who would not otherwise have become teachers? These needed qualities and interests include: intelligence, subject matter knowledge, gender, maturity, race, ethnicity, and commitment to students.
- (3) Because certification occurs in the context of teaching and is determined by professional teachers and administrators, does alternative certification serve as a more effective mechanism for screening out prospective teachers than do traditional certification programs?
- (4) How long do people who receive alternative certification stay in teaching, in comparison to persons who enter teaching through traditional routes?
- (5) How do alternatively certified and traditionally certified teachers differ with respect to the lessons about teaching they are taught?
- (6) How effective are traditionally certified teachers, in comparison to alternatively certified teachers, in facilitating student learning?
- (7) What effects do alternative programs have on traditional programs?
- (8) What effects do alternative programs have on the participating schools' and districts' commitments to and support of the continuing professional development of teachers?
- (9) What are the relative financial costs of alternative certification to taxpayers and to teacher candidates?
- (10) What effects do alternative programs have on the professionalization of teaching? (p. 9)

Some studies have answered some of the above questions; other questions remain untouched by researchers. Hawley asserts that until all questions are answered, the effects of alternative programs on teacher education cannot truly be known.

New research on alternative certification could focus on several factors. Longitudinal studies assessing the quality of alternatively certified teachers could greatly enhance our knowledge of the long-term effects of alternative programs on teachers, students, schools, and traditional programs. Similarly, researchers should look at changes in teacher attitudes and receptiveness to continuous improvement over time. The impact of the increase of alternatively certified male teachers on schools with predominantly female staffs needs to be explored. Studies that gather information on the effects of additional minority teachers on minority students would also be helpful. In addition, questions of teacher quality abound: How do alternatively certified teachers perform on emerging performance assessments? How well prepared are alternatively certified

teachers to teach in urban areas? Finally, researchers need to find stronger comparisons for their samples of traditionally and alternatively certified teachers.

The evaluations and studies on alternative certification frequently lack generalizability. Hawley (1992) believes that the lack of good research on alternative programs hinders the improvement of both alternative and traditional teacher education programs. Six common weaknesses of the research on alternative certification (Hawley, 1992, pp. 7-8) are paraphrased below:

- (1) Alternatively certified teachers from a given district are not compared with traditionally certified teachers from that district, but with teachers from a different district from the one being studied.
- (2) Demonstrating that alternatively certified teachers have higher test scores or GPAs or knowledge of subject matter when such criteria are used to screen out poorly qualified applicants only proves that different entrance requirements result in different entrants and does not mean that alternatively certified teachers are superior.
- (3) Measures of teaching performance are often administered by principals who must commit to support the alternative program before the teachers are assigned to their schools; therefore, they have an interest in seeing alternatively certified teachers succeed. Thus, any principal's objectivity should be questioned.
- (4) Most alternative-certification studies do not systematically assess teacher performance; if they do, they rely on measures required by the district or state.
- (5) Studies comparing traditionally certified teachers with alternatively certified teachers usually involve very small numbers, and the reader has no way of knowing whether the teachers studied are representative of others who experience the programs involved.
- (6) Some studies fail to distinguish between different types of programs when the data are analyzed.

The small sample sizes of most studies make it difficult to generalize research findings. One of the larger studies, involving 100 teachers, consisted of information gleaned from a 45-minute interview with each participant (Stevens & Dial, 1993). Shen's (1997) larger sample (over 14,000) was based on the Schools and Staffing Survey, which does not concern itself directly with alternative certification. The relative weightings and mathematical calculations Shen accomplished in an effort to make the sample viable for her uses do not lend themselves to conclusive evidence, especially when her study's findings are contrary to those of most other studies. In terms of time, only one study looked at teachers over more than a 3-year period (Adams & Dial, 1993). Most other studies focus on the teacher's first year of intern training and compare it with

traditional teachers' first year of teaching after they have already completed a year of student teaching.

Finally, information on alternative certification in the United States as a whole is sorely lacking. Feistritzer and Chester's (1998) state-by-state analysis contains the most up-to-date information regarding alternative routes to the profession; any inconsistent numbers can most likely be attributed to the states and IHEs that fail to collect and report data. States and IHEs do not consistently collect information on teacher graduates' credentialing source, and/or they do not report it. The general lack of information is further exacerbated by the fact that some teachers move in and out of the profession, thereby increasing the difficulty of tracking and reporting data on teachers and teacher candidates. Overall, the growth of alternative certification programs makes the need for comprehensive information and expanded research imperative.

References for Chapter IV

- Adams, G. J., & Dial, M. (1993). Teacher survival: A Cox regression model. *Education and Urban Society*, 26(1), 90-99.
- Allegro, A. (1992). The assessment of alternative certification practices: Panel presentations. *Proceedings of the Second National Research Symposium on Limited English Proficient Student Issues: Focus on Evaluation and Measurement*. Retrieved November 1, 1999, from the World Wide Web:
<http://www.ncbe.gwu.edu/ncbepubs/symposia/second/vol1/assessment.html>
- American Association of Colleges for Teacher Education (AACTE). (1996). *Alternative paths to teaching: A directory of postbaccalaureate programs*. Washington, DC: Author.
- Ball, D. L., & Wilson, S. M. (1990). *Knowing the subject and learning to teach it: Examining assumptions about becoming a mathematics teacher*. Paper presented at the annual meeting of the American Educational Research Association, Boston.
- Barnes, S., Salmon, J., & Wale, W. (1990, Spring-Summer). Alternative teacher certification in Texas: A look at initial results. *Teacher Education and Practice*, 6(1), 29-34.
- Bliss, T. (1992). Alternate certification in Connecticut: Reshaping the profession. In W. D. Hawley (Ed.), *The alternative certification of teachers* (pp. 35-54) (Teacher Education Monograph: No. 14.) Washington DC: ERIC Clearinghouse on Teacher Education.
- Darling-Hammond, L. (1994). Who will speak for the children? How 'Teach for America' hurts urban schools and students. *Phi Delta Kappan*, 76(1), 21-34.
- Dial, M., & Stevens, C. J. (1993). Introduction: The context of alternative teacher certification. *Education and Urban Society*, 26(1), 4-17.
- Dill, V. (1996). Alternative teacher certification. In J. Sikula (Ed.), *Handbook of research on teacher education* (2nd ed., pp. 932-957). New York: Macmillan.
- Dill, V. S. (1994). Teacher education in Texas: A new paradigm. *The Educational Forum*, 58(2), 147-154.
- Dill, V., & Stafford, D. (1992). The alternate route: Texas finds success. *Educational Leadership*, 50(1), 73-74.
- Feistritzer, C. E. (1993). National overview of alternative teacher certification. *Education and Urban Society*, 26(1), 18-28.

- Feistritzer, C. E. (1994). The evolution of alternative teacher certification. *The Educational Forum*, 58(2), 132-138.
- Feistritzer, C. E. (1997). *Alternative certification: A state-by-state analysis*. Washington, DC: National Center for Education Information.
- Feistritzer, C. E. (1998). Teacher preparation and classroom size reduction: Testimony before the House Committee on Education and the Workforce, February 24, 1998. Retrieved August 18, 1999, from the World Wide Web: <http://www.ncei.com/Testimony022498.htm>
- Feistritzer, C. E., & Chester, D. T. (1998). *Alternative teacher certification: A state-by-state analysis 1998-1999*. Washington, DC: National Center for Education Information.
- Feistritzer, C. E., & Chester, D. T. (2000). *Alternative teacher certification: A state-by-state analysis 2000*. Washington, DC: National Center for Education Information.
- Florida State Department of Education. (1988). *Teachers for Florida's classrooms: The experimental alternative certification program for secondary teachers*. Tallahassee: Florida State Department of Education. (ERIC Document Reproduction Service No. ED 337 439)
- Gallegos, B. (1995a). Urban alternatives. *The American School Board Journal*, 182(3), 38-40.
- Gallegos, B. (1995b). Teachers in Chicago: Ensuring urban teachers with class. *Phi Delta Kappan*, 76(10), 782-785.
- Goebel, S.D. (1996). *Alternative Certification Program Final Report*. Austin: Texas Education Agency State Board of Education Minutes. Based on a preliminary report presented to the Houston Independent School District Administration May 20, 1986, and brought before the State Board of Education January 9, 1987.
- Haberman, M. (1994). Preparing teachers for the real world of urban schools. *The Educational Forum*, 58(2), 162-168.
- Hassard, J. (1989). *Alternative certification of secondary foreign language, mathematics, and science teachers* (Report No. 141). Atlanta: Georgia State University. (ERIC Document Reproduction Service No. ED 317 493)
- Hawk, P., & Schmidt, M. (1989). Teacher preparation: Comparison of traditional and alternative programs. *Journal of Teacher Education*, 40(5), 53-58.
- Hawley, W. D. (1990, Spring). The theory and practice of alternative certification: Implications for the improvement of teaching. *Peabody Journal of Education*, 67(3), 3-34.

- Hawley, W. D. (1992). The theory and practice of alternative certification: Implications for the improvement of teaching. In W. D. Hawley (Ed.), *The alternative certification of teachers* (pp. 3-34). Teacher Education Monograph No. 14. Washington DC: ERIC Clearinghouse on Teacher Education.
- Houston, W. R., Marshall, F., & McDavid, T. (1993). Problems of traditionally prepared and alternatively certified first-year teachers. *Education and Urban Society*, 26(1), 78-89.
- Hutton, J. B. (1987). *Alternative teacher certification: Its policy implications for classroom and personnel practice*. Monograph Number 5. Commerce, TX: Center for Policy Studies and Research in Elementary and Secondary Education. (ERIC Reproduction Service No. ED 286 264).
- Irons, J., & Wale, B. (1988, November). *An evaluative study of the Texas Alternative Teacher Certification Program*. Austin, TX: Texas Education Agency Division of Teacher Education.
- Karge, B. D., Young, B. L., & Sandlin, R. A. (1992). Teaching internships: Are they a viable route to California alternative certification? *Teacher Education Quarterly*, 19(3), 9-18.
- Keltner, D. P. (1994). Troops to Teachers: Alternative certification and the military. *The Educational Forum*, 58(2), 182-186.
- Knauth, S. (1994). Teachers for Chicago: Changing the connections. *The Educational Forum*, 58(2), 209-213.
- Kopp, W. (1994). Teach for America: Moving beyond the debate. *The Educational Forum*, 58(2), 187-192.
- Lawton, M. (1991). The new recruits. *Teacher Magazine*. Retrieved November 9, 1999, from the World Wide Web: <http://www.edweek.org/tm/1991/1teach.h03/>
- McDiarmid, G. W., & Wilson, S. M. (1991, March-April). An exploration of the subject matter knowledge of alternate route teachers: Can we assume they know their subject? *Journal of Teacher Education*, 42(2), 93-103.
- McKibbin, M. (1988, Summer). Alternative certification in California. *Teacher Education Quarterly*, 15(3), 49-59.
- McKibbin, M. (1998). *Teaching internship programs: Alternative preparation and licensure in California: Purposes, procedures and performance*. Sacramento, CA: California Teaching Commission.
- McKibbin, M., & Ray, L. (1994). A guide for alternative certification program improvement. *The Educational Forum*, 58(2), 201-208.

- Million, S. (1987, November). *Maintaining academic integrity in the midst of educational reform: An alternative certification program*. Paper presented at the meeting of the annual national conference of the National Council of States on Inservice Education, San Diego.
- Murnane, R. J., Singer, J. D., Willett, J. B., Kemple, J. J., & Olsen, R. J. (1991). *Who Will Teach?* Cambridge, MA: Harvard University Press.
- National Association of State Directors of Teacher Education and Certification (NASDTEC). (1998). *The NASDTEC manual on the preparation and certification of educational personnel, 1998-1999* (4th ed.). Dubuque, IA: Kendall/Hunt Publishing Company.
- Natriello, G., & Zumwalt, K. (1993). New teachers for urban schools? The contribution of the provisional teacher program in New Jersey. *Education and Urban Society*, 26(1), 49-62.
- Patterson, K. (1995). Trooping into the classroom. *The American School Board Journal*, 182(3), 35-37.
- Ponessa, J. (1996). Promise seen in patchwork of para-to-teacher programs. *Education Week on the Web*. Retrieved November 1, 1999, from the World Wide Web: <http://www.edweek.org/ew/1996/28para.h15>
- Schorr, J. (1993). Class action: What Clinton's National Service Program could learn from 'Teach for America.' *Phi Delta Kappan*, 75(4), 315-318.
- Shen, J. (1997). Has the alternative certification policy materialized its promise? A comparison between traditionally and alternatively certified teachers in public schools. *Educational Evaluation and Policy Analysis*, 19(3), 276-283.
- Shields, P. M., Marsh, J. A., & Powell, J. (1998). *An inventory of the status of teacher development in California*. Menlo Park, CA: SRI International.
- Shields, P. M., Esch, C. E., 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.
- Smith, J. M. (1991). The alternate route: Flaws in the New Jersey plan. *Educational Leadership*, 49(3), 32-36.
- Stafford, D., & Barrow, G. (1994). Houston's alternative certification program. *The Educational Forum*, 58(2), 193-200.
- Stevens, C. J., & Dial, M. (1993). A qualitative study of alternatively certified teachers. *Education and Urban Society*, 26(1), 63-77.

- Stoddart, T. (1992). Los Angeles Unified School District Intern Program: Recruiting and preparing teachers for an urban context. In W. D. Hawley (Ed.), *The alternative certification of teachers* (pp. 84-122). Teacher Education Monograph: No. 14. Washington DC: ERIC Clearinghouse on Teacher Education.
- Stoddart, T. (1993). Who is prepared to teach in urban schools? *Education and Urban Society*, 26(1), 29-48.
- Taylor, T. (1994). New to the ranks: Moving from the military into teaching. Retrieved November 1, 1999, from the World Wide Web
http://www.ed.gov/databases/ERIC_Digests/ed370937
- Teach for America (TFA). (1999). Our locations. Retrieved November 1, 1999, from the World Wide Web: <http://www.teachforamerica.org/about/outlocation.htm>
- U.S. Department of Education. (1998). Promising practices: New ways to improve teacher quality. Retrieved November 9, 1999, from the World Wide Web:
<http://www.ed.gov/inits/teachers/teach.html/>
- U.S. Department of Education. (1999). ED funds 52 new grants to improve teacher quality, recruitment, and preparation. Retrieved November 1, 1999, from the World Wide Web: <http://www.ed.gov/PressReleases/07-1999/tqrecruit.html>
- Washington Post. (1999). Teacher tracks in Virginia. Retrieved November 9, 1999, from the World Wide Web:
<http://washingtonpost.com/wp-srv/WPlate/1999-11/01/0011-110199-idx.html>
- Wise, A. (1994). Choosing between professionalism and amateurism. *The Educational Forum*, 58(2), 139-146.

V. SUPPORTING NEW TEACHERS' INDUCTION INTO THE PROFESSION

Induction for novice teachers can be defined as “the processes of socialization to the profession, adjustment to the procedures and mores of the school site and school system, and development of effective instructional and classroom management skills that take place during the first 3 years of teaching” (Recruiting New Teachers, Inc., 1999, p. 9). Induction support refers to state, district, and school efforts to assist new teachers during this period.

Induction efforts are built on the simple premise that, no matter how strong their preparation experience, new teachers face challenges in managing and organizing a classroom for optimal student learning (Bartell, 1995). The rationale for induction support is fairly intuitive: it makes sense not to allow new teachers to “sink or swim” when they first enter the profession. As we describe later in this chapter, policy-makers across the nation are increasingly focusing on induction programs as part of broader educational reform initiatives. This focus on induction reflects the conundrum created by the need to concurrently address the issues of the quantity and quality of the teacher workforce.

It is expected that the nation’s school districts will have to hire about 2 million new teachers over the next decade. This huge demand for new teachers reflects projected growth in student enrollment and attrition from the profession. The costs of recruiting and training new teachers are high, and policy-makers have come to realize that a more cost-effective method of ensuring a supply of well-qualified teachers is to reduce the number of teachers leaving the profession. Studies show that teachers are most likely to quit teaching in their first few years. We do not know the exact proportion of teachers leaving in their first few years, but most studies estimate that between a third and half of all teachers entering the profession are no longer practicing teachers 5 years later (Darling-Hammond & Sclan, 1996; California Commission on Teacher Credentialing & California Department of Education, 1992; Gold, 1996; Harris, 1992). These studies suggest that the demands on new teachers soon begin to outweigh both monetary and nonmonetary benefits, and teachers simply “burn out” (Gold, 1996; Gold & Roth, 1993).

A core rationale for induction programs, then, is that they will help stem the exodus of novice teachers from the profession—simultaneously reducing the demand for additional new teachers and reducing the overall cost to the system of preparing teachers. As we discuss later in this chapter, there is evidence to support this assertion.

At the same time that policy-makers seek to recruit and retain more teachers, they are faced with demands for higher-quality teachers. As states and districts raise standards for all students, they explicitly raise standards for teachers, as well. Preparing students for the new standards requires new skills and knowledge from teachers (see Shields, David, Humphrey, & Young, 1999). To acquire these skills and knowledge, teachers need significant support, especially in their early years while they typically are struggling with both classroom management and instructional issues.

A second rationale for induction programs, then, is the need for professional support for teachers whom we are asking to bring our students up to standard. Simply put, if students are to reach standards, teachers will have to do a better job; to do so, they will have to receive greater support. Again, as we will discuss later, there is evidence that induction support does indeed provide teachers with increased skills and knowledge.

In the remainder of this chapter, we first review the incidence of induction efforts nationally. We then describe the characteristics of induction programs, describing how they differ across jurisdictions and the relevance of these differences for policy-makers. We go on to review the research on the impacts of induction efforts. We conclude the chapter with a discussion of the lessons learned for policy-makers and a review of some of the key methodological issues in assessing the success of induction efforts.

Incidence of State Efforts to Reform the Profession⁴

The first issue that we address is how widespread induction programs are nationally. The clear answer is that induction programs are growing rapidly throughout the nation. The most comprehensive recent survey of national induction programs was published by Recruiting New Teachers, Inc., (RNT) in 1999. Most of the data on the state-level incidence of induction efforts presented here are from this source, including Exhibits V-1 and V-2, which are adapted directly from a series of tables in the RNT

⁴ Data for this section came primarily from RNT (1999), with additional data from Education Commission of the States, Information Clearinghouse, May 1999. Web site: <http://www.ecs.org/ecs/ecsweb.nsf/Web/Information+Clearinghouse?OpenDocument>, choose State Policies, Issues & Activities.

document. Additional information from the Education Commission of the States Web site has been included.

Beginning-teacher participation in induction has grown as more states and districts have developed or adopted programs in the past two decades. National data indicate that, by 1996, more than half of all new teachers were participating in a formal induction program. Although no database is available describing the national incidence of specific models of induction, we do know that about 11 percent of experienced teachers were mentors or support providers for new teachers. Little is known about program and mentor quality, but the incidence of these programs and mentors represents a significant increase in formal teacher induction over the past 20 years. Among teachers surveyed in 1998, 65 percent of teachers with 3 or fewer years of experience had participated in a formal induction program, compared with only 14 percent of teachers with 20 years or more experience. In addition, teachers with 3 or fewer years of experience were more likely to have participated in an induction program in 1998 than they were in 1993-94 (65 percent, compared with 59 percent) (NCES, 1999).

Before 1980, there were very few induction programs, and those typically were initiated and located in local schools or districts. In the following decade, induction programs grew in size and number, as part of mid-1980s educational reforms and in anticipation of teacher shortages (Huling-Austin, 1990). Eight states initiated teacher induction programs or pilots in the first half of the 1980s (RNT, 1999): Florida, Oklahoma, Virginia, California, Kentucky, Maine, New Jersey, and Washington; several of these have changed programs or amended legislation in subsequent years. Seven states initiated programs in the second half of the 1980s: Connecticut, Idaho, Indiana, Minnesota, Pennsylvania, Georgia, and New Mexico. Throughout the 1990s, state adoption of formal induction programs expanded. In 1999, 38 states had induction program legislation or pilots in place. A few additional states were in the planning stages.

State funding for induction varies widely. Some states have programs or requirements in place but have allotted no state funds to support them directly. These states include Alabama, Colorado, Maine, Michigan, Missouri, New Mexico, Pennsylvania, Puerto Rico, Texas, and Utah. At the other extreme are state-initiated programs funded in the millions, key examples being California, which currently spends \$72 million to provide induction activities to every first- and second-year teacher in the

state, and New York, which has allotted up to \$16.5 million to provide release time for teachers to participate in locally developed mentoring programs.

As shown in Exhibit V-1, nearly all states' induction programs include a mentor component, pairing beginning teachers with experienced colleagues. Other common program characteristics include formative assessment, designed to provide beginning teachers with constructive feedback, and workshops, typically focused on instructional and classroom management skills.

Most states (more than 20) with established induction program legislation require all districts in the state to participate. Many local education agencies team with universities, and small districts commonly organize as consortia to provide services. Most state programs also require all beginning teachers to participate or provide strong incentives to do so, such as requiring participation for certification renewal. In many states, districts decide whether and what incentives are offered to prospective mentors and beginning teachers to participate in induction programs. The most common incentives include stipends, release time, and staff development for mentors and beginning teachers.

Most states' induction programs include an assessment component to evaluate and assist beginning teachers. Most of these assessments are formative in nature, though some also include a summative evaluation that is tied to state standards and has implications for certification or continued employment. Most states also encourage assessment at the program level. Nearly all states require or at least recommend an internal or external evaluation of the induction program.

Exhibit V-1
INCIDENCE OF STATE EFFORTS TO REFORM INDUCTION:
HISTORY, FUNDING, AND DESCRIPTION

State	History/Key Dates	Annual Funding	Name and Primary Program Components
AL		No state funds	Training for mentors, network of regional inservice centers to assist local systems.
AR			Beginning teacher mentoring program consists of 27½ clock hours of inservice per year.
CA	1983 MTP legislation 1988 California New Teacher Project (precursor to BTSA, limited availability) 1992 BTSA legislation (limited availability of program) 1997-98 BTSA expansion of funding to serve all beginning teachers statewide	\$72M	Beginning Teacher Support and Assessment (BTSA) program – State support for local BTSA programs for first- and second-year teachers. Local models vary, but all include mentor support and formative assessment. Mentor Teacher Program (MTP) – Program for experienced teachers to serve as mentors.
CO	1991 legislation 1994 first phase of statewide implementation	No state funds	Colorado Induction Program (CIP) – Includes mentor support, training, and summative evaluation. Enables teachers to meet licensure standards.
CT	1986 legislation 1988 pilot year 1989 statewide implementation 1996 implementation of 2-year program	\$3M	Beginning Educator Support and Training (BEST) – Includes support, training, and formative assessment through a competency instrument and portfolio.
DE	1994 legislation, statewide implementation	\$320K	New Teacher Mentoring Program (NTMP) – Includes mentor support and formative assessment through portfolio development to inductees in first and second years.
DC	1992 legislation, districtwide availability, voluntary participation in CCT 1994 implementation of T21C	\$1.2M	Collegial Consulting Team (CCT) – Instructional support for all elementary teachers, including new teachers. Teaching for the 21 st Century (T21C) – Year-long course for new teachers to help them improve their classroom skills and performance.
FL	1978 legislation 1979 initial funding for pilots 1981 field test 1982 statewide implementation 1989 added optional 2nd, 3rd years	\$3.4M	Professional Orientation Program (POP) – 3-year program. First year includes mentoring and assistance; optional 2nd/3rd years include further skills development.

Exhibit V-1 (Continued)

State	History/Key dates	Annual Funding	Name and Primary Program Components
GA	1988 legislation 1989 funding appropriation 1990 limited statewide implementation	\$1.4M	Teacher Support Specialist (TSS) Program – Mentor support and formative assessment.
ID	1987 initial legislation 1989 implementation 1994 elimination 1996 reimplementation, reinstatement of legislation	\$375K	Teacher Mentor Program (TMP) – Mentor support for new teachers.
IN	1987 legislation 1988 statewide implementation	\$1.7M	Beginning Teacher Internship Program (BTIP) – Mentoring and formative assessment to help new teachers meet state competencies.
KY	1984 legislation and initial appropriation for 2-year funding cycle 1985 statewide implementation	\$2M	Kentucky Teacher Internship Program (KTIP) – Assistance and assessment for beginning teachers in their first year, provided by three-member internship teams.
LA	1994 legislation, statewide implementation	\$2.8M	Teacher Assessment Program (TAP) – Assistance for beginning teachers, including assistance with state teaching standards.
ME	1984 legislation 1986 pilot year 1988 statewide implementation	No state funds	Teacher Induction Program (TIP) – Support and formative assessment to teachers in first 2 years.
MI	1993 legislation 1994 statewide implementation	No state funds	New Teacher Induction/Teacher Mentoring Program (NTI/TMP) – Assistance and support for beginning teachers from one or more experienced teachers.
MN	1987 adoption of TMP, funding appropriation and implementation 1993 adoption of TRP, funding appropriation and implementation	\$295K	Teacher Mentoring Program (TMP) – Mentoring, observing other teachers, and skill-building workshops for first-year teachers. Inductees work one-on-one with experienced peers. Teacher Residency Program (TRP) – Support and assessment of first-year teachers, available on a competitive grant process. Interns work closely with IHEs.
MS		\$580K	Program developed by state, conducted by districts, who may coordinate with local IHEs. Includes training and workshops for mentors and new teachers. Mentoring support includes at least 90 hours of during-school contact between mentors and beginning teachers.
MO	1993 legislation, statewide implementation	No state funds	Entry-Year Mentoring Program (EYMP) – Support and assistance to first-year teachers from mentors and IHE personnel. Optional 2nd year.
MT	Preparation standards are in review. Mentoring will be part of new regulations.		

Exhibit V-1 (Continued)

State	History/Key Dates	Annual Funding	Name and Primary Program Components
NE		State funds available	Mentoring program. State board develops guidelines for districts.
NH		\$20K	District applies to participate and then selects teachers. Beginning teachers participate up to 2 years if district allows.
NJ	1985 implementation of alternative certification induction programs 1993 statewide implementation 1993 amended legislation		Provisional Teacher Program (PTP) – Support, supervision, and evaluation of beginning teachers by school-based support teams.
NM	1989 legislation, limited statewide implementation	No state funds	New Educator Support Program (NESP) – 3-year support and assessment program for new teachers. Includes a competency-based development plan for each new teacher.
NY		Up to \$16.5M for release time	Mentoring program developed by local boards or boards of cooperative services.
NC	1995 legislation, limited statewide availability		Model New Teacher Orientation Program (MNTOP) – Grants to local districts to encourage orientation, support, and reasonable schedules/workloads for new teachers.
OH	1990 pilot year EYP 1994 pilot year TRP 1996 new licensure standards require EYP for professional license	\$2.2M	Entry Year Program (EYP) – Formal mentor support for new teachers. Teacher Residency Pilot (TRP) – A 1-year support and assessment program.
OK	1980 legislation 1982 implementation	\$1M	Teacher Residency Program (TRP) – Support for and observations of beginning teachers during the certification process by a three-member team (mentor, principal, teacher educator).
OR		State funds available	Mentor program established by state board and implemented at district level. Requires minimum 90 hours contact between mentor and beginning teacher.

Exhibit V-1 (Concluded)

State	History/Key Dates	Annual Funding	Name and Primary Program Components
PA	1987 legislation, statewide implementation	No state funds	Teacher Induction Program (TIP) – Support, training, and formative assessment for beginning teachers. Broad guidelines for local programs.
PR	1990 legislation	No state funds	Programa de Inducción de Maestros Nuevos (PIMN) – Orientation and support program for all beginning teachers, including partnerships with IHEs.
RI	1999 statewide implementation		Mentoring program. State-level proposal sets standards, trains mentors, and provides technical assistance to districts.
SC	1994 pilot year 1995 field test year 1997 proposed legislation pending 1997-99 implementation	\$560K	Assisting, Developing & Evaluating Professional Teaching (ADEPT) – Voluntary set of guidelines to provide support, formative assessment, and individual growth plans.
TX	1991 legislation, implementation 1994 amendment	No state funds	Induction Program for Beginning Teachers (IPBT) – 1-year mandatory program of orientation, support, training, and formative assessment.
UT		No state funds	District support teams for all beginning teachers.
VA	1982-92 implementation and eventual elimination of three programs: BTAP, Colleague Teacher Initiative, and Mentor Teacher Initiative 1995 adoption of MTP 1996 implementation of MTP	\$150K	Mentor Teacher Program (MTP) – Voluntary mentor support program for beginning teachers.
WA	1985 pilot year 1987 limited statewide availability	\$1.9M	Teacher Assistance Program (TAP) – Voluntary support and training for beginning teachers. Includes mentor support and professional development workshops.
WV	1991 legislation and implementation	\$279K	Beginning Educator Internship Program (BEIP) – Assistance, supervision, training, formative and summative assessment from professional support teams.
WI		\$500K	Mentoring program.

Exhibit V-2
INCIDENCE OF STATE EFFORTS TO REFORM INDUCTION:
KEY PROGRAM CHARACTERISTICS

State	Compensation/Incentives	Mandated in All Districts	Mandated for All Beginning Teachers	Inductee Evaluation/Assessment	Program Evaluation
AL		No	No	Formative assessment only.	Required
CA	Mentor stipends. Incentives for inductees vary by district.	No	Formal induction program (not necessarily BTSA) participation required for clear credential.	Formative assessment only.	Internal required
CO	Mentor stipends and release time. Inductee release time.	Yes	Yes	Formative assessment only.	Internal recommended
CT	Mentor release time and staff development.	Yes	Yes	Yes – Required to advance to next level of licensure.	None
DE	Mentor stipend and staff development. Inductee incentives vary by district.	No	Participation required for certification renewal.	Formative assessment only.	External required
DC	Full-time release for mentor teachers available.	Yes	Yes	Yes – Evaluation by both mentor and principal.	Internal recommended
FL	Mentor stipends. Inductee incentives vary by district.	Yes	Yes	Yes	Internal and external required
GA	Mentor stipends and staff development.	No	No	Yes	Internal and external required
ID	Mentor and inductee incentives vary by district.				External
IN	Mentor release time and stipends. Inductee staff development, release time, and stipends.	Yes	Yes	Yes – Evaluation by principal using a beginning-teacher assessment instrument.	Internal required
KY	Mentor stipends. Inductee staff development, release time, and stipends.	Yes	Yes	Yes – By internship teams.	External recommended

Exhibit V-2 (Continued)

State	Compensation/Incentives	Mandated in All Districts	Mandated for All Beginning Teachers	Inductee Evaluation/Assessment	Program Evaluation
LA	Mentor stipends. Inductee release time and stipends.	Yes	Yes	Yes	External recommended
ME	Mentor staff development. Inductee incentives vary by district.	Yes	Yes	No	Internal required
MI	Mentor and inductee incentives vary by district.	Yes	Yes	Yes	External recommended
MN	Mentor and inductee incentives vary by district.	No	No		Internal and external required
MS	Mentors and inductees may receive release time.	Yes	Yes	Yes – Beginning teacher has 3 years to meet all competencies on state assessment.	
MO	Mentor staff development.	Yes			Internal recommended
NE	Stipends, release time, college credit, professional credit, or class supplies.	No	No		Evaluation required
NJ	Mentor staff development.	Yes	Yes	Yes – Formative and summative evaluations.	Internal required
NM	Mentor and inductee incentives vary by district.	Yes	Yes	Yes – By principal.	External recommended
NY	90 percent schedules for mentors and inductees.				
NC	Mentor and inductee stipends.	Yes	Yes	Yes	Internal recommended
OH	Mentor and inductee stipends.	Yes	Yes – Required for professional license.	No	Internal and external required
OK	Mentor stipends and release time.	Yes	Yes	Yes	Internal
OR	Mentor stipends and release time.				External required
PA	Mentor incentives vary by district.	Yes	Yes – Required for next level of certification.	Yes	Internal required

Exhibit V-2 (Concluded)

State	Compensation/Incentives	Mandated in All Districts	Mandated for All Beginning Teachers	Inductee Evaluation/Assessment	Program Evaluation
PR		Yes			Internal recommended
RI		Yes			
SC	Mentor and inductee incentives vary by district.	Yes	Yes	Yes	None
TX	Mentor and inductee incentives vary by district.	Yes			None
UT		Yes	Yes	Yes	Required
VA	Mentor staff development and stipends. Inductee incentives vary by district.	No			Internal recommended
WA	Mentor staff development, release time, stipends. Inductee release time and stipends.	No	No	Formative only.	Internal recommended
WV	Mentor stipends. Other incentives vary by district.	Yes	Yes		None
WI		No	No	District decision.	Required

Sources: Adapted from Recruiting New Teachers, Inc. (1999). Additional data from Education Commission of the States, Information Clearinghouse, May 1999. Web site: www.ecs.org/ecs/ecsweb.nsf/Web/Information+Clearinghouse?OpenDocument.

Characteristics of Induction Programs

There is no single approach to supporting new teachers as they begin their careers. Induction programs vary widely, take many different forms, and encompass various activities. The following elements cover most of the approaches used to induct new teachers; program designers typically combine a number of these to create more comprehensive programs:

- Orientation meetings
- Workshops or classes
- Regular meetings or networks of other beginning teachers
- Assignment of a mentor or mentor team to a beginning teacher
- Classroom observation (of or by a beginning teacher)
- Portfolio development for a beginning teacher
- Reduced duties for a beginning teacher.

Some of these elements are more intensive than others. Assignment of a mentor, classroom observation, and portfolio development require the involvement of another, more experienced teacher and attempt to help beginning teachers assess their performance. Regular meetings or networks of teachers attempt to build networks of professional and personal support. Workshops may serve the same purpose, as well as provide beginning teachers with a set of skills information, either once or on an ongoing basis. Orientation meetings are perhaps the least intensive element, typically offering teachers a discrete body of information at one point in time. Reduced duties are a more passive but potentially powerful intervention. Examples of these include limiting the number of students assigned to the beginning teacher, limiting the number of behavior problem students, and decreasing the number of different classes to prepare (Mastain, 1991, cited in Gold, 1996).

At one extreme, an induction “program” might be limited to a short period of time and consist only of orientation meetings for new teachers. This was especially common in past years, before induction programs grew in popularity at the state and local levels.

At the other extreme are 2- to 3-year programs that combine several of the above elements to create a much more comprehensive induction experience. An example is the Teacher Induction Program (TIP) developed by the University of North Carolina at Charlotte in conjunction with surrounding school districts (Schaffer, Stringfield, &

Wolfe, 1992). TIP participants work closely with university faculty and mentor teachers, through continuous cycles of classroom observation (using a low-inference observation instrument), individual feedback, staff development in the form of seminars, and observation again. During the first year, beginning teachers receive 3 hours of this type of support per week. In addition, beginning teachers also meet in small groups to discuss the data gathered through the classroom observations, study and discuss teacher efficacy research, and discuss how to apply the research to their own teaching. The second year also includes peer coaching and the development of professional growth plans. Researchers observe positive impacts of TIP participation on teacher performance in the classroom. We discuss these findings briefly in a later section.

A second, less intensive example is the induction offered by the Los Angeles Unified School District (Shields et al., 1999). All new teachers participate in a 5-day district orientation, which covers district procedures and teaching basics. Most new teachers are assigned a mentor (who works in his or her own school or in another school, depending on the availability of mentor teachers at a given school) or are assisted by one of the approximately 10 full-time mentors in the district. Full-time mentors observe teachers once a week for about 2 months before moving on to another school and another set of beginning teachers. Mentors who teach full-time meet with their mentees with varying frequency. Beginning teachers also may participate in workshops offered by the district, but many do not.

The range of programs found in the United States is consistent with international findings on induction. A comparative study of induction in 18 member nations of the Asia-Pacific Economic Cooperation (APEC) similarly finds brief orientations at one extreme and “multiyear programs that include ongoing orientation, networking, mentoring, and in-service workshops” at the other extreme (APEC Education Forum, 1996). In a few cases, models are found that surpass any of those found in the United States in intensity. For example, in Japan, induction for new teachers lasts 1 year and includes weekly training both in and out of school. To lighten new teachers’ workloads, accommodate their heavy training schedule, and allow release time for extensive mentoring, the program assigns one part-time experienced teacher to each new teacher or one full-time teacher for two new teachers. This program has not been formally evaluated but is generally respected as a strong model.

To describe a particular induction program requires knowing more than just which of these elements—workshops, mentors, etc.—it includes. It also involves understanding

a set of interrelated characteristics. Below, we review what is known about these characteristics, ranging from the straightforward issues of the content of and participants in induction programs to the more subtle issues of balancing the formal and informal nature of induction support.

Content for New Teachers

The literature reveals a debate over the appropriate content of induction programs for new teachers—what the programs are trying to help new teachers learn or be able to do. Some programs take a training approach and offer beginning teachers assistance and information. Whether the emphasis of such training should be in the area of general pedagogy or in specific subject matter is debated in the literature. Some argue that it is most important for beginning teachers to deeply understand their subject matter and be able to present their subject matter knowledge to students by using appropriate tools (Huling-Austin, 1992; Shulman, 1986, cited in Gold, 1996). However, the content of training in many induction programs does not center on subject matter but on general instruction. The justification for a more general focus in supporting new teachers—especially those in their first year—is that new teachers are most concerned with classroom management and organizational issues.

Other induction programs reject a training approach and instead emphasize the beginning teacher's reflection on his or her own practice. Gold conceptualizes these models as departures from programs that focus on subject matter knowledge or general pedagogical concerns. Whereas training models “often embody ideology, logic and protocols” and “operate as though thinking and behavior can be imposed on teachers,” reflection-based programs “are mainly concerned with philosophical and conceptual issues,” and “addressing teachers' individual and professional needs is emphasized” (Gold, 1996).

Still another approach or area of content focuses on emotional or social support. The primary goal of such programs is to reduce “burnout,” increase beginning teachers' confidence, and stem attrition. The content of these programs may include techniques for identifying burnout and reducing stress (Gold, 1996).

In part, content—and the determination of whether the content is appropriate and valuable—depends on the needs of the population served. For example, the amount of previous training of program participants must be taken into account, both when planning

the content of the program and when assessing whether the program has been successful. We turn to the important question of who participates next.

Who Participates

A second defining characteristic of induction programs is who participates. Will all beginning teachers in a jurisdiction (state, district, or school) be mandated to participate, or will the program work solely with volunteers? Decisions about participation are key because running a program for a limited number of motivated volunteers is quite different from running one that all participants are required to attend. Research has found that certain approaches to professional development—having teachers develop their own materials, for example—work best with motivated volunteers (Corcoran, Shields, & Zucker, 1998).

In addition, programs must define the pool of eligible participants—whether to include only teachers who have completed a preparation program or whether emergency permit teachers who may or may not be concurrently enrolled in a preparation program will be eligible. Although programs are committed to providing support to all new teachers, they are typically designed for licensed teachers who enter the program with some common knowledge base from their preparation programs. If untrained teachers are included, induction programs are forced to share the burden of preparation and must broaden their focus to meet additional needs.

In the RNT program survey, most programs had some participants in all of the following categories: licensed through a traditional program, licensed through an alternative program, unlicensed and concurrently enrolled in a preparation program (interns), unlicensed and not enrolled in a preparation program (RNT, 1999). In three-fourths of these programs, at least 90 percent of candidates fell into the first category of traditionally prepared and licensed. Licensed teachers trained in an alternative program were much less common. Nationally, unlicensed teachers were the smallest group and were found in significant numbers in about 25 percent of programs. However, these numbers are growing in areas with teacher shortages, particularly in southern California and New York City.

In California, this issue has been addressed by the creation of three separate programs for teachers at various stages of licensure. Teachers who have completed a preparation program participate in the Beginning Teacher Support and Assessment program. This program aims to expand and deepen beginning teachers' knowledge

through formative assessment and development of individual induction plans with the assistance of experienced support providers. Classroom teachers who are concurrently enrolled in a preparation program are eligible for the state-initiated Internship program, which includes supervision of classroom teaching and coaching. Those teachers who are not yet enrolled in a preparation program are eligible for the Pre-Internship program, which helps teachers meet subject matter competency requirements and provides basic training in classroom management and instruction (Garmston, 1999).

Mentor Role

Nationally, and even internationally, mentoring is one of the most widely used induction strategies. Nearly all state-mandated induction programs and many local programs include a mentor component. Generally, mentoring is characterized as a collaboration between an experienced teacher and a beginning teacher, though how this relationship is conceptualized and realized varies from program to program. Mentor roles, selection criteria, training, workload, and incentives vary, as does the extent to which these aspects are defined and consistently implemented.

Mentor Workload. Across programs, mentors' roles vary in how many beginning teachers they are expected to serve and when in the day or week that work is to take place. RNT found that most formal programs include release time for mentors, ranging from a few days to a few years (RNT, 1999). Yet many programs simply add mentoring responsibilities to a full teaching load and expect mentoring to take place outside of regular school hours. In such programs, mentors typically are assigned to work with one or two beginning teachers. Other program models release experienced teachers from all classroom duties to assist beginning teachers full-time. In these cases, mentors may be responsible for assisting up to 30 beginning teachers. An example of such an approach is the Santa Cruz New Teacher Project in California. Other programs—one-fifth of those in RNT's program survey—use a team approach to mentor and support new teachers, typically consisting of two to three of the following individuals: mentor teacher, site administrator, resource teacher, university faculty member.

Mentor Activities. Individual mentoring programs differ in structure, but the literature identifies a consistent, though wide, set of typical mentoring activities across programs. Wildman and his colleagues examined the interaction of 150 mentor and beginning-teacher dyads and described several categories of mentor assistance (Wildman Magliaro, Niles, & Niles, 1992, adapted):

- Encouraging beginning teachers to reflect on their practice (e.g., reviewing lesson plans, talking about individual students).
- Directing and supporting beginning teachers' actions or plans (e.g., suggesting ways to handle parents, advising on suitable material for grade level).
- Providing direct assistance in the development of a process, policy, or product (e.g., observing teaching, helping create a worksheet).
- Offering pertinent information or products, either generally or for a specific, immediate need (e.g., giving a set of classroom rules, sharing a particular technique).
- Providing personal support and acting as a mediator or advocate for beginning teachers in the school community (e.g., praising or assuring beginning teachers, setting up observations of outstanding teachers).

A last mentor activity involves *receiving* personal or professional support from the beginning teachers with whom mentors worked.

Mentor Selection and Support

Induction programs also vary considerably in how mentors are selected and—once selected—how they are supported or trained.

Mentor Selection Criteria. The criteria by which mentors are selected vary by program, as does the extent to which criteria are specified by the program. Gold's review of induction literature finds that mentor selection criteria have not been rigorously researched, but that perspectives and recommendations on the topic abound. Gold synthesizes this literature and identifies four key mentor attributes from the literature. These attributes are conceptual and subjective in nature, and difficult to capture from a policy perspective: (1) mentor teachers viewed as experts by their peers (Bird, 1986; Galvez-Hjornevik, 1986; Ward, 1987); (2) the demonstrated ability of mentor teachers to be reflective and analytical regarding teaching (Borko, 1986); (3) a keen desire to be a mentor and to work with new teachers (Varah, Theune, & Parker, 1986); and (4) an uncommon commitment to their role of leadership (Howey & Zimpher, 1986) (all cited in Gold, 1996).

In addition, Gold lists several mentor selection considerations that are more objective and easily determined, for example, matching grade level and physical proximity to the beginning teacher (Odell, 1990, cited in Gold, 1996). Also discussed are the age and years of experience of the mentor teacher and the gender match of the mentor and beginning-teacher dyad.

Despite programs' best intentions to find well-matched, well-qualified mentors, in reality there may be a limited pool of experienced teachers to choose from in a given area. In California, where the state-initiated Beginning Teacher Support and Assessment program has been scaled up to serve all first- and second-year teachers in the state, some local programs are strained to find enough mentors. In San Diego, full-time teachers have been assigned three beginning teachers to mentor instead of two. In Los Angeles, overcrowded schools with diminishing numbers of experienced faculty are hard pressed to find mentors in the same school as the beginning teacher, much less in the same grade level or content area (Shields et al., 1999). In these instances, mentor selection criteria may be greatly restricted.

Mentor Training. There is some disagreement in the literature about the need for mentor teacher training (Gold, 1996). Some criticize mentoring training programs for ignoring the wisdom of mentor teachers and failing to recognize the individual expertise they bring to the mentoring relationship. Others argue that teachers do not necessarily know how to mentor other adults and cannot reasonably be expected to master the role without training.

Furtwengler's state survey found special training programs for mentors in 12 states (Alabama, California, Kentucky, Mississippi, New Jersey, New Mexico, North Carolina, Ohio, Oklahoma, Vermont, Washington, and West Virginia) (Furtwengler, 1995). To assist states, the Northeast and Islands Regional Educational Laboratory has developed an extensive mentoring guide for use by state and local mentoring programs. Programs linked to state policy or district goals are most likely to have a training component for mentors.

The content of mentor training typically is designed to help mentors discover and use their own knowledge to help beginners (Gold, 1996). Mentor training agendas also may include training on state or district standards (Huffman & Leak, 1986, cited in Gold, 1996). Training also may focus on skills like effective communication and classroom observation techniques (Little & Nelson, 1988; State of Connecticut Department of Education, 1988; both cited in Gold, 1996).

Institutional Roles

Another way of distinguishing among induction programs is their institutional home. In general, induction efforts are formally housed in local school districts, but many district-based programs are established in conjunction with other districts or with

an institution of higher education. Some large districts are able to support their own induction efforts; smaller districts often find it convenient to form consortia to support one another's beginning teachers; in many districts, local IHEs serve as valuable sources of expertise.

Gold reviews two studies that examine the extent and nature of IHE support for beginning teachers. The first found that two-thirds of responding institutions provided assistance to beginning teachers, most frequently in the areas of mentoring and providing workshops or seminars (Crosser, Griggs, & Haynes, 1994, cited in Gold, 1996). Mentoring support from IHEs took the forms of assigning IHE faculty to be mentors, training teachers or principals to be mentors, or matching beginning teachers with alumni mentors. Workshops and seminars for beginning teachers were offered on campus. A second study reviewed reports prepared for NCATE accreditation in 1991 and 1992 and found similar incidence and types of IHE support for beginning teachers (Ishler & Selke, 1994, cited in Gold, 1996). Among state-initiated programs reviewed by Furtwengler in 1992, seven reported involving IHE personnel in induction programs (Alabama, Kentucky, Idaho, New Jersey, Oklahoma, Tennessee, and Texas) (Furtwengler, 1995).

The benefits of IHE involvement extend to both mentors and beginning teachers (MacIsaac & Brookhart, 1994, cited in RNT, 1999). They may include continued relationship with the university (including course credit), use of university facilities and meetings, compensation for mentors in the form of course vouchers, and opportunities for mentors to teach or participate in joint research opportunities.

Another variation on the relationship between IHEs and districts in supporting new teachers is the Professional Development School (PDS). PDSs are intended to be "exemplary clinical sites that give educators-in-training meaningful practical experiences" and typically have four major purposes: (1) initial preparation of teachers; (2) professional development of practicing teachers, including beginning teachers; (3) exemplary educational experiences for students; and (4) applied inquiry designed to improve practice (Abdal-Haqq, 1997).

Formal versus Informal Implementation

Induction programs also vary in the degree to which they mandate specific activities rather than letting the individual needs of the beginning teacher drive the program. As programs go to scale, attempting to reach ever larger numbers of teachers, they need to find an appropriate balance between structured and informal support for new teachers.

As growing programs seek to capture the strengths of smaller programs or pilot projects, they must create somewhat artificial mechanisms to do so. Rules and requirements can “enforce” the behavior that the program is trying to promote, but they can also undermine the intent behind the behavior.

Huling-Austin (1986) describes two dangers of overly prescriptive programs: (1) mandates focus on minimum criteria, and the attention paid to them can restrict the program and its participants from moving beyond them; and (2) otherwise valuable activities can become exercises to meet requirements and complete paperwork, losing their appropriateness and beneficial qualities. An international review of teacher induction emphasizes the importance of making induction activities an “integral and natural part of school operations for all teachers” (APEC Education Forum, 1996). Activities such as classroom observations, it is argued, should be continual and commonplace, expected by both teacher and students, and free from the formality and tension of more staged observations.

Mentoring programs, in particular, may struggle to resolve this issue. Wildman and his colleagues argue that real mentors engage in a number of different activities to support beginning teachers and that “it is a mistake to develop any external definition or conception of mentoring and impose it by means of political pressure or high powered staff development activity. Mentoring, like good teaching, should be designed by those who will carry it out” (Wildman, et al., 1992). This approach views teachers as professionals who can create powerful mentoring experiences by using their own knowledge and judgment. Yet, as programs grow from small groups of like-minded, volunteer teachers to be more inclusive or even mandatory programs, they may feel the need to codify “good mentor activities” to make sure they happen.

Formative versus Summative Evaluation

One characteristic of induction programs that is fervently debated is the role of evaluation of the beginning teachers. Should beginning teachers receive both support and evaluation from the same individuals as part of their induction experience? How induction policies have addressed this issue has evolved over the years (Gold, 1996). In the 1980s, states began to implement programs that had supervision and evaluation components. In the following decade, a different approach to beginning teacher evaluation emerged, one that stressed collaboration between mentor and beginning teacher, rather than evaluation, and that tried to better incorporate beginning teachers’ own reflections and decisions. Gold distinguishes between these concepts with the terms

evaluation and *assessment*. “Evaluation typically is associated with how effective or ineffective, how adequate or inadequate, how valuable or invaluable, and how appropriate or inappropriate a given action, process or product is. Assessment, however, is for feedback; it is formative in nature to guide professional growth. It provides information to teachers so they are able to make appropriate adjustments in their teaching or program” (Gold, 1996).

Critics of evaluative programs argue that they overemphasize minimum competencies and that they “run the risk of reducing teaching to less significant goals and of repelling the best teacher prospects” (Fullan with Stiegelbauer, 1991). RNT’s review of induction literature describes the prevailing argument that mentoring must be based on trust and not be hindered by the threat of evaluation (RNT, 1999).

Some programs incorporate both a formative and a summative evaluation. Most, however, attempt to keep the two functions separate, often by removing the mentor from the summative evaluation (Furtwengler, 1995; RNT, 1999). Only a few programs have a dual role of assistance and evaluation for the experienced support provider. In Connecticut, for example, mentors are both support providers and assessors. New teachers must successfully complete the evaluation component of the induction program to retain their certification (Hughes, 1998). Connecticut’s program includes a high-stakes evaluation but provides beginning teachers with a portfolio-based formative evaluation that emphasizes teacher reflection, self-assessment, and growth.

Some states with summative evaluation components also link induction programs to certification, requiring participation before beginning teachers can advance to the next stage of licensure. In 1992, 13 states reported tying induction to certification, marking a departure from traditional licensure systems, which do not involve input from local education agencies (Furtwengler, 1995). State-initiated induction programs tied to certification are often 2 years in length and were found in Connecticut, Florida, Indiana, Kentucky, Maine, Mississippi, New Jersey, New Mexico, North Carolina, Oklahoma, Pennsylvania, Tennessee, and West Virginia. Furtwengler concludes that summative evaluation that is tied to certification is “not congruent with the philosophy of mentoring nor with the undergirding philosophy of beginning teacher programs” and asks whether accountability has become inappropriately embedded in the realm of induction.

Impacts/Outcomes

Before looking at outcome data, it is useful to consider the goals of the program being evaluated, as well as what any program can reasonably be expected to accomplish. In her review of induction program goals, Huling-Austin (1986) lists outcomes that induction programs can be expected to produce, given that they are designed and equipped to produce the outcome:

- Improve the teaching performance of beginning teachers if the teachers are provided with ongoing support and assistance grounded in a clearly articulated, context-specific vision of what constitutes effective teaching performance.
- Increase the retention rate of promising beginning teachers during the induction years.
- Promote the personal and professional well-being of teachers by fostering each teacher's self-esteem and orienting him or her to the culture of the workplace.

We review the research on each of these areas plus student achievement below.⁵

Teacher Performance

Improving teacher performance is perhaps the most common and important goal for induction programs. It is the area in which most programs focus their efforts and in which program staff are most likely to report success. In RNT's nationwide case studies, the goal of improving new teachers' knowledge, skills, and performance was most often reported to have been successfully met (RNT, 1999).

Teacher performance findings generally rely on observations by external evaluators; on ratings by internal people, such as mentors or site administrators; or on self-reports from beginning teachers themselves. These findings, particularly in the latter two categories, can be limited by the subjectivity of the reporter. Regardless of the informant, teacher performance is difficult to capture and more difficult to analyze, particularly without the benefit of a well-matched control group or good baseline measures.

The research findings on teacher performance outcomes for induction program participants include:

- Significant measurable changes (compared with a control group) in the use of the following: mastery learning and mastery learning theory, motivation to understand and use higher-order questions, inclination to teach critical-thinking

⁵ Huling-Austin summarized research on outcomes of induction programs in these and other key areas (Huling-Austin, 1989). Much of the research described here from the 1980s is from her review.

skills, awareness of state and local curriculum guides, and ability to communicate with parents and the public (Summers, 1987, cited in Huling-Austin, 1989).

- External reports and self-reports showing significant progress in developing planning skills, handling class discussions, preparing unit and lesson plans, managing discipline problems, and teaching or training others (Elsner, 1984, cited in Huling-Austin, 1989).
- Self-reports of instructional changes as a result of induction program participation, including using varied techniques, making better transitions, making better use of time, using space more effectively, and improving record keeping (Huling-Austin & Murphy, 1987; Marockie & Looney, 1988; both in Huling-Austin, 1989).
- External observations (using pre and post measures) of decreases in inefficient use of classroom time and increases in the frequency of more academically oriented behaviors, such as active instruction, questioning, praising, and reading aloud to students, by first-year teachers in North Carolina's TIP (described in an earlier section). Also, continued decreases in time spent on classroom management and organization and increases in time on academic activities in teachers' second years (Schaffer, et al., 1992).

Some of the most extensive evaluation of induction has taken place in California, examining both the Beginning Teacher Support and Assessment (BTSA) program and its predecessor, the California New Teacher Project (CNTTP). A statewide evaluation study by the California Educational Research Cooperative (CERC) found that BTSA staff and support providers, as well as school site administrators, reported that beginning teachers in the program improved substantially in all skill domains identified in the California Standards for the Teaching Profession (Mitchell, Scott, Takahashi, & Hendrick, 1997). Participants themselves reported increased confidence and comfort in their work. However, the state-initiated BTSA program varies considerably from site to site, in terms of both structure and quality. For example, two-thirds of beginning teachers have support providers who work at the same school site, but fewer than half have support providers who have the same grade level or subject matter teaching assignments. Program participants report that they prefer support from providers who are on-site and teach the same subject or grade level. Unfortunately, the available evaluation data do not link this or any other single program component to specific outcomes. Overall, the evaluation found that local program design factors and the perceived quality of services offered interacted with teacher demographics and assignments to account for more than two-thirds of the reported skills development and confidence building of beginning teachers.

An evaluation of the California New Teacher Project by the Southwest Regional Educational Laboratory (SWRL) examined the support component of 37 pilot programs across a 3-year period (Ward, Dianda, van Broekhuizen, Radio, & Quartz, 1992). Classroom observations showed that beginning CNTP teachers were more proficient than their non-CNTP peers in certain areas. In particular, CNTP participants maintained effective instructional practices and successfully engaged students while assigning difficult, complex tasks. Their non-CNTP peers also had effective instructional practices and engaged students, but they assigned less difficult tasks. In addition, CNTP teachers assigned difficult tasks consistently across demographically different groups of students, in contrast to their non-CNTP peers, who reduced the number of complex tasks when working with minority students. Overall, training and support from an experienced teacher had the most significant effect on teachers who started with low performance ratings, but it also had a significant effect for initially high-performing teachers.

Retention

Retention is a second key goal of many induction programs, particularly those initiated at the state level and in areas with teacher shortages. Studies of retention outcomes generally try to follow induction program participants to see whether they remain in the profession or in the same school or district. Others ask teachers to anticipate how long they will remain in teaching. In either case, a reasonable point of comparison must be established to give meaning to a projected or actual attrition rate. Because so many different factors contribute to teacher attrition (e.g., working conditions, competing opportunities in local labor markets), this rate ideally should be compared with attrition rates of similar groups of teachers.

Nationwide, RNT found favorable retention rates among the urban induction programs it surveyed (RNT, 1999): 57 percent of reporting districts retained 90 to 100 percent of participating inductees, 12 percent of districts retained 80 to 89 percent of inductees, and 5 percent of districts retained 70 to 79 percent of inductees. These rates were gathered at program completion (typically 1 to 2 years) and do not include the 25 percent of programs that did not report this information. The median retention rate was 93 percent, which RNT compares favorably to national estimates of 9.3 percent attrition during the first year and 23.3 percent during the first 3 years of public school teaching (NCES, 1997, cited in RNT, 1999).

Many state and regional programs also show evidence of higher retention among induction program participants. The following studies have a sample size of at least 100 beginning teachers:

- Teachers were located and surveyed 4 years after participating in a mandatory collaborative IHE/district induction program in which beginning teachers were supported on a weekly basis by full-time released mentors. The study located 88 percent of the 141 teachers. Of the teachers found, 4 percent had left the profession. Even if all unlocated teachers had left the profession, the attrition rate would average roughly 4 percent per year, which the authors compare with data from the New Mexico State Department of Education (1988) that approximate a 9 percent attrition rate for nonmentored teachers (Odell & Ferraro, 1992).
- SWRL's evaluation of the California New Teacher Project found significantly higher retention (7 percentage points more in the first and second years) among CNTP teachers than among non-CNTP teachers. Minority CNTP teachers reported being more likely to remain in the profession than non-CNTP minority teachers (Ward, et al., 1992).
- Ninety-six of 100 teachers who received support through the Alabama/Birmingham First-Year Teacher Pilot Program were retained the following year, compared with 80 of 100 teachers who did not receive such support (Blackburn, 1977, cited in Huling-Austin, 1989).
- Two programs developed jointly by the Los Angeles Unified School District and California State University, Dominguez Hills, targeted two low-socioeconomic regions characterized by very high attrition rates (often higher than 50 percent annually) with the explicit intent of increasing retention. Ninety-five percent of teachers across both programs were retained (Colbert & Wolff, 1992).

A goal related to retention is recruitment, or attraction of teachers to a local school system. RNT reports that more and more districts are using their induction programs as a selling point to attract prospective teachers (RNT, 1999).

Impact on Professional and Personal Satisfaction

Though not always stated as primary induction goals, professional and personal satisfaction are perceived as important to retaining teachers and improving the quality of their work. Whether a primary goal or not, building satisfaction and well-being among teachers is a desired effect for induction programs and one that programs report as being met successfully more frequently than other typical goals (RNT, 1999). The literature includes many program evaluations that examine teacher satisfaction, in part because these types of impacts generally rely on self-reported data from program participants and are easier to assess.

Generally, induction programs have positive impacts on the professional and/or personal satisfaction of beginning teacher participants: mentors provide positive reinforcement, guidance, and understanding, and beginning teachers feel more competent, supported, and motivated [Huffman & Leak, 1986; Brooks, 1986 (both cited in Huling-Austin, 1989); and Gold, 1996]. In particular, participants consistently name the following components as helpful: mentoring, networking with colleagues, and teaching strategies/skills/knowledge, especially in the area of classroom management (RNT, 1999).

In a few instances, teachers do not feel that their induction program contributes to their professional satisfaction. Program coordinators in RNT's survey felt that the most disliked components for mentors and beginning teachers are record keeping and portfolio documentation, training that takes time away from class or planning time, and lecture-style presentations (RNT, 1999). In some cases, teachers report that induction activities such as those above are burdensome, causing anxiety, uncertainty, even apathy and hostility (Hoffman, Edwards, O'Neal, Barnes, & Paulissen, 1986).

Induction programs also can affect the professional/personal satisfaction of mentors and support providers. Healy and Welchert describe the evidence that mentoring results in positive outcomes for mentors. This qualitative evidence indicates that mentors reap career and personal benefits, such as increased collegiality, creativity, and sense of efficacy (Ruskus, 1988, cited in Healy & Welchert, 1990). Other studies indicate that mentoring leads to new knowledge and developmental change for mentors, as well as increased satisfaction and professional recognition [Blackburn, Chapman, & Cameron, 1981; Dalton, Thompson, & Price, 1977; Kram, 1985 (all cited in Healy & Welchert, 1990); Hoffman et al., 1986]. Mentoring also can be a type of career advancement for experienced teachers, granting them increased status, empowerment, and renewal (Ruskus, 1988, cited in Gold, 1996).

Like beginning teachers, mentors can feel overwhelmed by their support responsibilities, particularly if they are asked to perform them in addition to an already full workload.

Student Achievement

Research linking participation in an induction program directly to student achievement is very limited. In her 1989 review of induction research, Huling-Austin found only one study from 1977 that examined student achievement. This study found

no significant differences between the achievement of students of first-year teachers who received assistance and the students of a control group of teachers who did not receive assistance, despite significant differences in how principals rated these beginning teachers' teaching competence (Blackburn, 1977, cited in Huling-Austin, 1989). The more recent study of induction programs nationally by Recruiting New Teachers, Inc., cites no work linking induction participation to student achievement (RNT, 1999).

The research on induction does show clear links between participation in induction and certain teacher behaviors or attitudes that themselves are likely to influence student performance. For example, evaluators of California's BTSA program found improved performance in all skill areas identified in the California Standards for the Teaching Profession. These standards are meant to describe teaching that other research has found to have positive impacts on student performance. Some supporters of the BTSA program argue that positive outcomes related to the teaching standards suggest the likelihood of positive outcomes for students, but this link has never been made statistically.

It is always difficult to demonstrate gains in student achievement, particularly as a result of an effort—such as induction—that is not primarily and explicitly focused on this goal. Such studies are also challenging methodologically, as discussed further below. Because of the extremely limited work in the area of student achievement, it is necessary to look at other measures to determine the teaching and learning impacts of induction. Further research is needed to address this issue adequately.

In summary, although there is a fair amount of research on impacts of induction programs on teachers, it generally does not allow us to map specific outcomes to specific program models or components or directly to assess impacts on students. In the beginning of this chapter, we described how induction programs vary in terms of activities, content, who participates, mentor and institutional roles, formality of implementation, and the nature of evaluation. The complexity of these program variations, in combination with other important contextual differences, makes it very difficult to link a particular intervention with a particular outcome. As such, it is difficult to endorse or generalize the importance of a particular program component. At best, researchers can ask participants to rate or describe the value of a specific component and compile and report the results. (See, for example, those components that teachers report as helpful to RNT in the previous section on impact on professional and personal satisfaction.)

Lessons Learned

Induction programs' increasing attractiveness to policy-makers appears to be well justified. In spite of the limitations of the research, which we discuss below, studies to date support the contention that induction programs do indeed support new teachers as they enter the profession—and in doing so hold promise for increasing teachers' skills, improving their sense of professionalism, and retaining them in the profession. Given the national task of simultaneously increasing the quality and the quantity of new teachers, induction programs are one reasonable policy route.

At the same time, induction programs should not be oversold. There are numerous outcomes that induction programs *cannot* be expected to achieve:

- Overcome major problems in the school context, such as misplacements, overloads, overcrowded classes, etc.
- Develop into successful teachers those beginning teachers who enter the profession without the background, ability, and personal characteristics necessary to become acceptable teachers.
- Substantially influence the long-range retention of teachers in the profession if additional changes are not made in the educational system at large (as in the areas of salary, workplace conditions, status of the profession, and limited opportunities for advancement). (Huling-Austin, 1986)

This list illuminates the contexts in which many induction programs operate and emphasizes their limitations. Working conditions, lack of strong preparation, noncompetitive salaries, and limited opportunities for advancement and status are a few of the disincentives for teachers to remain in the profession. Induction programs, although providing much-needed services to beginning teachers, alone cannot resolve the problems of teacher quality and quantity. They must be one part of a more comprehensive set of reforms to improve teacher quality and keep teachers in the classroom.

Our review of the research points to a few other issues that policy-makers need to take into account in designing induction efforts. The first of these is one that always arises when considering ways of supporting teachers: time. For induction to work, both beginning teachers and their supporters need enough time, especially during the school day, to reflect critically on the new teachers' practice. The common practice of simply adding new teacher support to veteran teachers' full workload raises serious issues about both the quantity and quality of the time mentors and beginning teachers spend together. The alternative model in which mentors are released full-time to work with new teachers

opens up greater possibilities for classroom-based support. Yet full-time mentors are typically not at the school site often enough to provide for the kinds of informal interaction that beginning teachers appear to want.

A second major issue is capacity: does the system have the capacity in terms of the number of mentors and the support structure for those mentors to provide adequate support to beginning teachers? The capacity issue is especially problematic where efforts are under way to serve all new teachers. If 20 percent or more of all teachers are in their first 2 years of teaching—as they are in some growing urban centers—then an additional 10 percent of the teacher workforce have to be employed as mentors—given a typical two-to-one ratio of support providers to new teachers. Such a scenario means that close to one-third of the workforce would be engaged in induction efforts. Given other reform initiatives that call on veteran teachers to assist fellow teachers in professional development activities, the pool of qualified mentors can quickly be exhausted.

One way of addressing the capacity issue is to build stronger relationships with IHEs, where subject matter expertise is readily available. As we discussed above, induction programs, which are meant to serve as a bridge between teacher preparation and the first years of teaching, also often serve to build collaborative efforts between IHEs and local districts. This is a promising development.

A third issue for policy-makers' consideration is the degree to which to mandate specific practices and procedures as part of induction programs. Teachers value informal relationships between mentors and new teachers that address school- and classroom-specific needs. In contrast, teachers do not appreciate the procedural requirements often accompanying induction mandates. Simply put, policy-makers cannot mandate what matters most: constructive, critical relationships between beginning teachers and their more expert support providers. Trying to prescribe every aspect of induction will not ensure consistent implementation. A more promising route is to ensure that mentors are well selected and adequately trained and that they have sufficient time to work with new teachers.

Methodological Issues

Few rigorous assessments of induction program outcomes have been attempted, in part because numerous other factors may affect a beginning teacher's performance, such as assignment to an inappropriate subject matter area, assignment overload, overcrowded classrooms, and other workplace conditions (RNT, 1999). These intervening factors

make it very difficult to isolate a relationship between a program intervention and an outcome such as teacher performance or retention. In addition, comparability across studies, and even within a study, is jeopardized by inconsistent definitions and implementation. Mentoring, for example, can include a number of formal and informal activities that are not easily tracked and correlated with particular outcomes (see Healy & Welchert, 1990).

As mentioned above, another barrier to definitive outcomes in many of these studies is the lack of a control group. Even evaluations that compare pre and post measures of teacher performance, for example, cannot attribute all growth to the induction program—teachers should naturally develop as they gain experience. Instead, this growth should be measured against the growth of a similar group of teachers who did not participate in the induction program. This design is difficult to implement, since it requires collecting data from respondents who are not benefiting from the program.

Self-selection also plagues many program evaluation studies. Pilot projects in particular often ask for volunteers rather than requiring all new teachers to participate. This approach limits the generalizability of findings because volunteers may have personal characteristics that contribute to an outcome. For example, beginning teachers who volunteer to participate in an intensive, time-consuming induction program in addition to their regular workload may be more likely to stay in the profession and perform at high levels with or without the assistance offered by an induction program. Many individual program evaluations face two additional barriers to generalizable outcomes: a too-small sample size and a context that is too specific. As programs scale up to include all teachers in a district or even in a state, they cannot reasonably expect to produce the same outcomes as smaller, voluntary programs that took place in unique circumstances.

References for Chapter V

- Abdal-Haqq, I. (1997). *Resources on professional development schools: An annotated bibliography and resource guide*. Washington, DC: ERIC Clearinghouse on Teaching and Teacher Education.
- APEC Education Forum. (1996) *Teacher induction in APEC members: A comparative study*. Washington, DC: U.S. Department of Education.
- Bartell, C. A. (1995). Shaping teacher induction policy in California. *Teacher Education Quarterly*, 22(4), 27-43.
- Bird, T. (1986). *The mentors' dilemma*. San Francisco: Far West Laboratory for Educational Research and Development.
- Blackburn, J. (1977). *The first-year teacher: Perceived needs, intervention strategies and results*. Paper presented at the annual meeting of the American Educational Research Association, New York. (ERIC Document Reproduction Service No. ED 135 768)
- Blackburn, R. T., Chapman, D. W., & Cameron, S. M. (1981). Cloning in academe: Mentorship and academic careers. *Research in Higher Education*, 15(4), 315-327.
- Borko, H. (1986). Clinical teacher education: The induction years. In J. V. Hoffman & S. A. Edwards (Eds.), *Reality and reform in clinical teacher education* (pp. 45-63). New York: Random House.
- Brooks, D. M. (1986). *Richardson new teacher induction program: Final data analysis and report*. Richardson, TX: Richardson Intermediate School District. (ERIC Document Reproduction Service No. ED 278 627)
- California Commission on Teacher Credentialing & California Department of Education. (1992). *Success for beginning teachers: The California New Teacher Project*. Sacramento, CA: Authors.
- Colbert, J. A., & Wolff, D. E. (1992). Surviving in urban schools: A collaborative model for a beginning teacher support system. *Journal of Teacher Education*, 43(3), 193-199.
- Corcoran, T., Shields, P. M., & Zucker, A. (1998). *Evaluation of NSF's Statewide Systemic Initiatives (SSI) program: The SSIs and professional development for teachers*. Arlington, VA: National Science Foundation.
- Crosser, S., Griggs, I. L., & Haynes, M. (1994). *Status of beginning teacher support programs in NCATE accredited institutions*. Paper presented at the annual meeting of the American Association of Colleges for Teacher Education, Chicago.

- Dalton, G. W., Thompson, P. H., & Price, R. L. (1977, Summer). Four stages of professional careers: A new look at performance by professionals. *Organizational Dynamics*, 19-42.
- Darling-Hammond, L., & Sclan, E. (1996). Who teaches and why: Dilemmas of building a profession for twenty-first century schools. In J. Sikula (Ed.), *Handbook of research on teacher education* (2nd ed., pp. 61-101). New York: Macmillan.
- Education Commission of the States. (1999). *Beginning teacher mentoring programs: Information clearinghouse*. Retrieved October 1999 from the World Wide Web: <http://www.ecs.org/ecs/ecswb.nsf/Web/Information+Clearinghouse?OpenDocument>
- Elsner, K. (1984). *First-year evaluation results from Oklahoma's Entry-Year Assistance Committees*. Paper presented at the annual meeting of the Association of Teacher Educators, New Orleans. (ERIC Document Reproduction Service No. 242 706)
- Fullan, M. G., with Stiegelbauer, S. (1991). *The new meaning of educational change*. New York: Teachers College Press, Columbia University.
- Furtwengler, C. B. (1995). Beginning teachers programs: Analysis of state actions during the reform era. *Education Policy Analysis Archives*, 3(3), 1-20.
- Galvez-Hjornevik, C. (1986). Mentoring among teachers: A review of the literature. *Journal of Teacher Education*, 37(1), 6-11.
- Garmston, S. (1999). *Beginning Teacher Support and Assessment (BTSA) as part of a learning to teach system* (Draft). Sacramento: California Department of Education.
- Gold, Y. (1996). Beginning teacher support: Attrition, mentoring, and induction. In J. Sikula (Ed.), *Handbook of research on teacher education* (2nd ed., pp. 548-594). New York: Macmillan.
- Gold, Y., & Roth, R. A. (1993). *Teachers managing stress and preventing burnout: The professional health solution*. London: Falmer Press.
- Harris, I. (1992). *The Metropolitan Life survey of the American teacher: The second year: New teachers' expectations and ideals*. New York: Metropolitan Life.
- Healy, C., & Welchert, A. (1990). Mentoring relations: A definition to advance research and practice. *Educational Researcher*, 19(9), 17-21.
- Hoffman, J. V., Edwards, S. A., O'Neal, S., Barnes, S., & Paulissen, M. (1986). A study of state-mandated beginning teacher programs. *Journal of Teacher Education*, 37(1), 16-21.
- Howey, K. R., & Zimpher, N. L. (1986). *Requisites for the teacher-mentor: Uncommon commitment and commonplace knowledge*. Unpublished manuscript. Columbus: Ohio State University.

- Huffman, G., & Leak, S. (1986). Beginning teachers' perceptions of mentors. *Journal of Teacher Education, 37*(1), 22-25.
- Hughes, A. (1998). A continuum for a career in teaching. In National Evaluation Systems, Inc. (Ed.), *The induction years: The beginning teacher*. Amherst, MA: National Evaluation Systems, Inc.
- Huling-Austin, L. (1986). What can and cannot reasonably be expected from teacher induction programs. *Teacher Education, 37*(1), 2-5.
- Huling-Austin, L. (1989). Research on beginning teacher assistance programs. In L. Huling-Austin, S. J. Odell, P. Ishler, R. S. Kay, & R. A. Edelfelt, *Assisting the beginning teacher*. Reston, VA: Association of Teacher Educators.
- Huling-Austin, L. (1990). Teacher induction programs and internships. In R. W. Houston, M. Haberman, & J. Sikula (Eds.), *Handbook of research on teacher education. A project of the Association of Teacher Educators* (pp. 535-548). New York: MacMillan.
- Huling-Austin, L. (1992). Research on learning to teach: Implications for teacher induction and mentoring programs. *Journal of Teacher Education, 43*(3), 173-180.
- Huling-Austin, L., & Murphy, S. C. (1987). *Assessing the impact of teacher induction programs: Implications for program development*. Paper presented at the annual meeting of the American Educational Research Association, Washington, DC. (ERIC Document Reproduction Service No. 283 779)
- Ishler, P., & Selke, M. J. (1994). *A study of the involvement of NCATE institutions in the support of beginning teachers*. Unpublished manuscript, University of Northern Iowa.
- Kram, K. E. (1985). *Mentoring at work: Developmental relationships in organizational life*. Glenview, IL: Scott, Foresman.
- Little, J. W., & Nelson, L. (Eds.). (1988). *Preparing mentors for work with beginning teachers: A leader's guide to mentor training*. San Francisco: Far West Laboratory for Educational Research and Development.
- MacIsaac, D., & Brookhart, L. (1994). *A partnership approach to new teacher induction*. Paper presented at the annual meeting of the American Association of Colleges for Teacher Education, Chicago.
- Marockie, M., & Looney, G. E. (1988). *Evaluating teacher induction in Ohio County Schools, Wheeling, West Virginia*. Paper presented at the annual meeting of the Association of Teacher Educators, San Diego.
- Mastain, R. K. (Ed.). (1991). *The NASDTEC manual*. Dubuque, IA: Kendall/Hunt.

- Mitchell, D. E., Scott, L. D., Takahashi, S. S., & Hendrick, I. G. (1997). *The California Beginning Teacher Support and Assessment program*. Riverside, CA: California Educational Research Cooperative, University of California, Riverside.
- National Center for Education Statistics (NCES). (1996). *The pocket condition of education*. Schools and Staffing Survey, 1993-94 (Teacher Questionnaire). Washington, DC: U.S. Department of Education, Office of Educational Research and Improvement.
- National Center for Education Statistics (NCES). (1997, May). *Characteristics of stayers, movers, and leavers: Results from the Teacher Followup Survey, 1994-95*. Washington, DC: U.S. Department of Education, Office of Educational Research and Improvement.
- National Center for Education Statistics (NCES). (1999, January). *Teacher quality: A report on the preparation and qualifications of public school teachers*. Statistical Analysis Report, Fast Response Survey System. Washington, DC: U.S. Department of Education, Office of Educational Research and Improvement.
- New Mexico State Department of Education. (1988). *New Mexico enrollment and teacher needs projections*. Santa Fe, NM: Author.
- Odell, S. J. (1990). *Mentor teacher programs*. Washington, DC: National Education Association.
- Odell, S. J., & Ferraro, D. P. (1992). Collaborative teacher induction. In G. P. DeBolt (Ed.), *Teacher induction and mentoring* (pp. 51-73). Albany, NY: State University of New York Press.
- Recruiting New Teachers, Inc. (RNT). (1999). *Learning the ropes: Urban teacher induction programs and practices in the United States*. Belmont, MA: Author.
- Ruskus, J. A. (1988). *A multi-site evaluation of the California Mentor Teacher Program*. Unpublished Ph.D. dissertation, University of California, Los Angeles.
- Schaffer, E., Stringfield, S., & Wolfe, D. (1992). An innovative beginning teacher induction program: A two-year analysis of classroom interactions. *Journal of Teacher Education*, 43(3), 181-192.
- Shields, P. M., David, J. L., Humphrey, D. C., Young, V. M. (1999, September). *Pew Network for standards-based systemic reform: Year three evaluation report*. (Draft). Menlo Park, CA: SRI Internatioal.
- Shields, P. M., Esch, C. E., 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.

- Shulman, L. S. (1986). Those who understand: Knowledge growth in teaching. *Educational Researcher*, 15(2), 4-14.
- State of Connecticut Department of Education. (1988). *A core training manual for the preparation of cooperating teachers and mentor teachers*. Hartford: Author.
- Summers, J. A. (1987). *Summative evaluation report: Project CREDIT*. Terre Haute, IN: Indiana State University, School of Education.
- Varah, L. J., Theune, W. S., & Parker, L. (1986). Beginning teachers: Sink or swim? *Journal of Teacher Education*, 35(1), 30-34.
- Ward, B. A. (1987). State of district structures to support initial year of teaching programs. In G. A. Griffin & S. Millies (Eds.), *The first years of teaching: Background papers and a proposal* (pp. 35-64). Chicago: University of Illinois, State Board of Education.
- Ward, B. A., Dianda, M. R., van Broekhuizen, L. D., Radio, J. L., & Quartz, K. H. (1992). *Support component of the California New Teacher Project: Third year evaluation report (1990-91)*. Los Alamitos, CA: The Southwest Regional Educational Laboratory.
- Wildman, T. M., Magliaro, S. G., Niles, R. A., & Niles, J. A. (1992). Teacher mentoring: An analysis of roles, activities, and conditions. *Journal of Teacher Education*, 43(3), 205-213.

VI. CONCLUSION: THE STATE OF THE RESEARCH

As this literature review has illustrated, the research on teacher development includes a wide range of topics, methods, and findings. Unfortunately, this body of research is only beginning to provide policy-makers with tentative answers to key questions. Part of the reason is that policy changes have been occurring at a breakneck pace, leaving important issues unexplored. However, a significant roadblock to the exploration of issues is the nature of the available research on teacher development, which suffers from a shortage of large-scale studies that follow teachers from their preparation through their induction and teaching careers. As we have seen in this review, much of the research is based on case studies and small surveys of a few individuals or a few programs.

What the Research Tells Us

This is not to say that the research base fails entirely to provide important information that should guide policy. Indeed, we now know much that we did not know 15 years ago. For example, the research-based evidence showing a causal relationship between (1) the amount of mathematics a prospective teacher takes in college; (2) how well that teacher knows mathematics, as demonstrated by grades or test scores; and (3) how well the students of that teacher perform on mathematics examinations is quite robust. This is a very important step in validating the general direction of policy reforms for teacher preparation. It remains to be seen, however, whether this finding can be replicated in other core disciplines.

The research is also clear with regard to some aspects of teacher licensure and certification. We know that policies that have the effect of intensifying and lengthening teacher preparation result in teacher candidates who feel better prepared and are more likely to enter the profession. Small studies suggest that these teacher candidates eventually have a positive impact on student achievement. We also know, from the California example, that those schools with the lowest test scores have the highest concentrations of emergency teachers.

From the research on alternative certification, we know that alternative licensure programs are proliferating across the country. Alternatively certified teachers tend to come from diverse backgrounds, are willing to work in urban areas, and are more likely to stay in teaching than their traditionally certified counterparts. Critics of alternative

certification are wary of creating new, seemingly easier, ways to enter the profession. However, a thorough assessment of alternative certification's impact on teachers and teacher education is sorely needed.

We also have mounting evidence of the efficacy of induction support programs. Studies that we have reviewed here suggest that structured efforts to support new teachers—including the regular assistance of more expert veteran teachers—can help reduce attrition from the profession, as well as increase beginning teachers' sense of efficacy in the classroom. This same body of research points to the importance of sufficient time for new teachers to work collaboratively with mentors, of careful selection and support of mentors, and of increased attention to building system capacity to support large numbers of teachers.

Research and the Era of Accountability

Despite all that we know, the demand for more hard evidence on what improves the quality of teachers is growing. In the current policy climate, policy-makers are demanding results and calling for accountability measures for those who prepare and develop teachers. Accountability puts pressure not only on teacher preparation programs, school systems, and higher education systems to show results, but also on researchers to identify policy outcomes.

Accountability rhetoric is increasing, although the few accountability systems being established are in early stages of implementation. Typically, states have had some program approval or accreditation process for preparation programs, but the programs were rarely held accountable for the performance of the teachers they produced. However, a few states, like Texas, have introduced a program accountability system based on the ability of teacher education graduates to meet performance standards. Teacher performance is then tied to the accreditation of teacher education programs (Laitsch, 1998). Holding colleges and universities accountable for the performance of the students of the teachers they produce is only beginning in a few places. Indeed, state legislatures have been reluctant to impose accountability measures on university systems (Hirsh, Koppich, & Knapp, 1998).

Perhaps the most closely watched new accountability system is the one in Georgia. There, the Board of Regents adopted the 1998 Policy for the Preparation of Educators, which shifted from a focus on inputs, such as number of required courses, to a focus on outcomes, including a teacher's ability to increase student learning (Board of Regents of

the University System of Georgia, 1998). Beginning in 2002, the Georgia State University System must provide additional preparation for any teacher who fails to meet specific outcomes within 2 years after graduation.

Alabama, Arizona, Kansas, Kentucky, and Maryland are also moving toward holding state colleges and universities accountable for their graduates' performance. Each state is considering warranty-type systems or developing performance- or outcomes-based accreditation systems (NASDTEC, 1999). It remains to be seen whether these systems will go as far as Georgia and hold preparation programs accountable for student achievement.

Individual colleges and universities are also introducing warranty programs. For example, in February 1999, California State University at Long Beach adopted a new accountability policy, a 1-year warranty on teacher credential graduates. This warranty applies to the almost 700 credentialed graduates in 1999 and promises to send professors to visit struggling new teachers in their schools rather than requiring new teachers to attend workshops or classes on the Cal-State Long Beach campus (Blair, 1999).

Very little research has been done on these early accountability efforts. Early assessment of the impact that Texas's accountability system is having on teacher education programs indicates that Historically Black Colleges and Universities (HBCUs) comprise more than one-third of the teacher preparation programs that are in jeopardy of losing their accreditation. HBCUs account for fewer than 10 percent of all teacher preparation programs in the state (Laitsch, 1998).

There is reason to believe that the accountability movement is likely to continue. In fact, the Title II programs of the Higher Education Act encourage stronger accountability measures. For example, Title II reporting requirements include public disclosure of pass rates on teacher tests by each institution of higher education. And in some states, policy-makers have passed rewards and sanctions for teachers tied to student test scores.

Given the context of increasing calls for accountability, new research in teacher development will need to take a sophisticated look at issues related to student achievement. That is, we need to understand the relationship between new teachers' backgrounds and preparation and their teaching. Rather than simply reporting the student achievement scores of the students of teachers from different preparation programs, we need to first understand what factors contribute to effective teaching. As with the emerging research on mathematics teaching cited earlier, the key is establishing research-

based evidence of causal relationships. If research in an era of accountability is to make contributions to the formulation of policy, it will need to tackle the difficult work of understanding the connection between teaching and learning.

References for Chapter VI

- Blair, J. (1999). Warranty pledges help for struggling teacher graduates. *Education Week on the Web*. Retrieved November 1, 1999, from the World Wide Web: <http://www.edweek.org/ew/1999/25teach.h18>
- Board of Regents of the University System of Georgia. (1998). 1998 policy for the preparation of educators for the schools. Retrieved November 1, 1999, from the World Wide Web: <http://www.peachnet.edu/admin/accaff/teachprep/policy.html>
- Hirsch, E., Koppich, J., & Knapp, M. (1998). *What states are doing to improve the quality of teaching: A brief review of current patterns and trends*. University of Washington: Center for the Study of Teaching and Policy.
- Laitsch, D. (1998). State evaluation of teacher preservice programs: Texas and Florida. Issue paper for the American Association of Colleges for Teacher Education (AACTE).
- National Association of State Directors of Teacher Education and Certification (NASDTEC). (1998). *The NASDTEC manual on the preparation and certification of educational personnel* (4th ed.). Seattle: Kendall/Hunt.