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AUTHOR Sullivan, Cheryl C.
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ABSTRACT

This report critically analyzes research on teacher preparation, licensure, and recruitment, questioning the effectiveness of today's teacher education, showing how existing approaches to identifying qualified teachers are lax, and suggesting that district authorities do not always discriminate well between qualified and unqualified teacher candidates. It urges local districts to move beyond standard certification in selecting teachers and consider teacher attributes that have been linked to increased student achievement. It concludes that alternative routes to certification provide viable options for expanding the pool of teacher applicants without sacrificing quality. It suggests that states should collaborate to develop reciprocity plans that would allow experienced, certified teachers to continue teaching upon moving to another state without having to become re-certified. The report encourages states to reconsider current policies governing teacher certification and several ideas that have entered the current debate on teacher quality. For example, it voices skepticism concerning the utility of licensure exams as currently configured and reported and suggests that policymakers should consider alternatives, such as integrating pedagogical courses that have been proven effective within the traditional four-year college program. Recommendations for making the most effective recruitment and staffing decisions at the school district level are provided. (Contains 51 references.) (SM)

Into the Classroom: Teacher Preparation, Licensure, and Recruitment

Cheryl C. Sullivan/National School Boards Association

2001

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ELEMENTS OF TEACHER EFFECTIVENESS

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Cheryl C. Sullivan

National School Boards Association
Alexandria, Virginia

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National School Boards Association
1680 Duke Street
Alexandria, VA 22314

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Contents

Foreword

Study after study demonstrates the essential role that teachers play in determining their students' success, both in school and beyond. ***Into the Classroom***, the first in NSBA's new Elements of Teacher Effectiveness series, examines the circumstances that have led to increased demand for effective teachers and the policies that have contributed to their diminished supply. Based on a careful analysis of the research literature, this important new study offers guidance to school boards, district administrators, state legislators, and others with a stake in the improvement of teacher preparation, licensure, and recruitment policies.

The two remaining reports in this series—***Rewarding Excellence*** and ***Building Capacity***—will complement this first report by providing critical analyses of the research literature on teacher evaluation/compensation systems and professional development programs for new and experienced teachers. Collectively, the series is designed to encourage school boards and others concerned with the future of public education to reflect on current policies related to teacher quality and to consider how these policies can best be realigned to boost student performance.

Anne L. Bryant
Executive Director

Clarice L. Chambers
President

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Executive Summary

Recent studies demonstrating the importance of effective teaching in promoting student learning, coupled with an unprecedented demand for new teachers, present new challenges to state and local education policy makers. ***Into the Classroom*** provides a review and critical analysis of the research on teacher preparation, licensure, and recruitment, with the aim of providing guidance to state legislatures and local school boards.

The report raises serious doubts concerning the effectiveness of present-day teacher education programs, presents convincing evidence that existing approaches to identifying qualified teachers are lax, and suggests that district authorities do not always discriminate well between qualified and unqualified teacher candidates. Based on a careful review of the research literature, ***Into the Classroom*** urges local school districts to move beyond standard certification in screening teacher applicants and begin to consider those attributes of teachers that have been linked to increased student achievement.

The report concludes that alternative routes to certification can provide a viable option for expanding the pool of teacher applicants without sacrificing quality and recommends that states continue to implement such programs, while simultaneously seeking to improve them. It further suggests that states should work collaboratively to develop reciprocity plans that would allow experienced, certified teachers to continue teaching upon moving to another state without having to clear new regulatory hurdles.

Beyond these recommendations, ***Into the Classroom*** underscores the need for states to reconsider current policies governing teacher certification as well as several ideas that have been floated in the current debate on teacher quality. For example, the report voices skepticism concerning the utility of licensure exams as currently configured and reported. At a minimum, complete licensing exam scores should be made available to school districts; the current approach of reporting scores as "pass-fail" provides insufficient information on which to base hiring decisions. Further, the proposal that all teachers complete a teacher education program of five to six years seems to ignore the current teacher-demand crisis, and, if implemented, could even exacerbate the problem. Instead of prolonging pre-service requirements, ***Into the Classroom*** suggests that policy makers should consider other alternatives, such as integrating pedagogical courses that have been found to be effective within the traditional four-year college program.

Finally, the report provides numerous recommendations designed to assist school boards and other authorities in making the most effective recruitment and staffing decisions at the level of local school districts. These include:

- Require certified teacher candidates to provide their scores on all parts of state licensing exams (where available), including verbal ability, quantitative ability, and subject-matter knowledge.
- Assess whether candidates have strong subject-matter knowledge by looking at their major course of study, previous work experience, and/or scores on subject-matter exams. Require all teachers to have a degree in the field in which they will be teaching or substantial course work and experience in the field.
- For all candidates—particularly those with only content-area degrees—require an interview process that includes an on-site teaching demonstration and/or other means of assessing competence in the classroom.
- Go beyond traditional relationships with state teachers colleges in establishing a broader applicant pool, and assess the quality of the colleges or universities from which candidates graduated, giving preference to those who attended selective or above-average schools.
- Give consideration to candidates who have not graduated from teacher education programs, but have otherwise strong teaching qualifications, such as extensive content knowledge, relevant teaching experience, and related work experience.
- Make use of alternative teacher certification routes to actively recruit candidates with high potential for success.
- Periodically convene meetings involving the school board, superintendent, and central office staff to discuss recruitment and staffing issues, with the aim of developing practices and strategies that can better support district educational objectives.
- Engage the community by discussing teacher qualifications and related recruitment issues at district-sponsored workshops involving teachers, administrators, parents, and other stakeholders.

Into the Classroom

Teacher quality is among the most important issues confronting public education today. Policy makers, educators, and concerned citizens agree that every classroom should be staffed with a qualified teacher—someone who can foster the academic growth of all children and provide them with the means to achieve their full potential. Important hurdles must be cleared to reach this goal, however. Based on current projections of teacher attrition and student enrollments, it is estimated that more than 2.2 million teachers will be needed in the next decade alone. The unprecedented demand for new teachers, coupled with the need for increased quality in the profession, means that school districts must devise new strategies for identifying candidates who have the greatest promise for optimizing student success.

To assist local school districts in dealing with the teacher-quality issue, this report provides a review and critical analysis of the research on teacher preparation, licensure, and recruitment. It focuses especially on the dramatic impact teacher effectiveness has on student performance, the national debate regarding who should be allowed to teach in our public schools, and the role of alternative teacher certification programs in increasing access to high-quality teachers. Additionally, the report pinpoints important criteria school boards should consider in recruiting and hiring new teachers, concluding with a discussion of how states and school boards can use information and research-based findings to positively affect teacher quality.

THE DEMAND FOR EFFECTIVE TEACHERS

Over the next decade and beyond, school districts across the nation will face the awesome challenge of staffing their classrooms with effective teachers. This task is likely to be especially arduous in light of recent historical trends. Specifically:

- Up to half of the nation's public-school teachers will retire within the next ten years.[1]

- A projected 40 to 50 percent of all new teachers hired will leave the profession within the first seven years of their careers.[2] In urban districts, this rate may be even higher, as attrition of new teachers in these areas sometimes can reach 50 percent in the first five years on the job.[3]
- Class-size reduction initiatives will require hiring more teachers at the primary grade level; to this end, former President Bill Clinton has proposed hiring 100,000 teachers over a seven-year period.[4]
- An estimated 1.7 million teenagers will enter the nation's high schools over the next ten years, an enrollment increase of about 13 percent.[5]
- A 5 percent increase in student enrollment is projected at the elementary-school level during this same period.[6]

The challenge of meeting the existing demand for teachers is compounded by the need to identify only the most qualified candidates. Because of the critical role teachers play in determining student achievement, only the best and brightest should be encouraged to enter the teaching profession. Study after study has demonstrated that variation in teacher effectiveness accounts for dramatic differences in students' test scores.[7] According to a recent poll, "roughly nine out of ten Americans believe the best way to lift student achievement is to ensure a qualified teacher in every classroom,"[8] and there is ample evidence to support this sentiment.

Teacher Quality Matters

Perhaps the most frequently cited research on student achievement and teacher quality is that conducted during the past decade under the direction of William Sanders. Applying value-added assessment data developed for the state of Tennessee, Sanders and his colleagues examined how student achievement was influenced over time by school systems, individual schools, and teachers.[9] Because the value-added data controlled for external variables—including socioeconomic status, parental influences, and peer influences—the researchers were able to focus exclusively on school-related achievement gains. Based on their analysis, they concluded that the greatest predictor of school-related achievement was teacher effectiveness. Further, they found that:

- Teacher effectiveness had a particularly profound effect on the academic success of low-achieving students. The least effective teachers of low performers produced an average gain of just 14 percentile points, while the most effective teachers of these students produced an average gain of 53 points.
- High achieving students taught by the least effective teachers exhibited average gains of only 2 percentile points, whereas high achievers placed with the most effective teachers had gains of about 25 points.

- In the case of average students, the least effective teachers produced gains of approximately 10 percentile points, while the most effective teachers had gains of approximately 35 points.
- Finally, students assigned to ineffective teachers continued to show the effects of those teachers, even after they were assigned to highly effective teachers in subsequent years.

One of the most troubling findings emanating from Sanders' work was that students assigned to ineffective teachers in grades three through five exhibited three-year test-score gains of only 29 percentile points, whereas those who had highly effective teachers in this same period showed gains of 83 points—a difference of more than 50 percentile points. As Kati Haycock, director of The Education Trust, points out, 50 percentile points "...can represent the difference between a 'remedial' label and placement in the 'accelerated' or even 'gifted' track ... [or] ... between entry into a selective college and a lifetime at McDonald's."[10]

Another study, based on value-added assessment data for the Dallas Independent School District, found results closely paralleling those reported in

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"...the greatest predictor of school-related achievement is teacher effectiveness."

Tennessee. Two groups of third-grade students, both averaging around the 56th percentile in math achievement, were tracked over three years to gauge the impact of teacher effectiveness. Those students who had highly effective teachers rose to the 76th percentile by the fifth grade, whereas those who had ineffective teachers fell to the 27th percentile. As in Tennessee, the researchers also found that students who encountered a poor teacher in the first year, followed by very effective teachers in three subsequent years, still exhibited lower achievement than their peers who experienced effective teachers for all four years.[11]

These research findings demonstrate the profound impact that a teacher's ability in the classroom has on his or her students and underscores the critical importance of teacher quality. Clearly, school systems must rise to the difficult task of not only supplying classrooms with teachers to meet the escalating demand, but even more important, supplying those classrooms with teachers of high quality who can add significant value to their educational experience.

INCREASING TEACHER QUALITY

Given the pressing need for high-quality teachers, the task of preparing, identifying, and recruiting the best candidates is crucial to the success of our

education system. Although education stakeholders agree on the importance of teacher quality, how best to assess that quality remains in question. For many years, teachers were considered qualified if they graduated from a teacher education program and, in some states, passed a licensing exam. Following the publication of the U.S. Department of Education's ***A Nation at Risk*** in 1983, however, this approach came under fire from critics calling for more accurate and objective measures of teacher quality.

A 1996 study conducted by the National Commission on Teaching & America's Future (NCTAF) identified several problems with our current educational system, especially in the areas of teacher recruitment, training, and professional development.[12] The Commission found that, not only were some of the standards for certification lax, but also, many of the teachers hired did not meet the minimum requirements outlined by their state boards of education. It reported that:

- More than 50,000 people entered teaching annually on emergency certification or substandard license.
- Twenty-three percent of all secondary teachers had neither majored nor minored in the field in which they were teaching.
- Fifty-six percent of high school students taking physical science, 27 percent of students taking mathematics, and 21 percent of students taking English were taught by out-of-field teachers.
- In high schools with large minority populations, students had less than a 50 percent chance of having a science or mathematics teacher who had both a license and an academic degree in the field in which he or she taught.

Should Regulations Be Increased?

How school systems can best staff every classroom with an effective teacher has been an area of lively debate. Some argue for increased regulation, saying that standards need to be raised for teacher candidates and greater restrictions need to be placed on the pool of candidates allowed to teach in the nation's public schools. Others contend that new pathways to teaching should be created to allow more qualified individuals into the system. These advocates support efforts to recruit and retain nontraditional teacher candidates, including mid-career professionals, military retirees, and liberal arts majors who may not have considered teaching as a potential career while in college.[13] Central to the debate is this question: "Should decisions about quality be made through private, professional organizations and include stringent guidelines, or should local districts have the authority to make decisions using minimal guidelines and good judgment?"[14]

The advocates for more regulation in teacher preparation and licensure suggest that all teachers should complete a five-to-six-year college education program. During the first four years, aspiring teachers would focus primarily on acquiring a broad base of knowledge in a particular academic field, such as biology, English, or history. During the fifth (and possibly the sixth) year, they would study teaching methods and participate in a teaching internship. This would allow aspiring teachers to gain a strong understanding of both subject-matter knowledge and pedagogical practices.

Advocates of more regulation further recommend that all teachers should pass a national teacher-licensing exam, such as the Praxis series, developed by the Educational Testing Service (ETS), or the Interstate New Teacher Assessment and Support Consortium (INTASC) exam, which assesses new teachers' pedagogical knowledge. Most important, they strongly advocate that teachers should be fully certified before entering the classroom and that emergency licensing should be abolished. The bottom line for this group: ***Allow only certified teachers into the classroom.***

Others, who advocate for the deregulation of teacher certification, agree that teachers need to have strong content knowledge, but they are not convinced that additional teacher education classes are the best means for reaching this goal. They argue that taking a period of five to six years to achieve full certification is a burden and a roadblock that will deter many high-potential candidates from

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"Should decisions about teacher quality be made through private, professional organizations, or should local districts make decisions using minimal guidelines and good judgment?"

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entering the profession, especially in light of the fact that they can get better paying, more prestigious jobs with a four-year degree. These advocates further suggest that recommendations for increased regulation are simply an extension of past practices that have been unsuccessful in recruiting and retaining high-quality teachers. The bottom line for this group: ***Allow only qualified teachers into the classroom, regardless of whether they graduated from an approved teacher education program or are certified.***

Research bearing on these issues, discussed below, offers further insights into which avenues are most likely to provide the best means for increasing teacher quality. Some of the underlying assumptions made by policy makers on both sides of the regulation/deregulation debate are outlined in the box on page 6.

The Regulation Debate

Advocates of increased regulation say...

Teacher Education

Teacher education programs are integral to developing high quality teachers.

Longer teacher education programs will be even more beneficial than traditional four-year programs in developing high-quality teachers.

Teacher Certification/Licensing

State licensing exams are able to distinguish strong and weak teacher candidates.

National teacher exams, such as INTASC, which primarily test pedagogical knowledge, will be able to distinguish high-quality teachers.

Because certified teachers have completed teacher education programs and passed state licensing exams, certified teachers are "higher quality" than noncertified teachers.

Advocates of decreased regulation respond...

Teacher Education

Teacher education programs are not necessary in developing high-quality teachers.

Longer teacher education programs will not only fail to develop high-quality teachers, they will also deter a greater number of high-quality candidates from entering the teaching profession.

Teacher Certification/Licensing

State licensing exams are not able to distinguish strong and weak teacher candidates.

National teacher exams that primarily test pedagogical knowledge will not necessarily be able to distinguish high-quality teachers.

Since teacher education programs have questionable value, and state licensing exams are not rigorous, certified teachers are not necessarily higher quality than those without certification.

How Effective Are Teacher Education Programs?

Historically, the role of teacher education programs in ensuring high-quality teachers has been the subject of considerable controversy. While many believe that such programs are vital to pre-service training, others question their effectiveness. Much of the skepticism about teacher education programs stems from the belief that they emphasize pedagogical knowledge at the expense of content knowledge and that, as a result, aspiring teachers come away with too little knowledge in their subject areas to be effective in the classroom. In addition, recent studies suggest that veteran teachers develop teaching practices more on the basis of classroom experience than as a result of teacher education courses.[15] Finally, teachers themselves voice skepticism concerning the value of pedagogical course work. In a survey conducted by Emily Feistritzer and David Chester,[16] 73 percent of teachers rated courses they took in their subject area as "very valuable," but only 37 percent gave an equivalent rating to their education courses and in-service activities. The fact that many pedagogical innovations turn into passing fads raises additional questions about the relative value of extensive pedagogical training.[17]

Few would contend that subject matter knowledge is the only prerequisite for effective teaching—obviously, teachers must also know how to effectively convey material to students. Some studies provide evidence of a positive relationship between a teacher's pedagogical preparation and student achievement,[18] and others emphasize the importance of combined pedagogy and content, especially in math and science.[19] But, as New Jersey has discovered (see box on this page), it is not clear that the best route to developing strong pedagogical practice is the completion of a teacher education program. In this regard, former U.S. Secretary of Education Richard Riley observed that "we simply have not done the research and evaluation of teacher education programs that would allow us to speak confidently about how best to prepare teachers."[20]

Certification in New Jersey

In September 1984, the New Jersey Board of Education launched an alternative-certification program in an attempt to increase the quality of the state's teaching force. After reviewing the effectiveness of curricula offered by schools of education, the New Jersey Department of Education concluded that the vast majority of courses contributed no real value to the teacher-preparation process and that most of the courses were, in fact, superfluous. When it came to helping aspiring teachers understand how to teach, only three education courses—all focusing on areas of "applied" knowledge—were actually beneficial. As a result, New Jersey changed its licensing requirements, and today, teachers must hold a degree in their subject area, pass a subject-matter exam, and take the three courses identified as beneficial—either before entering the profession or during their first year of employment. Teachers can enroll in the required courses at a college or university or through the state's noncollegiate regional centers.

Source: Klagholz, L. (2000).

Teacher Certification/Licensing Exams

Nationally, 12 percent of new teachers (defined as those who have been teaching for three years or less) do not have full certification,[21] and some states report much higher figures than this. In some subject areas, such as math and science, and in some geographic areas, such as high-poverty districts, the number of uncertified teachers is substantially greater than the national average. For example, due to its class-size reduction initiative, California was forced to hire approximately 23,500 new teachers in 1996, increasing the number of uncertified teachers in the state by a staggering 1,000 percent.[22]

Yet this problem may not be as grave as it first appears. Although teachers classified as "uncertified," "not fully certified," or "emergency certified" are often considered ill-prepared to teach, that is not necessarily the case. In reality, such classifications include teachers of varying levels of quality and effectiveness. The term "uncertified" refers simply to the fact that an individual has not completed the requirements set by the state board of education, which may include taking a basic skills test, completing a teacher education program, or having a degree in a specific subject area. Requirements vary from one state to another, and the "uncertified" label may apply to individuals with diverse credentials, including:

- A certified teacher in State A with ten years experience, who, upon moving to State B, has not yet taken that state's basic skills exam;
- A physics teacher with a Ph.D. in physics, who has taught physics to college freshmen for 15 years but has not completed a teacher education program; or
- A teacher's aide who does not have an undergraduate degree and has only a limited knowledge of both subject matter and pedagogy.

Many would agree that the individuals cited in the first two examples are qualified to teach—and likely to be highly effective in that role—but the third would be considered ill-prepared by most standards. As these hypothetical cases clearly demonstrate, the term "uncertified" does not necessarily mean "low quality."

This conclusion is supported by the research of Dan Goldhaber and Dominic Brewer, who examined how different types of teacher licensing influence student achievement.[23] Using data from the ***National Educational Longitudinal Study of 1988***, they found that—holding teachers' training, experience, and undergraduate/graduate major constant (as well as various student background and school characteristics)—math and science teachers who have emergency certification have roughly the same impact on student performance as those with standard certification. In other words, when teachers with a comparable depth of knowledge are compared, subject-specific certification adds little or nothing to their effectiveness in the classroom.[24]

The lack of association between teacher licensing and teacher quality is occasioned, in part, by the lax nature of state licensing requirements. On average, 80 percent of all teachers pass their state-licensing exam on the first attempt.[25] Although high pass rates could simply reflect good preparation, the evidence points in a decidedly different direction. Based on its analysis of the content of teacher licensing exams—including the Praxis series developed by Educational Testing Service—The Education Trust concluded that, even within states that require subject-area tests, the standards are so low that they exclude only the "weakest of the weak" from the classroom.[26] For example, a panel of experts judged the widely used Praxis I literacy exam to be at about the tenth- or eleventh-grade level, and the Praxis II test in mathematics was estimated to be at roughly the advanced high-school level.

Given the unchallenging content of these exams, the "cut-scores" for passing tend to be surprisingly low. In Pennsylvania, for example, before teachers can provide classroom instruction in biology, they must take the Praxis test in that subject, but they are required to answer correctly only 35 percent of the questions.[27] In Georgia, a prospective teacher is required to answer correctly only 46 percent of the questions on the Praxis II mathematics exam. And in Oregon, which requires the highest passing score of any state, a teacher needs to answer correctly only 65 percent of the questions to become licensed. As Patte Barth, a senior associate at The Education Trust noted, "K-12 students answering 46 percent or even 65 percent of the items correctly on a mathematics exam would receive an 'F' on that test."[28]

Unfortunately, beyond determining certification status, test-score performance seems to carry little weight in hiring practices. In a study of aspiring teachers in Pennsylvania, Robert Strauss found little difference in the job prospects of high and low performers on the National Teacher Exam (NTE). Analyzing hiring rates by subject field, Strauss found no significant relationship between test-score performance and rate of employment, except in

Raising the Bar in Massachusetts

As part of its efforts to increase standards, Massachusetts created an exam for prospective teachers that tested their high-school-level skills. The skills test, administered to some 1,800 prospective teachers in spring 1998, produced shocking results. About three in five examinees failed the overall exam, the same proportion failed the section dealing with mathematics, and nearly a third failed the basic reading and writing tests.

The results from the latest administration of the test, in January 2001, show a remarkable turnaround—a record 62 percent of first-time test takers passed the overall test. It is too early to determine whether these latest scores reflect more focused preparation for the test itself, a shift in the educational level of students matriculating in Massachusetts' teacher education programs, or an improvement in the programs themselves. It is known, however, that in 1998, examinees had relatively little exposure to "practice tests" and "sample questions" before taking the exam, while the most recent cohort of test-takers had more opportunities in these areas.

Source: Duffy, A. (2001).

English, where aspiring teachers with higher scores were hired more frequently, and in chemistry, where those with ***lower*** scores were more likely to land a job.[29] In part, these findings may simply reflect current market conditions. Given the limited number of qualified teacher candidates, it may not be feasible for school districts to hire only those with the highest scores.[30] Alternatively, high-scoring candidates may disproportionately remove themselves from consideration, pursuing more attractive opportunities in other fields.

Given the limited research on the effectiveness of teacher education programs, state licensing exams, and certification requirements, it would appear that traditional certification routes provide no guarantee of teacher quality. Consequently, in recruiting and hiring new teachers, district authorities would be well-advised to place "qualifications" above "certification." Right now, the two terms are not even remotely synonymous. Some certified teachers are not qualified to teach, while some teachers without certification clearly are. Under the current system, requiring all teachers to be certified not only limits the number of promising candidates, but also provides a false sense of security for school districts when hiring new teachers. Until pre-service and licensing requirements are changed to ensure "high quality," certification should not be a prerequisite to teaching. Specific recommendations stemming from this conclusion will be taken up later in this report.

Alternative Certification

Given burgeoning enrollments and the dearth of qualified teachers, many school districts are implementing alternative routes to teaching. Alternative certification programs allow individuals to bypass traditional certification requirements—including the completion of a teacher education program—in their pursuit of a career in teaching. These programs address the issue of teacher demand by allowing talented individuals into the profession who may lack the time or resources to matriculate through a four-year teacher education program.

While some programs that do not adequately screen candidates have the potential of allowing ill-prepared teachers into the applicant pool, research shows that, overall, the students of alternatively certified teachers perform as well as the students of their traditionally certified colleagues.[31] The study by Goldhaber and Brewer, discussed previously, provides clear evidence that alternative routes to certification can produce effective teachers, and their findings have been corroborated by other research. For example, in Dallas, district authorities implemented an alternative teacher certification program in 1986, recruiting more than 100 interns to teach in the school system. After completing their first school year, the interns were evaluated and found to perform at a level equal or superior to that of typical first-year teachers.[32] Similarly, in a study of the Los Angeles Unified School District conducted by Trish Stoddart,[33] no differences in effectiveness were detected between alternatively and traditionally certified teachers.

There is also evidence suggesting that alternative certification programs have been a source of greater diversity in the teaching force, particularly in urban areas. Using data collected by the National Center for Education Statistics, Jianping Shen[34] found that alternative certification programs are more effective

than traditional programs in recruiting minority teachers, and the vast majority of these recruits teach in schools with large populations of minority students. Furthermore, Shen found that alternatively certified minority teachers have the highest educational attainment level when compared with other certified groups (traditionally certified white, traditionally certified minority, or alternatively certified white). This is important because, as former U.S. Secretary of Education Richard Riley has remarked, "children need role models—they need to see themselves in the faces of their teachers."[35]

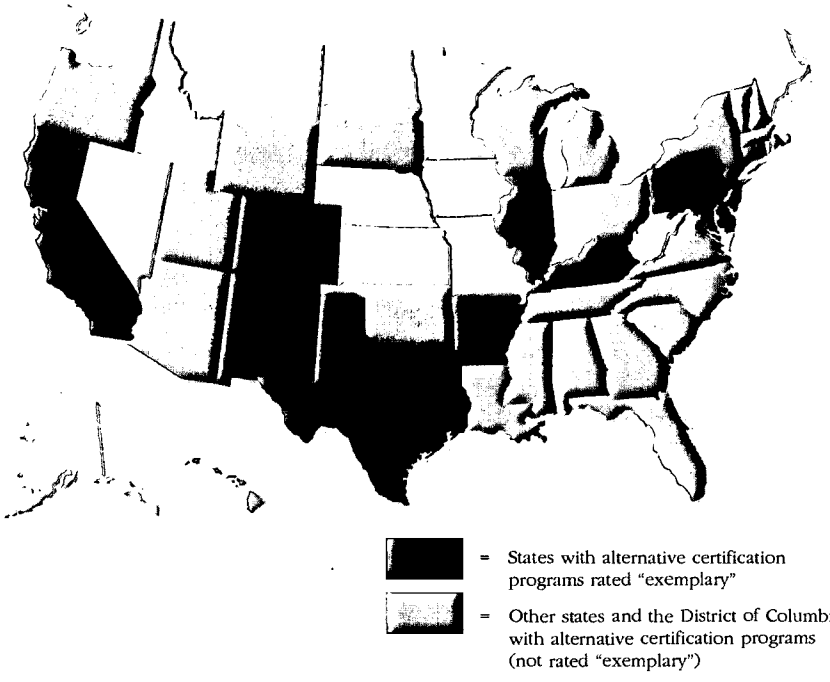
Former Secretary Riley is right, of course, in promoting greater diversity in America's teaching force, but not only because teachers with ethnic, racial, and economic backgrounds similar to those of the children they teach provide positive role models. Perhaps more important, research shows that teachers raised in inner-city schools also have higher expectations for their students.[36] For example, in her study of Los Angeles schools, Stoddart[37] found that "95 percent of elementary alternative route candidates, 95 percent of secondary English alternative route candidates, and 81 percent of secondary mathematics alternative route candidates believe that low-income and minority students are capable of learning higher order concepts in the subject areas they teach. In contrast, only 76 percent of elementary traditional teacher education candidates, 70 percent of English traditional teacher education candidates, and 60 percent of mathematics traditional teacher education candidates held the same expectations. At least one-third of the traditional teacher education candidates believed these students should be only taught basic skills in reading, writing and grammar, and arithmetic."

These findings are especially important in light of research linking teachers' perceptions of students with student performance.[38] Although teachers without inner-city backgrounds can also surely hold high expectations for less-advantaged urban students, for some, this may require consciousness raising through in-service workshops or training seminars.

The evidence reviewed here clearly supports the conclusion that alternative certification programs ***can*** provide a viable option for expanding the pool of teacher applicants without sacrificing quality. But to achieve this objective, these programs must be carefully designed and implemented. Professional development opportunities and support systems are essential to their success, as are guidelines that restrict admission to those candidates with the highest potential for success.

Presently, states vary substantially in their policies regarding alternative certification, and the quality of teachers certified through such programs reflect these differences. By 1999, 35 states and the District of Columbia had adopted policies allowing alternative routes to teacher certification, but only one in three programs were rated "exemplary" according to a recent evaluation conducted by the National Center for Education Information (see map and box on page 12). In some states, all alternatively certified teachers must earn a degree in the field in which they teach and must pass a subject-matter test,[39] whereas in others, teachers can enter the classroom and teach for several years on an emergency license without even holding a bachelor's degree.[40]

Alternative Certification Programs



The National Center for Education Information gives an "exemplary" rating (see accompanying map) to those states with alternative certification programs that meet the following criteria:

- The program has been specifically designed to recruit, prepare, and license talented individuals for teaching who already have at least a bachelor's degree.
- Candidates for these programs pass a rigorous screening process, such as passing tests, interviews, or demonstrating mastery of content.
- The programs are field-based.
- The programs include course work or equivalent experiences in professional education studies before and while teaching.
- Candidates for teaching work closely with trained mentor teachers.
- Candidates must meet high performance standards for completion of the programs.

Source: Feistritzer, E., & Chester, D. (2000).

The unevenness of alternative certification programs has represented a long-standing concern of teachers' unions[41] and other education groups.[42] Yet evidence presented in this report casts equal doubt on the standards of traditional certification programs. Until both alternative and traditional routes to certification are strengthened, it will be especially important for local school districts to develop more sophisticated approaches to evaluating prospective teachers.

In coming years, alternative certification programs are likely to play an increasingly important role in supplying new teacher candidates. Presently, the 1,025 teacher education programs in U.S. colleges and universities graduate approximately 100,000 potential teachers annually. At this rate, only about half of the teachers needed over the next decade will be supplied through these programs. Consequently, the debate concerning whether or not school systems should provide alternative certification routes is likely to be supplanted by a new discourse centered around how to develop alternative certification programs that ensure the highest quality teachers.

CRITERIA TO CONSIDER IN RECRUITING TEACHERS

Given the limits of existing research, it is difficult for school boards, district administrators, principals, and other hiring authorities to know which criteria to consider when reviewing potential candidates. Ironically, studies have been more successful in identifying those factors that are ***not*** related to teacher effectiveness than in identifying those that ***are***. Traditional criteria used in the hiring process, such as years of experience, certification status, and number of degrees earned, have been shown to have little impact on student performance. For example, a recent study by Dan Goldhaber, Dominic Brewer, and Deborah Anderson[43] found that "only about 3 percent of the contribution teachers make toward explaining student achievement is associated with teacher experience, degree level, and other readily observable characteristics." These authors concluded that characteristics that are not easily quantifiable, such as a candidate's ability to convey knowledge and enthusiasm for the subject matter, may represent the most important criteria in making hiring decisions. Still, a few readily observable teacher characteristics have been linked to increased student performance—specifically, teachers' verbal ability, content knowledge, and the quality of the undergraduate institution from which they graduated. These are discussed, in turn, below.

Teacher's Verbal Ability

Several studies have demonstrated a relationship between the teacher's performance on standardized tests of verbal ability and the subsequent achievement of his or her students. For example, Eric Hanushek[44] examined the relationship between third-grade students' academic performance and characteristics of their second- and third-grade teachers, including experience level, hours of graduate education, and scores on verbal-ability tests. He found that a teacher's score on the verbal ability exam was the most important school-related determinant of student achievement. In another study of teacher-

recruitment practices in the Dallas school system, William Webster[45] evaluated the impact of various teacher characteristics on student learning. He found that teachers' scores on tests of verbal and quantitative ability were the best predictors of their students' performance gains. Finally, in a study of school districts in Texas, Ronald Ferguson found further evidence of a link between teachers' and students' test scores.[46]

Teacher's Content Knowledge

The extent of the teacher's subject-matter knowledge is another factor that has been shown to affect student achievement, especially in mathematics and science. There is a growing body of evidence suggesting that what teachers know has important implications for students' performance gains.[47] In a study of a nationally representative sample of science and mathematics teachers in U.S. high schools, David Monk found evidence of "positive relationships between the number of subject-related courses in a teacher's background and subsequent performance gains of these teachers' students within the indicated subject area."[48] Consistent with these findings, Goldhaber and Brewer demonstrated that the impact on students' mathematics scores of having a mathematics teacher who holds an M.A. in mathematics, as compared with a teacher holding only a B.A. or less, "represents ***more than a third of a year of schooling***."[49] And, more recently, Wenglinsky analyzed data from the National Assessment of Educational Progress (NAEP) and concluded that students perform significantly better when their teachers have majored or minored in the subject they are teaching.[50] For both math and science, students whose teachers majored in the relevant subject area were 39 percent of a grade level ahead of their otherwise similar peers.

Quality of Teacher's Undergraduate College

Research has also shown a direct correlation between the quality of a teacher's undergraduate college and his or her students' achievement levels. Donald Winkler[51] analyzed data on reading achievement for a sample of elementary school students and found that students with teachers who graduated from institutions known for their high standards (Stanford University and the University of California system, for example) outperformed their peers whose teachers graduated from less renowned institutions (such as the California state college system). Similar results were found in a study of Philadelphia schools, which showed that the students of teachers who graduated from high-prestige schools outperformed those whose teachers graduated from low-prestige schools.[52] Another study[53] reported a positive correlation between students' test-score gains and the selectiveness of their teachers' college as rated by Barron's ***Profiles of American Colleges***. Despite these findings, however, "applicants from more selective colleges do not fare better in the [teacher] job market; indeed, remarkably, they do somewhat worse."[54]

CONCLUSIONS AND RECOMMENDATIONS

At a time when the quality of the nation's teaching force is coming under increasing fire, America faces an unprecedented demand for new teachers. It is critical that school districts devise new strategies to meet this imminent challenge. The information presented in this report has been provided with the hope that it will assist local authorities in making critical staffing decisions and in advocating for new legislation that will support their educational objectives.

With this in mind, it may be helpful to revisit the principal issues raised in this report, especially those concerning increased regulations, alternative certification routes, and indicators of teacher quality (see the box on page 16 for key findings in these areas). As discussed previously, some policy makers believe that further regulations and restrictions should be placed on teacher candidates and that all teachers should be fully certified. Others, however, argue that the teaching profession must be deregulated as a way of attracting and retaining high-quality teachers and that certification only serves to restrict the pool of candidates. Based on the evidence presented in this report, there is little reason to believe that additional state and federal regulations will result in increased teacher quality.

While more regulation would seem to be a dead end, alternative certification presents an opportunity to cast a broader net in the teacher recruitment process. Many of these programs have been highly successful, both in providing quality

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"...there is little reason to believe that additional state and federal regulations will result in increased teacher quality."

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teachers and in creating a more diverse teaching force. As long as school districts are conscientious about recruiting highly talented teacher candidates—those with strong subject-matter knowledge, excellent work experience, and effective methods for transmitting knowledge—alternative certification programs should provide a promising pipeline to high-quality teachers. A number of studies reviewed in this report indicate that a teacher's verbal ability and content knowledge and the quality of the college or university the teacher attended are positively associated with classroom effectiveness. It is only logical, therefore, that these factors should weigh heavily in recruitment decisions.

Finally, although the focus of this report has been on expanding the pool of applicants and refining hiring practices, it is worth mentioning that the demand for higher-quality teachers can, at least in part, be met through new approaches to compensation aimed at retaining quality teachers and in-service training that provides a supportive environment for professional growth. These and related topics will be addressed in subsequent reports in this series.

Key Findings

- The difference between having highly effective teachers and ineffective teachers can mean as much as 50 percentile points in standardized test scores over three years.
- Students assigned to the classrooms of ineffective teachers, even for one year, can expect great difficulty in reaching the performance level of those who have been consistently taught by highly effective teachers.
- State licensing exams are typically not rigorous and, therefore, do a poor job of screening out aspiring teachers of low potential.
- Teacher education programs cannot keep pace with the projected demand for new teachers over the next decade.
- The terms "certified" and "uncertified" do not distinguish between teachers who are qualified and those who are not.
- Alternative certification programs provide an expanded pool of teacher candidates that should be tapped to meet the demand for more teachers of high quality.
- Alternative certification programs tend to create a more diverse teaching force.
- Teachers' years of experience, certification status, and degree level are not highly correlated with their effectiveness in the classroom.
- Teachers' verbal ability and content knowledge and the quality of the college/university they attended ***are*** associated with classroom effectiveness.
- Beyond determining certification status, teachers' performance on licensing exams carries little weight in hiring practices, and applicants graduating from selective colleges are actually ***less*** successful in obtaining teaching jobs than those graduating from less selective colleges.

Recommendations

This report concludes with a number of general and specific recommendations for school board members and others who seek to influence legislative action at the state level or to enhance the recruitment process in their local districts.

At the State Level

Those interested in shaping their state's legislative agenda need to convey to legislators that the key to increasing teacher quality is not simply to raise standards for teachers, but ***to ensure that those standards are positively related to student***

achievement. Further, it is vital that the issues in the regulation/deregulation debate be carefully considered before setting them into place. Although it is difficult to discern the most appropriate approach to increasing teacher quality, some of the recommendations in the current regulation debate seem misguided or inappropriate given the current educational and economic environment.

First, the recommendation to require all teachers to complete a five-to-six-year teacher education program seems to ignore the current teacher-demand crisis, and, if implemented, could even exacerbate the problem. An extended educational requirement of this sort would undoubtedly deter many prospective teachers from entering the profession—contrary to what is needed in this time of heightened demand for new teachers. As it stands, only about 50 percent of the new teachers required in the next decade will be provided by schools of education. There is, moreover, little evidence to suggest that teacher education programs have been successful in preparing effective teachers. Instead of prolonging pre-service requirements, policy makers should begin to consider other alternatives. For example, pedagogical courses that have been found to be positively related to teacher effectiveness could be incorporated into the traditional four-year college program or offered through state-sponsored agencies, as New Jersey has done (see box on page 7).

With regard to state licensing exams, although policy makers on both sides of the debate agree that, ideally, prospective teachers should be subjected to some form of assessment, there is no consensus on whether these exams should emphasize subject-matter knowledge or pedagogy. The passing levels for many state licensing exams raise additional concerns. "Passing" a test by answering

"Alternative certification programs have been successful in expanding the pool of teacher candidates and in adding greater diversity to America's teacher force."

only 36 percent of the questions is absurd—these tests must be more rigorous so that they can do more than merely "weed out the weakest of the weak." These and related concerns have led some advocates of deregulation to conclude that, while requiring all teachers to pass a licensing exam may be appropriate in the future—that is, when new exams have been created—at present, this requirement should be abandoned. At a minimum, complete licensing exam scores should be made available to school districts. The current approach of reporting scores as "pass-fail" provides insufficient information on which to base hiring decisions.

Finally, this report provides ample evidence to support the recommendation that states should explore and implement a variety of alternative certification programs. These programs have been successful in expanding the pool of teacher applicants and in adding greater diversity to America's teacher force. While it may be too early to evaluate the relative effectiveness of existing programs—and, hence, to make specific recommendations to guide their

development—some broad suggestions have been highlighted (see the box on alternative certification programs, page 12).

A related issue is reciprocity of certification across state lines. States should collaborate to establish reciprocity plans that would allow experienced, certified teachers to continue teaching when they move to another state, without jumping new regulatory hurdles.

At the District Level

Research has indicated that certain recruitment strategies can play an important role in raising overall teacher quality. In light of this, school boards, central office administrators, principals, and other stakeholders should redirect their efforts to the recruitment of teachers with those characteristics known to be associated with effective teaching. This means moving beyond simply determining whether or not a teacher is certified and focusing, instead, on whether or not he or she is ***qualified***. Where not foreclosed by state law or insufficient information, district authorities should consider the following approaches when making hiring decisions:

- Require certified teacher candidates to provide their scores on all parts of the state licensing exam, including verbal ability, quantitative ability, and subject-matter knowledge.
- Assess whether candidates have strong subject-matter knowledge by looking at their major field of study, previous work experience, and/or scores on subject-matter exams. Require all teachers to have a degree in the field in which they will be teaching or substantial course work and experience in the field.[55]
- For all candidates—particularly those with only content-area degrees—require an interview process that includes an on-site teaching demonstration and/or other means of assessing competence in the classroom.
- Go beyond traditional relationships with state colleges of education in establishing a broader applicant pool, and assess the quality of the colleges or universities from which candidates graduated, giving preference to those who attended selective or above-average schools.
- Give consideration to candidates who have not graduated from teacher education programs, but have otherwise strong teaching qualifications, such as extensive content knowledge, relevant teaching experience (for example, in a private or religious school or as a long-term substitute teacher), and related work experience.[56]
- Make use of alternative teacher certification routes to actively recruit candidates with high potential for success.

- Periodically convene meetings involving the school board, superintendent, and central office staff to discuss recruitment and staffing issues, with the aim of developing practices and strategies that can better support district educational objectives (see the Appendix).
- Engage the community by discussing teacher qualifications and related recruitment issues at district-sponsored workshops involving teachers, administrators, parents, and other stakeholders.

Teachers' associations have been advocates for more extensive regulation of teacher certification, in part because of evidence suggesting that local school districts lack either the will or the means to consistently recruit candidates with the greatest potential for success. They contend that deregulating teacher certification will open the floodgates to unqualified candidates, ultimately reducing the quality of America's teaching force. But if school boards make concerted efforts to diligently recruit only high-quality teachers, seeking out candidates who possess those characteristics that have been linked to student achievement, such admonitions about decreased teacher quality are likely to prove groundless.

Raising certification standards will be an important factor in improving the quality of teaching only if those standards translate into improved student learning. Meanwhile, regardless of whether certification requirements are changed, local school districts must raise their own standards to ensure that every classroom is staffed with an effective teacher.

Hiring teacher candidates with high potential is, of course, only the first step in increasing teacher quality. No matter how scrupulous the screening process, inevitably, some teachers will be hired who lack the capacity to teach effectively. The next steps to improving teacher quality are, first, developing evaluation and compensation systems that reward effective teachers and identify ineffective ones and, second, implementing professional development programs that provide support, supervision, and mentoring to new and experienced teachers. These steps will be discussed in the remaining two reports in this series, ***Rewarding Excellence*** and ***Building Capacity***.

Appendix

An Agenda for District Meetings

Periodically, school boards should meet with their superintendents and other central office staff to discuss issues concerning recruitment and staffing. At such meetings, the following questions might be addressed:

- What are the anticipated trends in the supply of qualified teachers and projected demand based on student enrollments?
- What are the current and projected staffing needs of the district, including the need for teachers in specific fields?
- Are current policies and practices likely to attract the pool of candidates needed to achieve the district's educational objectives?
- What has been the impact of current teacher recruitment policies? What is the likely impact of proposed policies?
- Are staff resources appropriately aligned with standards and assessments?
- How can the district modify its recruitment policies and practices to attract teachers with the qualifications that are needed?
- Does the district have a comprehensive recruitment plan? If so, does it need to be modified in light of the findings presented in this report?
- Do state certification laws and other requirements support the district's goal of recruiting high-quality teachers? What recommendations should the school board make to state policy makers?
- What recommendations should the school board make to state colleges and other providers of new teachers to improve the quality of teacher candidates?

Endnotes

[1] Recruiting New Teachers, Inc. (2000).

[2] Fullan, M. (1991).

[3] Darling-Hammond, L., & Sclan, E. (1996).

[4] Robelen, E. (1999).

[5] Riley, R. (1997).

[6] Riley, R. (1997).

[7] Darling-Hammond, L., & Ball, D. (1998).

[8] Haselkorn, D., & Harris, L. (1998:1).

[9] Sanders, W., & Horn, S. (1998); Sanders, W., & Rivers, J. (1996).

[10] Haycock, K. (1998:4).

[11] Bembrey, K., Jordan, H., Gomez, E., Anderson, M., & Mendro, R. (1998).

[12] National Commission on Teaching & America's Future (1996).

[13] Research suggests that Teach for America, a well-known alternative teacher program for new college graduates, has been successful in providing school districts with outstanding teachers. Edith Tatle (1997) found that students who have teachers from the Teach for America program often show test-score gains significantly greater than those exhibited by other students within the same school. A substantial drawback to the program, however, is that its participants need make only a two-year commitment to teaching.

[14] Part of the debate regarding teacher certification centers on whether teachers should be certified at the state or local level. As Dan Goldhaber pointed out in his review comments, one rationale for having states certify teachers is that they are a better judge of teacher quality than local districts because they are less apt to hire teachers for non-job related reasons, such as nepotism, or because an individual has other peripheral skills (e.g., coaching). Furthermore, some research has indicated that districts often have a difficult time screening job candidates (Ballou, 1996). However, regulating teacher certification at the state level also limits the supply of teachers and may preclude qualified candidates from entering the profession.

[15] Evertson, C., Hawley, W., & Zlotnik, M. (1985).

[16] Feistritzer, E., & Chester, D. (1996).

[17] Ballou, D., & Podgursky, M.

[18] Darling-Hammond, L. (1999). These findings should be interpreted with caution since analyses using aggregated data can inflate the relationships among variables.

[19] Monk, D., & King, J. (1994).

[20] Riley, R. (1998:27).

[21] National Center for Education Statistics (1999).

[22] Bohrnstedt, G., Stecher, B., & Wiley, E. (1999).

[23] Goldhaber, D., & Brewer, D. (2000, 1999).

[24] Further, upon limiting their analysis to new teachers, Goldhaber and Brewer found that students taught science by teachers without subject-specific certification actually outperformed those taught by teachers with subject-specific certification (holding subject-matter knowledge constant).

[25] Goldhaber, D., & Brewer, D. (1999).

[26] Mitchell, R., & Barth, P. (1999).

[27] Strauss, R. (1999)

[28] American School Board Journal (1999:8)

[29] Strauss, R. (1999).

[30] In this regard, it would be instructive to examine the relationship between job placement success and test-score performance over many years, under varying market conditions.

[31] In addition to the studies reviewed here, see Lutz, F., & Hutton, J. (1989) and Miller, J., McKenna, M., & McKenna, B. (1998). Other studies have evaluated alternative certification programs in terms of how well teachers (hired through them) use various pedagogical tools ((Jelmberg, 1996) and how well they meet demands for teacher shortages (Stoddart, 1990), with mixed results.

[32] Fullan, M. (1991).

[33] Stoddart, T. (1990).

[34] Shen, J. (1998a,b).

[35] Riley, R. (1998).

[36] Ehrenberg, R., Goldhaber, D., & Brewer, D. (1995) find no direct effect of role models on achievement as measured by standardized achievement tests. Teachers do, however, seem to have higher expectations of students if they are matched by race/ethnicity and gender.

[37] Stoddart, T. (1990).

[38] Rosenthal, R., & Jacobson, L. (1992).

[39] Klagholz, L. (2000).

[40] Darling-Hammond, L. (1999).

[41] Feldman, S. (1998). Shen (1998a,b) reported that about 3 percent of alternatively certified teachers lacked a bachelor's degree, giving credence to the suggestion that some school districts may not be properly screening candidates.

[42] National Commission on Teaching & America's Future (1996).

[43] Goldhaber, D., Brewer, D., & Anderson, D. (1999).

[44] Hanushek, E. (1971).

[45] Webster, W. (1988).

[46] Ferguson, R. (1991). These findings should be interpreted with caution, since analyses using aggregated data can inflate the relationships among variables.

[47] In addition to the studies reviewed here, see Darling-Hammond, L. (1999). Using aggregated data from three large data sources--the 199394 Schools and Staffing Survey (SASS), the National Council for Accreditation of Teacher Education Programs (NCATE), and the National Assessment of Educational Progress (NAEP)--Darling-Hammond found that average student achievement was greater in educational contexts where teachers had both full certification and a major in their chosen field than when teachers had only full certification. She also found that, as the proportion of teachers with less than a minor in their field increased, student achievement declined. However, because she derived her findings from an analysis of aggregated data--an approach that can inflate the correlation among variables--her findings must be regarded as inconclusive.

[48] Monk, D.H., & King, J. (1994:35-36);

[49] Goldhaber, D., & Brewer, D. (1999:99)

[50] Wenglinsky, H. (2000).

[51] Winkler, D. (1975).

[52] Summers, A., & Wolfe, B. (1977).

[53] Ehrenberg, R., & Brewer, D. (1994).

[54] Ballou, D., & Podgursky, M. (1997:66).

[55] As Thelma Monk, director of human resources for the Montgomery County (Maryland) Public Schools pointed out in her review comments, requiring all teachers to have a degree in the field in which they will be teaching "would severely hamper some ... efforts to hire mathematics and foreign language teachers. Many of these candidates have more than 50 hours of course work, but no degree in a particular field. They have worked in a particular field and are certainly qualified to teach."

[56] Given the dearth of research and equivocal results from previous studies on the benefits of teacher education programs, school boards should consider whether it is wise to limit themselves by requiring that all teachers graduate from a teacher education program, especially if a candidate has demonstrated in various ways that he or she can teach effectively. For example, if candidates have successfully taught in a parochial school, a private school, at the university level, or has other relevant experience, they are likely to have gained considerable pedagogical expertise. Often, long-term substitute teachers are brought into school systems and provide outstanding instruction, but because they have not taken the requisite teacher education courses, they cannot advance to regular teaching positions (Welsh, 1999). If teachers have already proven their effectiveness, it is counterproductive to dismiss them for non-job related reasons.

References

American School Board Journal (1999, August). Too easy on teachers? *American School Board Journal*, 186 (8), 8.

Ballou, D. (1996, February). Do public schools hire the best applicants? *Quarterly Journal of Economics, 111* (1), 97-134.

Ballou, D., & Podgursky, M. (1997). *Teacher pay and teacher quality*. Kalamazoo, MI: W.E. Upjohn Institute for Employment Research.

Ballou, D., & Podgursky, M. (1999). *Teacher training and licensure: A layman's guide*. In M. Kanstoroom & C. Finn (Eds.) *Better teachers, better schools* pp. 31-82. Washington, D.C.: The Thomas B. Fordham Foundation.

Bembrey, K., Jordan, H., Gomez, E., Anderson, M., & Mendro, R. (1998, April). *Policy implications of long-term teacher effects on student achievement*. Paper presented at the Annual Meeting of the American Educational Research Association, San Diego, CA.

Bohrnstedt, G., Stecher, B., & Wiley, E. (1999, December). *The California class size reduction evaluation: Lessons learned*. Paper presented at the National Invitational Conference on How Small Classes Help Teachers Do Their Best, Washington, D.C.

Darling-Hammond, L. (1999). *Teacher quality and student achievement: A review of state policy evidence*. Seattle, WA: University of Washington, Center for the Study of Teaching and Policy.

Darling-Hammond, L., & Ball, D. (1998). *Teaching for high standards: What policymakers need to know and be able to do*. Philadelphia, PA: Consortium for Policy Research in Education.

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*. Second Edition (pp. 61-101). New York: MacMillan.

Duffy, A. (2001, February 22). Personal conversation with Ann Duffy, Associate Commissioner for Education Quality, Massachusetts Department of Education.

Ehrenberg, R., & Brewer, D. (1994). Do school and teacher characteristics matter? Evidence from high school and beyond. *Economics of Education Review, 13* (1), 1-17.

Ehrenberg, R., Goldhaber, D., & Brewer, D. (1995). Do teachers' race, gender, and ethnicity matter? Evidence from NELS88. *Industrial and labor Relations Review, 48*, 547-561.

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

Feistritzer, E., & Chester, D. (1996). *Alternate teacher certification*. Washington, D.C.: National Center for Education Information.

Feistritzer, E., & Chester, D. (2000). *Alternative teacher certification:A state-by-state analysis 2000*. Washington, D.C.: National Center for Education Information.

Feldman, S. (1998). Ignoring standards [On-line]. Available: http://www.aft.org/stand/previous/1998/0898.html.

Ferguson, R. (1991) Paying for public education: New evidence on how and why money matters. *Harvard Journal of Legislation, 28*, 465-491.

Fullan, M. (1991). *The new meaning of educational change*. New York: Teachers College Press.

Goldhaber, D., & Brewer, D. (1999). Teacher licensing and student achievement. In M. Kanstoroom & C. Finn (Eds.) *Better teachers, Better schools* (pp. 83-102). Washington, D.C.: The Thomas Fordham Foundation.

Goldhaber, D., & Brewer, D. (2000). Does teacher certification matter? High school teacher certification status and student achievement. *Educational Evaluation and Policy Analysis, 22* (2), 129-145.

Goldhaber, D., Brewer, D., & Anderson, D. (1999). A three-way error components analysis of educational productivity. *Education Economics*, 7 (3), 199-208.

Hanushek, E. (1971). Teacher characteristics and gains in student achievement: Estimation using macro data. *American Economic Review, 61* (2), 280-288.

Haselkorn, D., & Harris, L. (1998). *The essential profession:A national survey of public attitudes toward teaching, educational opportunity and school reform*. Belmont, MA: Recruiting New Teachers, Inc.

Haycock, K. (1998, Summer). Good teaching matters a lot. ***Thinking K-16***. Washington, D.C.: The Education Trust.

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

Jerald, C., & Boser, U. (2000, January 13). Setting policies for new teachers. ***Education Week, 19*** (18), 44-45, 47.

Klagholz, L. (2000). ***Growing better teachers in the garden state: New Jersey's "alternate route" to teacher certification***. Washington, D.C.: The Thomas B. Fordham Foundation.

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

Miller, J., McKenna, M., & McKenna, B. (1998). A comparison of alternatively and traditionally prepared teachers. ***Journal of Teacher Education, 49*** (3), 165-176.

Mitchell, R., & Barth, P. (1999). How teacher licensing tests fall short. ***Thinking K-16, 3*** (1), 3-23.

Monk, D., & King, J. (1994). Multilevel teacher resource effects on pupil performance in secondary mathematics and science: The case of teacher subject-matter preparation. In R. Ehrenberg (Ed.), ***Choices and Consequences: Contemporary policy issues in education*** (pp. 29-58). Ithaca, NY: ILR Press

National Center for Education Statistics (1999). ***Teacher quality: A report on the preparation and qualifications of public school teachers***. Washington, D.C.: U.S. Department of Education.

National Commission on Teaching & America's Future (1996). ***What matters most: Teaching for America's future***. New York: Teacher's College, Columbia University.

Recruiting New Teachers, Inc. (2000). ***Teaching Facts*** [On-line]. Available: http://www.rnt.org/facts/index.html.

Riley, R. (1997, August). A back to school special report on the baby boom echo [On-line]. Available: http://www.ed.gov/pubs/bbecho.

Riley, R. (1998). Our teachers should be excellent, and they should look like America. ***Education and Urban Society, 31*** (1), 18-29.

Robolen, E. (1999, November 17). Districts put Clinton plan to the test. ***Education Week***, 1, 24.

Rosenthal, R., & Jacobson, L. (1992). ***Pygmalion in the classroom: Teacher expectation and pupils' intellectual development***. New York: Irvington Publishers.

Sanders, W., & Horn, S. (1998). Research findings from the Tennessee Value-Added Assessment System (TVAAS) database: Implications for educational evaluation and research. ***Journal of Personnel Evaluation in Education, 12*** (3), 247-256.

Sanders, W., & Rivers, J. (1996). ***Cumulative and residual effects of teachers on future student academic achievement***. Knoxville, TN: University of Tennessee.

Shen, J. (1998a). The impact of alternative certification on the elementary and secondary public teaching force. ***Journal of Research and Development in Education, 32*** (1), 9-16.

Shen, J. (1998b). Alternative certification, minority teachers, and urban education. ***Education and Urban Society, 31*** (1), 30-41.

Stoddart, T. (1990). Los Angeles unified school district intern program: Recruiting and preparing teachers for an urban context. ***Peabody Journal of Education, 67*** (30), 84-122.

Stoddart, T., & Floden, R. (1995). ***Traditional and alternate routes to teacher certification: Issues, assumptions, and misconceptions***. East Lansing, MI: Michigan State University, National Center for Research on Teacher Learning.

Strauss, R. (1999). Who gets hired to teach? The case of Pennsylvania. In M. Kanstoroom & C. Finn (Eds.) ***Better Teachers, Better Schools*** (pp. 103-130). Washington, D.C.: The Thomas B. Fordham Foundation.

Summers, A., & Wolfe, B. (1977, September). Do schools make a difference? ***American Economic Review, 67*** (4), 639-652.

Tatel, E. (1997). ***Teach for America: An effective emergency teaching corps.*** Paper presented at the Annual Meeting of the American Association of Colleges for Teacher Education, Phoenix, AZ.

Webster, W. (1988). Selecting effective teachers. ***Journal of Educational Research, 91*** (4), 245-253.

Welsh, T. (1999, October 21). Certification hurdles trip talented teachers. ***USA Today***, 19A.

Wenglinsky, H. (2000). ***How teaching matters: Bringing the classroom back into discussions of teacher quality***. Princeton, NJ: Educational Testing Service.

Winkler, D. (1975, Spring). Educational achievement and school peer group composition. ***Journal of Human Resources, 10*** (3), 189-204.

About the Author

Cheryl C. Sullivan has served as a research analyst within NSBA's Policy Research Department since 1999. She is currently completing her Ph.D. at the University of Massachusetts-Amherst in the area of organizational behavior. Beyond this report, Cheryl is the author of several papers regarding effective recruitment strategies, promotion practices within professional service firms, and the efficacy of 360-degree personnel evaluation systems. She has taught managerial behavior and human resources at the University of Massachusetts-Amherst and George Mason University.

About NSBA

The National School Boards Association is the nationwide organization representing public school governance. NSBA's mission is to foster excellence and equity in public elementary and secondary education through school board leadership. NSBA achieves its mission by representing the school board perspective before federal government agencies and with national organizations that affect education, and by providing vital information and services to state associations of school boards and local school boards throughout the nation.

NSBA advocates local school boards as the ultimate expression of grassroots democracy. NSBA supports the capacity of each school board—acting on behalf of and in close concert with the people of its community—to envision the future of education in its community, to establish a structure and environment that allow all students to reach their maximum potential, to provide accountability for the people of its community on performance in the schools, and to serve as the key community advocate for children and youth and their public schools.

Founded in 1940, NSBA is a not-for-profit federation of associations of school boards across the United States and its territories. NSBA represents the nation's 95,000 school board members who govern 14,890 local school districts serving the nation's more than 47 million public school students. Virtually all school board members are elected; the rest are appointed by elected officials.

NSBA policy is determined by a 150-member Delegate Assembly of local school board members. The 25-member Board of Directors translates this policy into action. Programs and services are administered by the NSBA executive director and a 150-person staff. NSBA is located in metropolitan Washington, D.C.

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1680 Duke Street
Alexandria, VA 22314-3493
Phone: 703-838-6722 • Fax: 703-683-7590

Web Address: *http://www.nsba.org* E-Mail: *info@nsba.org*

Excellence and Equity in Public Education through School Board Leadership

National School Boards Association
1680 Duke Street
Alexandria, VA 22314
(703) 838-6722
Fax: (703) 683-7590
www.nsba.org