

Scholars Fault Wrong-headed Teacher Quality Schemes

White House and Many States Moving in Wrong Direction, Research Shows; Certification Has Dubious Value; Alternative Strategy Urged

WASHINGTON - July 14, 1999 - Proposed federal and state policies aimed at boosting teacher quality may well worsen the problem, according to a report released today by the Thomas B. Fordham Foundation in cooperation with the Education Leaders Council.

The findings are reported in *Better Teachers, Better Schools*, a 250-page study edited by Marci Kanstoroom and Chester E. Finn, Jr. *Better Teachers*, which includes chapters by leading education scholars and state officials, sets forth the research base for the recent manifesto, "The Teachers We Need and How to Get More of Them."

One important finding: math and science students whose teachers hold "emergency" credentials do no worse on tests than students whose teachers are fully certified, all else being equal. Dan Goldhaber and Dominic Brewer, authors of "Teacher Licensing and Student Achievement," conclude that "this result should cast doubt on assertions that standard certification should be required of all teachers." Yet tightening the screws on standard certification is precisely what dozens of states and federal policymakers are doing.

This finding contradicts President Clinton's proposal-as outlined in this year's State of the Union Address-to require states and school districts to phase out the use of teachers with emergency certificates. It contradicts Secretary Riley's calls for more exacting certification systems.

"A lot of governors, legislators, and business leaders have been bamboozled by the teacher ed establishment," said Finn, president of the Foundation. "So have the President of the United States and the U.S. Secretary of Education. In the guise of 'reform,' education interest groups have pushed misguided regulatory schemes that will make it even harder for our public schools to attract strong teachers into their ranks. At a time when nearly every state is weighing changes in teacher training and licensure, and when the Congress is on the verge of enacting a \$10 billion 'teacher improvement' bill, we should blow the whistle on bad ideas and offer up some good ones."

Other conventional wisdom debunked in this book:

* **Ed School is a Must for Teachers.** Many reformers make an analogy between education and medicine: we wouldn't let doctors treat patients without first sending them to medical schools so why let teachers into classrooms without first sending them through education school? The analogy turns out not to fit: education does not have a robust, research-based, professional knowledge base like medicine does. In "Teacher Training and Licensure: A Layman's Guide," economists Dale Ballou and Michael Podgursky show that what education schools call a "knowledge base" is a collection of what most Americans consider dubious fads and nostrums.

* **National Accreditation will Improve Teacher Preparation.** States increasingly require their colleges of education to be approved by the National Council for Accreditation of Teacher Education (NCATE). Yet Ballou and Podgursky find scant evidence that NCATE-approved programs produce superior teachers. And J.E. Stone ("Whose Standards?") finds NCATE's "learner centered" views about education contradicting the academic skills-and-knowledge focus that parents and policymakers want

from their teachers and schools.

*** National Board Certification is an Effective Way to Identify Superior Teachers.** President Clinton and many governors and business leaders have praised the union-dominated National Board for Professional Teaching Standards (NBPTS) as a much-needed mechanism to recognize and reward great teachers. The White House wants to give it another \$18.5 million this year. But in the first-ever independent review of its standards and procedures ("The NBPTS: Can It Live Up to Its Promise?"), Danielle Dunne Wilcox finds no evidence that board-certified teachers are superior and discovers that NBPTS fosters a one-sided education ideology.

*** Peer Review is the Only Way to Gauge Teacher Effectiveness.** The media have made much of the National Education Association's newfound willingness to embrace "peer review," whereby teachers evaluate each other's performance. Proponents claim that this is the best-and only-way to evaluate teachers. Yet William Sanders's pathbreaking "value-added" analysis shows that teachers can be fairly and accurately judged by their students' academic gains. (See J.E. Stone's "Value Added Assessment: An Accountability Revolution.")

Better Teachers, Better Schools offers a different strategy, one first set forth in "The Teachers We Need and How to Get More of Them," a manifesto signed by dozens of education leaders (and reproduced in the book). It argues that the surest route to quality is to widen the entryway into teaching, deregulate key personnel decisions, and hold schools accountable for their results-results judged primarily by the value a teacher adds to pupils' educational experience.

"Education is the last remaining field in America where people think you can boost quality by tightening the rules and multiplying the regulations," explained Finn. "Instead, we should adopt the strategy used by every successful modern enterprise: Be fussy about the results to be achieved but relaxed about how to get them. That means holding school leaders accountable for student learning and then empowering them to hire the teachers they need."

Several states have started to embrace such common-sense reform strategies. Pennsylvania, for example, recently raised academic standards for teachers while simultaneously adopting a strong alternative certification program.

Eugene Hickok, Pennsylvania's Secretary of Education, writes in his preface to *Better Teachers, Better Schools* that "We need bold new ways to attain teacher excellence, for nothing else matters as much." Hickok also chairs the Education Leaders Council (ELC), a membership organization of reform-minded state officials-including the state education chiefs of Arizona, Colorado, Florida, Georgia, Michigan, Pennsylvania, and Virginia.

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Single copies of *Better Teachers, Better Schools* can be obtained by calling 1-888-TBF-7474. The full volume is also available on the Thomas B. Fordham Foundation web site: www.edexcellence.net.

The Thomas B. Fordham Foundation is a private foundation that supports research, publications, and action projects in elementary and secondary education reform at the national level and in the Dayton area. It is neither connected with nor sponsored by Fordham University.

HOME

Better Teachers, Better Schools



*Edited by Marci Kanstoroom
and Chester E. Finn, Jr.
With a Preface by Eugene W. Hickok*

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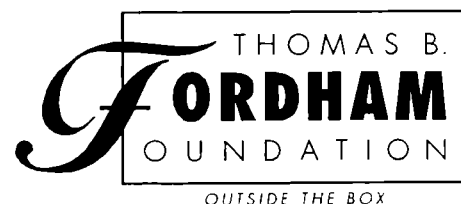
Better Teachers, Better Schools

Marci Kanstoroom and Chester E. Finn, Jr.
Editors

With a Preface by Eugene W. Hickok
Secretary of Education for Pennsylvania and
Chairman of the Education Leaders Council

Published by

The Thomas B. Fordham Foundation



In cooperation with the

EDUCATION LEADERS COUNCIL

July 1999

Table of Contents

Foreword	
<i>Chester E. Finn, Jr.</i>	v
Preface	
<i>Eugene W. Hickok</i>	ix
Chapter Summaries	xi
 <i>The Teacher Quality Debate</i>	
The Teachers We Need and How to Get More of Them: A Manifesto	I
Measuring the Teacher Quality Problem	
<i>Tyce Palmarff</i>	19
Teacher Training and Licensure: A Layman's Guide	
<i>Dale Ballou and Michael Podgursky</i>	31
Teacher Licensing and Student Achievement	
<i>Dan D. Goldhaber and Dominic J. Brewer</i>	83
 <i>Teacher Certification Up Close</i>	
Who Gets Hired to Teach? The Case of Pennsylvania	
<i>Robert P. Strauss</i>	103
Raising the Bar for Pennsylvania's Teachers	
<i>Eugene W. Hickok and Michael B. Poliakoff</i>	131
Traditional and Alternative Certification: A View from the Trenches	
<i>Naomi Schaefer</i>	137
 <i>Proposed Reforms Up Close</i>	
The National Board for Professional Teaching Standards: Can It Live Up to Its Promise?	
<i>Danielle Dunne Wilcox</i>	163

The National Council for Accreditation of Teacher Education: Whose Standards?	
<i>J.E. Stone</i>	199
Debating Alternative Teacher Certification: A Trial by Achievement	
<i>Michael Kwiatkowski</i>	215
Value-Added Assessment: An Accountability Revolution	
<i>J.E. Stone</i>	239
Contributors	251

Foreword

Chester E. Finn, Jr.

Practically everyone, it seems, is obsessed with teacher quality. There has long been evidence that U.S. schools don't have enough of the teachers they need and that our quality control mechanisms aren't working well enough. Indeed, the evidence keeps mounting. As this book headed to the printer, for example, the Education Trust released a sophisticated analysis of the state licensure tests that most prospective public-school teachers must pass to enter the profession. The verdict: pitifully weak tests with embarrassingly low cutoff scores.

While there is near unanimity that raising the quality of the teaching force is a top priority and a necessary precondition for boosting student achievement, there is less certainty about how to accomplish this. The conventional wisdom holds that tighter regulation of entry is the only way to ensure that all children have qualified teachers. But that wisdom has not served us well; the hoops and hurdles that we make prospective teachers clear have failed to assure their subject matter knowledge, classroom prowess, or success in raising pupil achievement. Why, then, suppose that more hoops and hurdles will yield a different result? Does this not begin to resemble a classic definition of madness?

This book suggests a different way of thinking about this perplexing but important issue, a way of thinking that's grounded in common sense rather than piety and that relies on evidence rather than supposition or wishful thinking. The common sense approach that we propose to boosting teacher quality involves easing back on regulations that control entry, devolving personnel decisions to individual schools, and then holding those schools accountable for producing results as gauged by their pupils' academic achievement. If this "tight-loose" strategy sounds familiar, that's because it has become the dominant paradigm for reforming schools today. We think it warrants consideration for teachers, too.

Until now, policymakers seeking to raise the quality of their teaching force had only one place to turn for guidance: organizations of professional educators, the most prominent of which are the National Commission on Teaching and America's Future and its various affiliates. Upon turning there, however, policymakers found predictable

advice: more regulation, greater uniformity, additional time in ed schools, stronger reliance on peer review, etc. Not only is much of this advice self-serving; much of it—as several reports in this volume reveal—is seriously flawed. Among the more troubling flaws is the heavy emphasis that these nostrums place on a particular education philosophy—commonly called progressivism or constructivism—that flies in the face of the academic standards that many states are simultaneously setting for their students and schools.

This book opens with the teacher quality “manifesto” that the Thomas B. Fordham Foundation released in April on behalf of several dozen governors, state education chiefs, prominent scholars and analysts, and veteran practitioners. The manifesto reviews the two approaches to boosting teacher quality and urges the common sense route: simplifying entry and hiring, welcoming diversity, allowing principals to employ the teachers they need, and gauging quality chiefly by student achievement.

The remainder of the volume is divided into three parts. The first set of reports brings statistical evidence and economic analysis to bear on the present regime of teacher certification. The next set explores how today’s processes actually work on the ground—from the courses that prospective teachers must take to the criteria used by school districts in making hiring decisions. Finally, our authors analyze a quartet of proposed reforms, two of them beloved by the education profession and two that embody the common sense approach. Included here is (to our knowledge) the first independent analysis ever undertaken of the over-praised National Board for Professional Teaching Standards (NBPTS).

We supply no silver bullet for America’s teacher quality problem, but the verdict is clear about the prospects for policies based on the conventional wisdom: they are destined to fail. To us, the alternative seems just as clear. Rather than further tightening of entry requirements, states are well advised to approach the problem by opening up the profession to well-educated individuals with varied backgrounds, providing new teachers with the support they need to succeed in the classroom, freeing school leaders to hire and compensate the people they need, and holding everybody accountable not for what their peers think of their performance but for whether their students actually learn.

Many people contributed to the preparation of this volume, which we are pleased to publish in conjunction with the Education Leaders Council, a small but plucky organization of state education policymakers whose commitment to reform often leads them to embrace promising alternatives to the conventional wisdom. Our thanks to ELC chairman Eugene Hickok, who is also Pennsylvania’s crusading Secretary of Education (and a political scientist of no small repute), for authoring the preface that follows.

Dr. Marci Kanstoroom, this Foundation’s director of research, shouldered primary responsibility for preparation of this volume: commissioning (or otherwise obtaining)

all the essays and studies in it, tirelessly editing them for publication, and overseeing the many projects that fed into this one. She was ably assisted throughout by visiting research fellow Danielle Wilcox, who lent a hand with every aspect of the book while authoring the pathbreaking study of the NBPTS.

The Thomas B. Fordham Foundation is not unique in focusing on teacher quality, and the work of several other organizations has contributed to the strength of this book. Two of the reports included here, J.E. Stone's insightful analysis of NCATE and his primer on value-added assessment, were commissioned by the Foundation Endowment of Alexandria, Virginia and released as policy briefs this spring. We are grateful to the Foundation Endowment for allowing us to include revised versions of the policy briefs in this volume. A longer version of the overview of alternative teacher certification by Michael Kwiatkowski was previously published by the Tomás Rivera Policy Institute of Claremont, California, to which we are similarly indebted.

The Thomas B. Fordham Foundation is a private foundation that supports research, publications, and action projects in elementary/secondary education reform at the national level and in the Dayton area. Further information can be obtained from our web site (www.edexcellence.net) or by writing us at 1627 K Street, NW, Suite 600, Washington, DC 20006. (We can also be emailed through our web site.) This report is available in full on the Foundation's web site, and hard copies can be obtained by calling 1-888-TBF-7474 (single copies are free). The Foundation is neither connected with nor sponsored by Fordham University.

*Chester E. Finn, Jr., President
Thomas B. Fordham Foundation
Washington, DC
July 1999*

Preface

Eugene W. Hickok

Excellence in public schools depends on setting high standards for student learning and even higher standards for their teachers. Teachers, after all, must enable students to meet rigorous standards of academic achievement. The teacher's task is a difficult one, and only the best and the brightest are capable of fulfilling it. And it is the best and the brightest that public schools must seek and find.

We need bold new ways to attain teacher excellence, for nothing else matters as much. Beautiful school buildings, state-of-the-art technology, and the newest textbooks help the process of learning, but without excellent teaching we are wasting our taxpayers' dollars. We are similarly wasting our money, and, tragically, compromising our children's future, when we continue to turn for a solution to the same teacher-training organizations and institutions that have presided over the unacceptable mediocrity that characterizes too many of the teachers they have trained.

The bold vision of the manifesto is a call to a more logical course of action. Teacher training has been characterized by process—seat time, repetitive educational methods courses, and heavy doses of educational theory. The shibboleths of educational theory have been as changing as the winds—constructivism, new math, open classrooms—and in some cases like whole language, disastrous for children's futures. The manifesto calls for results. It works back from the goal of public schooling, which is the academic training of students, and admits any type of teacher recruitment that can be shown to lead to student learning. Based on results in Texas, Colorado, and New Jersey, we have good reason to expect that alternative certification programs will be powerful tools for recruiting the sort of academically qualified teachers whom research shows to have a direct effect in enhancing student performance. Pennsylvania has recently adopted a strong alternative certification program, and, at the same time, it has made the requirements for traditional teacher training programs rigorous. We embrace both methods; what we must demand of both is results.

The Education Leaders Council was formed by states that no longer accept the conventional wisdom, that no longer have the patience to wait for solutions from

teachers' unions and professional teachers' organizations while another generation of schoolchildren fails to reach the levels of achievement that are their birthright. While we are pleased to see that NCATE, the bellwether of teacher training, now intends to accredit institutions based on performance measures, not process, we do not feel that its record yet qualifies it to be an agent of educational reform. Nor do we believe that the National Board for Professional Teaching Standards, for all of the massive infusion of federal and private funding it has received, has a solution for the underpreparedness in academic skills that we all-too-often encounter among licensed public-school teachers.

It is a very happy and auspicious collaboration of the Thomas B. Fordham Foundation and the Education Leaders Council that presents this important manifesto and volume of essays.

As in the children's story of the Emperor's New Clothes, we need to ask ourselves if we have fooled ourselves in thinking that we see results of traditional teacher preparation programs that justify the monopoly that many states give to them for the preparation of licensed teachers. And if we find, as is likely, that alternative paths are equally effective, or more effective, in giving us the teachers we need, then let us not fear success. Let us remember that public schools exist not for their superintendents, principals, teachers, and staff, but for students and student learning.

This manifesto, signed by two governors, and five state secretaries of education, makes me very, very optimistic that real reform of our schools is at hand.

The Teachers We Need and How to Get More of Them: A Manifesto

This policy statement was released by the Thomas B. Fordham Foundation on April 20, 1999 on behalf of several dozen state officials, prominent education analysts, and veteran practitioners. A list of the original signers appears at the end of the document.

Everyone agrees that America needs better teachers in the classroom, yet there is little agreement about how to recruit them. The conventional wisdom holds that the key to attracting better teachers is to regulate entry into the classroom ever more tightly: what teachers need is more time in increasingly similar education schools, more graduate training, more pedagogy courses, and less alternative certification. Yet there's no persuasive evidence that the regulatory approach has succeeded in raising teacher quality in the past or that it will do so in the future. What it omits is the commonsensical: the possibility that for teachers, as for the schools in which they teach, the surest route to quality is to widen the entryway, deregulate the processes, and hold people accountable for their results—results judged primarily in terms of classroom effectiveness as gauged by the value a teacher adds to pupils' educational experience. "The Teachers We Need and How to Get More of Them" describes how the "romance of regulation" has failed and outlines a more promising—and commonsensical—alternative.

Overview

U.S. schools aren't producing satisfactory results, and this problem is not likely to be solved until U.S. classrooms are filled with excellent teachers. About this, there seems to be a national consensus. How to get from here to there, however, is the subject of far less agreement. Our purpose is to suggest a more promising path than many policymakers and education reformers are presently following.

The good news is that America is beginning to adopt a powerful, commonsensical strategy for school reform. It is the same approach that almost every successful modern enterprise has adopted to boost performance and productivity: set high standards for results to be achieved, identify clear indicators to measure progress towards those results, and be flexible and pluralistic about the means for reaching those

results. This strategy in education is sometimes called “standards-and-accountability.” It is a fundamental aspect of the charter school movement, and it undergirds many versions of “systemic reform” as well.

The bad news is that states and policymakers have turned away from this common-sensical approach when trying to increase the pool of well-qualified teachers. Instead of encouraging a results-oriented approach, many states and policymakers are demanding ever more regulation of inputs and processes. Other modern organizations have recognized that regulation of inputs and processes is ineffectual and often destructive. There is no reason to believe that it will be anything other than ineffectual as a strategy for addressing the teacher quality problem.

We conclude that the regulatory strategy being pursued today to boost teacher quality is seriously flawed. Every additional requirement for prospective teachers—every additional pedagogical course, every new hoop or hurdle—will have a predictable and inexorable effect: it will limit the potential supply of teachers by narrowing the pipeline while having no bearing whatever on the quality or effectiveness of those in the pipeline. The regulatory approach is also bound, over time, to undermine the standards-and-accountability strategy for improving schools and raising student achievement.

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A better solution to the teacher quality problem is to simplify the entry and hiring process. Get rid of most hoops and hurdles. Instead of requiring a long list of courses and degrees, test future teachers for their knowledge and skills. Allow principals to hire the teachers they need. Focus relentlessly on results, on whether students are learning. This strategy, we are confident, will produce a larger supply of able teachers and will tie judgments about their fitness and performance to success in the classroom, not to process or impression.

The Problem

We know that better quality teachers make a big difference. We know this from decades of research and from the experience of millions of families. Recent studies in Tennessee, Boston, and Dallas, *inter alia*, find dramatic differences between the performance of youngsters who are assigned the best teachers and those assigned the worst teachers.¹ No matter how well-intentioned it is, school reform will likely falter unless more teachers have the knowledge and skills to help all their students meet high academic standards.

Poor Preparation

Yet many teachers are unready to meet these challenges. According to a recent survey, only one in five teachers feels well prepared to teach to high standards.² The

head of Teachers College acknowledges that “The nation has too many weak education schools, with teachers, students and curriculums that are not up to the task at hand.”³ Children who face high-stakes tests for promotion and graduation will need instructors with more knowledge and skill than ever before. As many as two million new teachers will need to be hired in the next decade. Yet our present system for recruiting, preparing, and deploying them is not up to the dual challenge of quality and quantity. We are not attracting enough of the best and the brightest to teaching, and not retaining enough of the best of those we attract.⁴ A third of U.S. teachers—two-thirds in inner cities—report that *their* schools have difficulty keeping good teachers.⁵

Lack of Subject Matter Knowledge

Perhaps the gravest failing of our present arrangement is the many teachers who lack preparation in the subjects that they teach. While most public school teachers are certified by their states, extensive college-level study in the teaching field is not always a prerequisite for subject area certification.⁶ Moreover, teachers are often assigned to courses outside their main teaching field as a cost-saving measure or administrative convenience, because of shortages in advanced subjects such as math and science, or because some schools—such as those in the inner-city—have a high turnover of teachers. “Foreign education ministers who visit me are just stumped when I try to explain this practice,” notes Education Secretary Richard Riley. “Their translators simply have no words to describe it.”⁷

We are not attracting enough of the best and the brightest to teaching, and not retaining enough of the best of those we attract.

It appears, for example, that more than half of history teachers have neither majors nor minors in history itself.⁸ More than half of the youngsters studying physics have a teacher who has neither a major nor minor in physics. (Is it any wonder that U.S. high-school seniors trail the world when it comes to *their* knowledge of physics?) More

troubling still, children attending school in poor and urban areas are least likely to find themselves studying with teachers who *did* engage in deep study of their subjects.

Today's regulatory approach to entry into teaching compounds these problems. Because it places low priority on deep subject matter mastery and heavy emphasis on the things that colleges of education specialize in, many teachers get certified without having mastered the content that they are expected to impart to their students.

The Romance of Regulation

For decades, the dominant approach to “quality control” for U.S. teachers has been state regulation of entry into the profession. Requirements vary, but almost everywhere a state license is needed to teach in public schools. To obtain such a license,

one must complete a teacher education program approved by the state, which typically imposes a host of requirements on these programs.⁹ Their students are commonly required to take specific courses (or a set number of courses) in pedagogy, child development, the “foundations of education,” “classroom diversity,” etc.¹⁰ Some states require a minimum college grade point average for entry into the program, and many require prospective teachers to pass standardized tests of reading, writing, and math skills. It is also common, at some point in the process, to test for knowledge of pedagogy and, sometimes, for knowledge of the subject in which they will be certified (which, as we have seen, may or may not be the subject they end up teaching). In addition, these programs typically require supervised student teaching, which teachers often term the most valuable part of their preparation for the classroom. This approach predictably creates a teacher force that is heavily credentialed in pedagogy, but not in the subject matter they are expected to teach. The regulatory strategy will intensify these trends.

In response to widening concern about teacher quality, most states are tightening the regulatory vise.

More of the Same

Today, in response to widening concern about teacher quality, most states are tightening the regulatory vise, making it harder to enter teaching by piling on new requirements for certification. On the advice of some highly visible education groups, such as the National Commission on Teaching and America’s Future, these states are also attempting to “professionalize” teacher preparation by raising admissions criteria for training programs and ensuring that these programs are all accredited by the National Council for the Accreditation of Teacher Education (NCATE). That organization is currently toughening its own standards to make accredited programs longer, more demanding, and more focused on avant-garde education ideas and social and political concerns.

Such measures will centralize and standardize the licensure process even more, curbing diversity in the sources and entry paths followed by teachers and shifting authority from local school boards and state agencies to professional education organizations and standards committees. These groups base their standards and procedures for judging teacher fitness on the principle of peer review, not on proven effectiveness with respect to student learning.

It is no surprise that all this is happening. The regulatory route is public education’s traditional solution. Even business groups proposing to improve the quality of teaching offer suggestions that partake of the regulatory mindset. Many vested interests are served and established routines are enhanced by more regulation.

Shortcomings of the Regulatory Strategy

The regulatory strategy that states have followed for at least the past generation has failed. The unfortunate results are obvious: able liberal arts graduates avoid teaching, those who endure the process of acquiring pedagogical degrees refer to them as "Mickey Mouse" programs, and over time the problems of supply and quality have been exacerbated. When a strategy fails, it does not make much sense to do the same thing with redoubled effort. Yet that is what many states are now doing.

The present system does not even do a good job of screening out ill-prepared candidates. While some states have exit exams that appraise the skills, knowledge, and competence of fledgling teachers, in many others "quality control" occurs only at the point of entry into a training program, and entry requirements are low. In a state with no exit exam, completing the list of prescribed courses and earning the requisite degree are all that's needed to get one's teaching certificate. Though many jurisdictions now require future high-school instructors to have majored (or minored) in the subjects that they plan to teach, the content and rigor of their course work are left entirely to the colleges.

Teachers should be evaluated based on the only measure that really matters: whether their pupils are learning.

Where there are exit exams, these often represent a modest intellectual threshold. Tests given to teaching candidates are commonly pitched at so undemanding a level—and their passing scores are so low—that they do little to deter individuals with limited intellectual prowess and scant subject matter knowledge. In Pennsylvania, for instance, passing scores were for many years set so that about 95 percent of everyone taking the tests passed them.¹¹ Local school boards can then hire whomever they prefer, often for reasons other than their academic qualifications.

Standards Askew

What really makes state regulation of entry into teaching so dysfunctional is not that its standards are low but that it emphasizes the wrong things. The regulatory strategy invariably focuses on "inputs"—courses taken, requirements met, time spent, and activities engaged in—rather than results, meaning actual evidence of a teacher's classroom prowess, particularly as gauged by student learning. It judges one's "performance" by the subjective opinions of other teachers and professors. This is the wrong sort of regulation.

Teachers should be evaluated based on the only measure that really matters: whether their pupils are learning. This is not pie in the sky. William Sanders of the University of Tennessee has developed a technique that uses careful statistical analysis to identify the gains that students make during a school year and then estimate the effects of individual teachers on student progress. This "value-added" technique is extremely precise and its results are statistically robust. Originally used

only in Tennessee but now spreading to other locales, it allows policymakers, taxpayers, and parents to see for themselves how much teachers are helping students to learn.¹²

The technique has proven to be a powerful tool for evaluating teachers. Sanders finds, for example, that the top 20 percent of teachers boost the scores of low-achieving pupils by 53 percentile points on average, while the bottom 20 percent of teachers produce gains of only 14 percentile points. Researchers in Dallas and Boston have found the same commonsensical link: good teachers significantly boost student achievement, even for the weakest pupils.¹³

Yet few states focus their teacher quality strategies on results. The instruments that states are far likelier to use to assess teaching candidates—input measures, that is—are seriously flawed approximations of how good a teacher one will be. We are struck by the paucity of evidence linking those inputs with actual teacher effectiveness. In a meta-analysis of close to four hundred studies of the effect of various school resources on pupil achievement, very little connection was found between the degrees teachers had earned or the experience they possessed and how much their students learned.¹⁴ Nor is there any evidence that teachers who graduate from NCATE-accredited teacher education programs are more effective than those who do not.¹⁵ Today's regulations, and the additional regulations urged by reformers within the profession, focus on inputs that display little or no relationship to classroom success. This is not education reform. This is the illusion of reform.

***Recruiting
smarter, abler
teachers will
do more to
improve teaching
than requiring
more or
different
preservice
training.***

Shaky Knowledge Base

The regulatory strategy assumes that good teaching rests on a solid foundation of specialized professional knowledge about pedagogy (and related matters) that is scientifically buttressed by solid research. In reality, however, much of that knowledge base is shaky and conflicted. We should not be surprised that there is no reliable link between pedagogical training and classroom success.

To be sure, the foundation has some sturdy spots. There is a scientific consensus today, for example, about the most effective methods of teaching primary reading to young children.¹⁶ There is strong evidence about the efficacy of such pedagogies as Direct Instruction.¹⁷ Yet much of the surest and best-documented knowledge about education is ignored, even denounced, by many approved teacher education programs, while the lore that they instead impart to new teachers—about favored methods and self-esteem enhancement, for example—has little or no basis in research.¹⁸ Is it any wonder that people mistrust teacher education—or that to rely on it as the exclusive path into U.S. classrooms is to place the next generation of Americans at educational risk? The regulatory approach buttresses an orthodoxy that doesn't work.

The regulatory strategy's reliance on peer review assumes, of course, that good teaching can only be detected via observation by other practitioners. Thus the National Board for Professional Teaching Standards has designed an elaborate method for appraising teacher performance and certifying outstanding teachers. The process is costly and time-intensive. Yet today we have no idea whether the teachers identified as superior by the NBPTS are in fact the best teachers as judged by how much and how well their pupils learn.¹⁹ Here as elsewhere, peer review consists mainly of judging quality by observing inputs and processes, i.e., appraising a teacher's skill in using conventional (and popular) teacher practices.

Discouraging the Best and Brightest

Insofar as there are links between teacher characteristics and classroom effectiveness, the strongest of these involve verbal ability and subject matter knowledge. This has been known since the famed Coleman Report of 1966, when teacher scores on a verbal test were the only school "input" found to have a positive relationship to student achievement.²⁰ In a recent study conducted in Texas, teacher literacy levels were more closely associated with student performance than other inputs.²¹ In an appraisal of Alabama schools, the ACT scores of future teachers were the strongest determinant of student gains.²² These all suggest that recruiting smarter, abler teachers will do more to improve teaching than requiring more or different preservice training.

Yet outstanding candidates are often discouraged by the hurdles that the regulatory strategy loves to erect. Burdensome certification requirements deter well-educated and eager individuals who might make fine teachers but are put off by the cost, in time and money, of completing a conventional preparation program. One college senior writes, "What discourages us most are the restrictive paths to the classroom and the poor reputation of schools of education—and as a result, of teaching itself....It is the certification process, then, and not a lack of interest, that steers us away from teaching."²³ The best and the brightest of young Americans have other career options and will pursue them if the costs of becoming a teacher are too high. In his February 1999 State of American Education speech, U.S. Secretary of Education Richard Riley urged state policymakers to rethink teacher licensing requirements. "Too many potential teachers," he observed, "are turned away because of the cumbersome process that requires them to jump through hoops and lots of them."²⁴

Getting Hired: What You Know vs. Who You Know

What little we know about how those who have been certified actually land a teaching job is troubling. There is accumulating evidence that local school boards show little interest in hiring the most academically qualified applicants.²⁵ Districts often eschew professional recruiting and screening practices. Instead, they frequently prefer to hire their own high-school graduates after they have become certified in a local

education program, a practice which has been found to contribute to lower students' scores on competency and achievement tests.²⁶

Few Incentives for Great Teaching

Once teachers have entered the classroom, the regulatory strategy—like all such regimens—prizes uniformity and conformity. Personnel decisions for public schools are made by central office bureaucrats according to strict rules. Assignments are often based on seniority. Rigid salary schedules mean that teacher pay reflects years of experience and degrees earned rather than any measure of performance, and salaries bear no relationship to marketplace conditions in the teaching field. There are few tangible rewards for good teaching. And because quality control focuses on the point of entry, and on-the-job teachers are protected by powerful political interests, there are fewer sanctions for bad teaching. As the NCTAF itself pointed out in *What Matters Most: Teaching for America's Future*, "Hiring and tenure decisions are often disconnected from any clear vision of quality teaching."²⁷

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A Common Sense Proposal: Freedom in Return for Results

As Secretary Riley said in February, "We can no longer fiddle around the edges of how we recruit, prepare, retain, and reward America's teachers."²⁸ The time has come to consider radically different policies to boost the quality of teaching in U.S. schools. In the remainder of this paper, we advance a fresh view of how America can acquire more and better teachers in the years ahead.

Holding Schools Accountable

The teaching profession should be deregulated, entry into it should be widened, and personnel decisions should be decentralized to the school level, the teacher's actual workplace. Freeing up those decisions only makes sense, however, when schools are held accountable for their performance—truly accountable, with real consequences for success and failure. The proper incentives are created by results-based accountability systems in which states independently measure pupil achievement, issue public report cards on schools, reward successful schools, and intervene in or use sanctions against failing schools. In private schools today—and in most charter school programs—schools are held accountable by the marketplace while hiring decisions are made at the building level. Public schools, too, should be accountable in this manner.

Power to the Principals

For principals (or other education leaders) to manage their personnel in such a way as to shoulder accountability for school results, but not only be free to select from

a wide range of candidates, they must also have the flexibility to compensate those they hire according to marketplace conditions (and individual performance), and they must be able to remove those who do not produce satisfactory results. Everyone who has studied effective schools attests to the central importance of a cohesive "school team" that shares a common vision, and almost everyone who has studied current teacher personnel systems has witnessed the danger of tying that school team's hands when it comes to deciding who will join (or remain in) it.²⁹

Common sense also argues that teachers of subjects in short supply should be paid more than those in fields that are amply supplied, that teachers working in hard-to-staff schools should be paid more than those working in schools with hundreds of applicants for teaching slots, and that outstanding teachers should be paid more than mediocre ones. Yet today, the typical public-school salary schedule (and teachers' union contract) allows for none of these commonsensical practices.

School level managers are in the best position to know who teaches well and who teaches badly.

We look forward to the day when great teachers, teachers in scarce fields, and teachers who shoulder difficult challenges, are paid six-figure salaries. But this is not apt to happen so long as mediocre practitioners and superb instructors are harnessed to the same pay scale.

As for the occasional incompetent teacher, the more freedom a school has in initial hiring, the more flexibility it needs with respect to retention. That's common sense, too. Yet today's school systems typically award tenure after a few years of service; thereafter, teachers are almost never dismissed for ineffectiveness. While teachers should be protected from abusive and capricious treatment at the hands of principals, they cannot be protected from losing their jobs for cause. Union contracts often allow veteran teachers to transfer into a school regardless of their instructional prowess, the school's actual needs, or their impact on the school team. Such policies will need to be changed so that principals can be empowered and made accountable.

School level managers are in the best position to know who teaches well and who teaches badly. They have access to far more significant information than state licensing boards and government agencies. They should be empowered (and, if need be, trained) to appraise each teacher's singular package of strengths and weaknesses rather than having distant bureaucracies decide who should be on their team. Once hired, teachers should be evaluated based on the only measure that really matters: whether their pupils are learning.

A Market Test

The commonsense view acknowledges that there is no "one best system" for preparing and licensing quality teachers. A review of the research on the teacher qualities that affect student outcomes is humbling; lamentably little is known for sure

about what makes an effective teacher, when gauged by pupil achievement. This argues against mandating any single path into the profession; education schools certainly ought not monopolize the training of teachers. In any case, teachers regularly report that the best place to learn about good teaching practices is on the job and in the company of other good teachers.

Rather than buttressing an orthodoxy that does not work, the common sense approach embraces pluralism. In a deregulated environment, good teacher education programs will thrive and prosper. Those that do a poor job will not, once they lose the protection that the regulatory monopoly confers on them. Principals should be able to decide for themselves whether to hire teachers who have been trained in certain pedagogical methods and theories.

The popularity of such programs as Teach for America, which places liberal arts graduates without formal education course work in public school classrooms in poor rural communities and inner cities, indicates that the prospect of teaching without first being obliged to spend years in pedagogical study appeals to some of our brightest college graduates. Over 3,000 people apply for 500 Teach for America slots each year. Since 1994, more than 3,000 veterans of the armed forces have also made the transition from military to classrooms through the Troops to Teachers program.

Alternative certification programs streamline the classroom entry of more prospective teachers. Such programs normally require a bachelor's degree, passage of a competency test, and an intensive (but compressed) regimen of specialized preparation, often undertaken while on the job. They attract talented and enthusiastic individuals into teaching who might otherwise be lost to this calling. Teachers with alternative certification are more likely to have bachelor's degrees in math and science, two fields with chronic shortages of qualified teachers. They are also more likely to be members of minority groups.³⁰ Yet the regulatory strategy would shut down such programs or force them to imitate conventional education programs.

Where personnel decisions have been deregulated, schools rush to hire well-educated persons whether or not they possess standard certification. Private schools routinely employ unlicensed instructors, which tends to increase the proportion of their teachers who graduated from selective colleges and gained academic training.³¹ In New Jersey, the first state to implement a serious alternative certification program, from 23 to 40 percent of teachers now enter the profession through that route.³² The few studies of alternative certification that have been done find that students of such teachers perform at least as well as students of conventionally licensed teachers.³³ In New Jersey, alternatively certified teachers also have lower attrition

Principals should be able to decide for themselves whether to hire teachers who have been trained in certain pedagogical methods and theories.

than traditionally certified teachers during their first year and are as likely to stay in the field over time.³⁴

Not All Regulations Are Bad

Trading accountability for autonomy does not mean sloughing off all regulation. Every child should be able to count on having a teacher who has a solid general education, who possesses deep subject area knowledge, and who has no record of misbehavior. The state has an obligation to ensure that all prospective teachers meet this minimal standard. Thus states should perform background checks on candidates for teaching positions. To boost the likelihood that those who teach our children are themselves well educated, states should require that teaching candidates have at least a bachelor's degree in some academic subject.

States should also ensure subject matter competence. There are two ways to do this: requiring teachers to major in the subjects they teach or requiring them to pass challenging tests of subject matter knowledge. Neither method is perfect. Obliging all teachers to major in the subject they will teach may—regrettably—set the bar too low. At some universities, one can graduate as a history major without learning

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much of the history we'd expect a high-school history teacher to have mastered. The same is true of other academic majors. And a minor is unlikely to reflect any subject mastery. On the other hand, a prospective teacher who graduates in, say, American studies may have learned ample history or literature to be an outstanding history or English teacher, even though his diploma doesn't actually say "history" or "English."

Such variation in college majors tempts us to embrace testing as a more reliable measure of preparedness to teach. The value of any test, however, hinges on its content, rigor, and passing score. Our

instinct is to set those cutoffs as high as possible. But since tests are an imperfect gauge of teaching ability, some applicants will fail the test yet possess superior teaching potential. We all know individuals whose other qualities would cause them to be effective with children even if they do poorly on a paper-and-pencil test of knowledge. That is why we are wary of putting all the education eggs in the testing basket or making a certain fixed score an absolute prerequisite to being hired.

Neither academic majors nor subject test scores is a faultless means of assuring that teachers possess the requisite knowledge and will be good at delivering it. But either strategy is superior to today's widespread disregard of subject matter mastery.

Putting Principles into Practice

The commonsense strategy for improving teacher quality is surprisingly straightforward: states should empower principals to employ teachers as they see fit, and then

hold those principals to account for their schools' results. Since every regulation that restricts entry to the profession excludes some potentially good teachers from public education, regulation should be reduced to the bare minimum.

What would state policies look like if based on these assumptions? Four are key.

1. States should develop results-based accountability systems for schools and teachers as well as students.

States should have accountability systems operating at the student, classroom, and building levels. School level accountability involves measuring pupil achievement and issuing report cards for schools. Such information should be disseminated to students, parents, and the public. States should reward successful schools and should have—and use—the authority to reconstitute or otherwise intervene in failing schools. They may also institute market-based accountability via various forms of school choice.³⁵ States must also define the role that school districts will play in these accountability systems.

Principals need accountability, too. Their jobs and salaries ought to be tied to their schools' performance. But they need the information by which to hold their faculty and staff accountable. The state can help by providing student achievement data, disaggregated by teacher, like those generated by the value-added system that William Sanders developed for Tennessee.

2. States should empower school level administrators with the authority to make personnel decisions.

Authority must accompany accountability. All key personnel decisions (including hiring, promotion, retention, and compensation) should be devolved to schools. Quality control should be the responsibility of school leaders, who have freedom to hire from a wide pool of teaching candidates and pay teachers based on marketplace conditions or individual performance. States should pass whatever legislation is needed to assign all these decisions to the school level.

Teacher tenure ought not be allowed to interfere. Multi-year contracts are far preferable. It must be possible to remove incompetent teachers at reasonable cost and within a reasonable period of time, without sacrificing their right to due process protection against capricious and *ad hominem* treatment.

States should encourage differential pay so that schools can pay outstanding teachers more. It should also be possible to adjust teacher pay for labor market conditions, subject specialty, and the challenge of working in tough schools. A flexible salary structure would allow paychecks to respond to marketplace signals

States should ensure that new teachers are adequately grounded in the subject matter they are expected to teach, either by requiring that they major in the subject(s) that they will teach or by mandating rigorous subject matter examinations.

while creating financial incentives for excellent teaching and practical sanctions for poor teaching.

To work well, this system obviously requires capable principals—education leaders who know how to judge good teaching and are prepared to act on the basis of such evaluations. We're not naïve about the supply of such people in management positions in public education today. But they exist in large numbers in U.S. society and can be drawn into the schools if the incentives are right. Executive training for some current principals will also help them handle this difficult evolution of their role.³⁶

3. States should enforce minimal regulations to ensure that teachers do no harm.

States should perform background checks for all teaching candidates and require prospective teachers to have a bachelor's degree in an academic field. They should also ensure that new teachers are adequately grounded in the subject matter they are expected to teach, either by requiring that they major in the subject(s) that they will teach or by mandating rigorous subject matter examinations. (They may be wise to use both mechanisms and also let principals make exceptions when other compelling evidence is at hand.)

4. States should open more paths into the classroom, encourage diversity and choice among forms of preparation for teaching, and welcome into the profession a larger pool of talented and well-educated people who would like to teach.

States should expand the pool of talented teaching candidates by allowing individuals who have not attended schools of education to teach.

Policymakers should take forceful action to eliminate monopoly control and challenge "one best system" attitudes toward teacher preparation. Traditional training programs should be closely scrutinized for their length, cost, burden, and value. Is a two-year time commitment really necessary, for example? States should publish detailed factual information about individual programs and their graduates, data that outsiders can use to evaluate their effectiveness. Information about the effectiveness of recent graduates (as measured by the value-added achievement scores of their pupils) should be made public; until this is available, institution-specific data should include the placement rate of graduates and the percentage of graduates passing state teacher tests. (Some of this information was mandated by the Higher Education Amendments of 1998.)

States should expand the pool of talented teaching candidates by allowing individuals who have not attended schools of education to teach, provided that they meet the minimum standards outlined above. States should encourage programs that provide compressed basic training for prospective teachers. States should also attract outstanding college graduates to the

profession by using financial incentives such as scholarships, loan forgiveness programs, and signing bonuses.

Conclusion

For too long, policymakers have focused overmuch on training teachers and not enough on recruiting them. They have tackled the quality problem by increasing regulation and expanding pedagogical requirements, even though this approach shrinks the pool of candidates while having scant effect on their quality. Forty years of experience suggests that this strategy is a failure. It cannot work. Indeed, it has compounded today's dual crisis of teacher quality and quantity.

We offer something different. States that reduce barriers to entry will find not only that their applicant pool is larger but also that it includes many more talented candidates. Turning our back on excessive and ill-conceived regulations and focusing instead on student outcomes is the key. To attract and keep the best teachers, states must also be willing to pay strong teachers well—and to muster the necessary resources to do this.

Raising the quality of the U.S. teaching force is an urgent priority today and some policymakers have begun to signal their receptivity to change. In his February 1999 State of American Education speech, for example, Secretary Riley proclaimed, "We must make sweeping efforts to make teaching a first-class profession. And, then, we must hold schools accountable for results."³⁷ He later added, "What else can we do? We can create rigorous alternative paths to give many more Americans the opportunity to become a teacher."³⁸ We agree.

¹ William L. Sanders and Joan C. Rivers, "Cumulative and Residual Effects of Teachers on Future Student Academic Achievement," 1996; Heather Jordan, Robert Mendro, & Dash Weerasinghe, "Teacher Effects on Longitudinal Student Achievement," 1997; and Boston Public Schools, "High School Restructuring," 9 March 1998. These research studies were all cited in Kati Haycock, "Good Teaching Matters a Lot," *Thinking K-16*, A Publication of The Education Trust, 3, no. 2 (1998).

² National Center for Education Statistics, *Teacher Quality: A Report on the Preparation and Qualifications of Public School Teachers* (Washington, D.C.: U.S. Department of Education, January 1999), iii.

³ Arthur Levine, "Dueling Goals for Education," *The New York Times*, 7 April 1999, A23.

⁴ Although teacher "literacy" levels mirror those of other college graduates, that's not actually saying much; more than 40 percent of teachers scored below "level 4" on the 1992 National Adult Literacy Survey (NALS), a national assessment of prose literacy, document literacy, and quantitative literacy among adult Americans. For the study, a random sample of U.S. adults were surveyed and, based on their performance on a set of literacy tasks, graded as level 1 through level 5. Individuals scoring at level 4, for example, display the ability to state in writing an argument made in a lengthy newspaper article (prose literacy), use a schedule to determine which bus to take in a given situation (document literacy) and use an eligibility pamphlet to calculate how much money a couple would receive as supplemental security income (quantitative literacy). More than 40 percent of teachers (and of the general population) scored below this level on the national assessment. See Barbra A. Bruschi and Richard J. Coley, *How Teachers Compare: The Prose, Document, and Quantitative Skills of America's Teachers* (Princeton, N.J.: Educational Testing Service, 1999).

⁵ Carol A. Langdon, "The Fifth Phi Delta Kappa Poll of Teachers' Attitudes Toward The Public Schools," *Phi Delta Kappan*, 80, no. 8 (April 1999): 615.

⁶ Teacher certification and teacher licensure are used interchangeably throughout this essay.

⁷ Richard W. Riley, U.S. Secretary of Education, "New Challenges, A New Resolve: Moving American Education Into the 21st Century," Sixth Annual State of American Education Speech, Long Beach, Calif., 16 February 1999.

- ⁸ Diane Ravitch, "Lesson Plan for Teachers," *Washington Post*, 10 August 1998. These numbers can be difficult to pin down since the NCES sometimes includes teachers who major in history education as having majored in history.
- ⁹ To be sure, not all teachers pass through conventional teacher-training programs. Some obtain temporary or emergency licenses that allow them to teach before they have completed all of the normal requirements for certification. These are normally issued when districts have urgent needs for teachers that they say they cannot meet with conventional candidates. Some states also offer alternative certification routes which allow liberal arts graduates, military retirees, and others to teach without having to complete a full-length teacher education program. Often, however, the "alternative" programs simply defer the conventional requirements; the individual may begin teaching but may not continue without taking the standard courses, etc. In any case, the intensified regulatory approach outlined in the text would curb the use of alternative programs unless they conform closely to the model of conventional programs.
- ¹⁰ The number of required units varies from 6 semester units in Texas to 36 in some states. C. Emily Feistritzer and David T. Chester, *Alternative Teacher Certification: A State-by-State Analysis 1998-99* (Washington, D.C.: National Center for Education Information, 1998).
- ¹¹ Teaching candidates needed to answer correctly only a quarter of the questions in the reading section of the National Teacher Exam in order to pass it. For a decade, the state set no minimum scores at all in chemistry and physics; every applicant who took one of these tests passed. Robert P. Strauss, "Who Gets Hired to Teach? The Case of Pennsylvania," in *Better Teachers, Better Schools* (Washington, D.C.: Thomas B. Fordham Foundation, 1999).
- ¹² Organizing an education system on the basis of student achievement requires better measures of student achievement than most states have today (in particular, annual assessments of students in every grade), though a number of jurisdictions are moving in that direction. Implementing the principles of this "manifesto" will mean more such movement. We also recognize, of course, that student test scores can never be a full or perfect measure of teacher effectiveness; teachers add many valuable things to students that cannot be captured by any test.
- ¹³ Kati Haycock, "Good Teaching Matters a Lot," *Thinking K-16*, A Publication of The Education Trust, 3, no. 2 (1998).
- ¹⁴ Eric A. Hanushek, "Assessing the Effects of School Resources on Student Performance: An Update," *Educational Evaluation and Policy Analysis*, 19, no. 2 (Summer 1997): 141-164.
- ¹⁵ Dale Ballou and Michael Podgursky, "The Case Against Teacher Certification," *The Public Interest* (Summer 1998): 17-29.
- ¹⁶ Louisa Cook Moats and G. Reid Lyon, "Wanted: Teachers with Knowledge of Language," *Topics in Language Disorders* (February 1996).
- ¹⁷ Some teachers object to "D.I." methods, but the evidence indicates that they're effective. See American Institutes for Research, *An Educators' Guide to Schoolwide Reform* (Washington, D.C.: Educational Research Service, 1999) 4, C12-C18 and Debra Viadero, "A Direct Challenge," *Education Week*, 17 March 1999, 41-43.
- ¹⁸ William Damon, *Greater Expectations* (New York: Free Press, 1995).
- ¹⁹ The NBPTS reports that a study examining the effectiveness of its standards is underway.
- ²⁰ Christopher S. Jencks, "The Coleman Report and the Conventional Wisdom," in Frederick Mosteller and Daniel P. Moynihan, eds., *On Equality of Educational Opportunity* (New York: Random House, 1972), 101.
- ²¹ Ronald F. Ferguson, "Can Schools Narrow the Black-White Test Score Gap?" in Christopher Jencks and Meredith Phillips, eds., *The Black-White Test Score Gap* (Washington, D.C.: Brookings Institution, 1998).
- ²² Ronald F. Ferguson and Helen F. Ladd, "How and Why Money Matters: An Analysis of Alabama Schools," in *Holding Schools Accountable: Performance Based Reform in Education* (Washington, D.C.: Brookings Institution, 1996).
- ²³ Elizabeth Greenspan, "No Thanks," *Teacher Magazine* (April 1999).
- ²⁴ Richard W. Riley, "New Challenges, A New Resolve."
- ²⁵ See Dale Ballou, "Do Public Schools Hire the Best Applicants," *Quarterly Review of Economics* (February 1996): 97-134 and Dale Ballou and Michael Podgursky, "Recruiting Smarter Teachers," *Journal of Human Resources* (Winter 1995): 326-338.
- ²⁶ See Robert P. Strauss, Lori Bowes, Mindy Marks, and Mark Plesko, "Improving Teacher Preparation and Selection: Lessons from the Pennsylvania Experience," *Economics of Education Review*, forthcoming.
- ²⁷ National Commission on Teaching and America's Future, *What Matters Most: Teaching for America's Future* (New York: National Commission on Teaching and America's Future, September 1996), 14.
- ²⁸ Richard W. Riley, "New Challenges, A New Resolve."
- ²⁹ The importance of the power to remove teachers is emphasized by the most mainstream research in the field. Gordon Cawelti, former Executive Director of the Association for Supervision and Curriculum Development, concludes in a recent study of what makes schools effective: "A school seeking a turnaround in student performance must seek out teachers who want to work in such an environment. A school must also be able to remove teachers who are unwilling to commit the energy and dedication needed to make sure that a productive and challenging education is provided to all children who attend. This policy issue must not be overlooked. Without committed teachers, you are unlikely to raise student achievement significantly." Gordon Cawelti, *Portraits of Six Benchmark Schools: Diverse Approaches to Improving Student Achievement* (Arlington, Va.: Educational Research Service, 1999), 64-65.

- ³⁰ Jianping Shen, "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, no. 3 (1997): 276-283.
- ³¹ Dale Ballou and Michael Podgursky, "Teacher Training and Licensure: A Layman's Guide," in *Better Teachers. Better Schools* (Washington, D.C.: Thomas B. Fordham Foundation, 1999).
- ³² Ibid.
- ³³ Stephen D. Goebel, Karl Ronacher, and Kathryn S. Sanchez, *An Evaluation of HISD's Alternative Certification Program of the Academic Year: 1988-1989* (Houston: Houston Independent School District Department of Research and Evaluation, 1989), ERIC Document No. 322103. Susan Barnes, James Salmon, and William Wale, "Alternative Teacher Certification in Texas," paper presented at the annual meeting of the American Educational Research Association, March 1989. [ERIC Document No. 307316.]
- ³⁴ Ellen Schech, director, Alternate Route Program, New Jersey Board of Education, in "No Thanks," *Teacher Magazine* (April 1999).
- ³⁵ How extensive a school choice policy will be is determined primarily by state laws and constitutions—and of course by politics. The more choice the better—including, where possible, private schools—is the view of most signers of this manifesto. Some signers, however, believe that publicly funded choice should extend only to publicly accountable schools.
- ³⁶ Many signers of this manifesto are concerned that today's school administrators—at the building and central office levels alike—often lack the necessary skills and experience to make sensitive personnel decisions based on student performance and other indicators of effectiveness. A state moving in the direction mapped by this manifesto would probably be wise to include this type of in-service training for its current principals, superintendents, etc.
- ³⁷ Richard W. Riley, "New Challenges, A New Resolve."
- ³⁸ Ibid.

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Measuring the Teacher Quality Problem

Tyce Palmaffy

This overview of recent data on the quality of our nation's teaching force contains much bad, if often familiar, news. No measure of teacher quality is perfect, but most of the measures that do exist are discouraging. Teachers have weak verbal and quantitative skills as measured by various tests. Not nearly enough of them have a college major or minor in the subject that they teach. And only one in five teachers reports feeling prepared to teach in today's classrooms. These findings, combined with U.S. students' poor performance on national and international tests, bring home the urgency of the teacher quality problem.

Introduction

The papers in this volume share an assumption that the nation's education system is suffering from a dearth of intelligent, knowledgeable, skilled teachers. Whether this is true, however, is a hotly contested issue. The disagreement boils down to a question of whether the tools we use to measure teacher quality, from teachers' standardized test scores to student performance, actually capture the essence of good teaching.

Let me illustrate with an anecdote from my own schooling. No teacher in high school frustrated me more than my tenth-grade English teacher. There was just no pleasing him; if you did four drafts of a paper, he always wanted a fifth. His criticisms of our work were harsh but intelligent; from them we learned how to write and think about literature. I worked harder that year than ever before—and learned more as well.

The following year's English class was a breeze. My kind, easygoing eleventh-grade teacher hardly ever tested our knowledge, gave high marks to nearly everyone, and rarely assigned homework. In short, she was the kind of teacher you adored at the time and cursed forever after. I learned almost nothing that year; my writing skills and work habits atrophied.

Although my two teachers may have looked similar on paper, one was clearly better than the other. This is because good teachers possess a mixture of characteristics that

we can't always quantify: patience, enthusiasm, inspiration, creativity, and, above all, a passion for the subjects they teach and for teaching itself. They care deeply about whether their students succeed. The best of them elicit the very best from their students; like good parents, they instill self-motivation. Few of these qualities, unfortunately, show up in the statistics we use to measure teacher quality.

There are, however, other, equally important qualities that we can observe with the help of data—attributes such as how literate and intelligent teachers are, how well they know the subjects they teach, and how well prepared they feel. It's reasonable to assume that high quality teachers will possess the strong verbal and quantitative skills needed to recognize and correct the weak verbal and quantitative skills of their students, will possess a deep body of knowledge about the subjects they teach, and will feel ready to teach what they know. The ultimate measure of teacher quality, of course, is the achievement of their students and the value that a teacher adds. But because factors such as home life, cultural attitudes, curricula and textbooks, and the structure of the education system itself also influence achievement, statistics related to student performance are only a rough measure of teacher quality, and thus should be interpreted with care. What follows is a survey of the various ways in which it is possible to measure teacher quality. Its purpose is to discover whether there is a problem and, if so, what its extent is.

General Academic Ability

When nearly 60 percent of would-be teachers failed to pass Massachusetts's teacher certification test in April 1998, much of the public began to wonder whether schools of education are imparting even rudimentary academic skills to the future instructors who pass through them. As several papers in this volume make clear, strong verbal and quantitative skills among teachers improve student performance. This has been demonstrated by research. It also makes intuitive sense: How can one improve students' writing, reasoning, and arithmetic skills if one does not oneself possess superior writing, reasoning, and arithmetic skills?

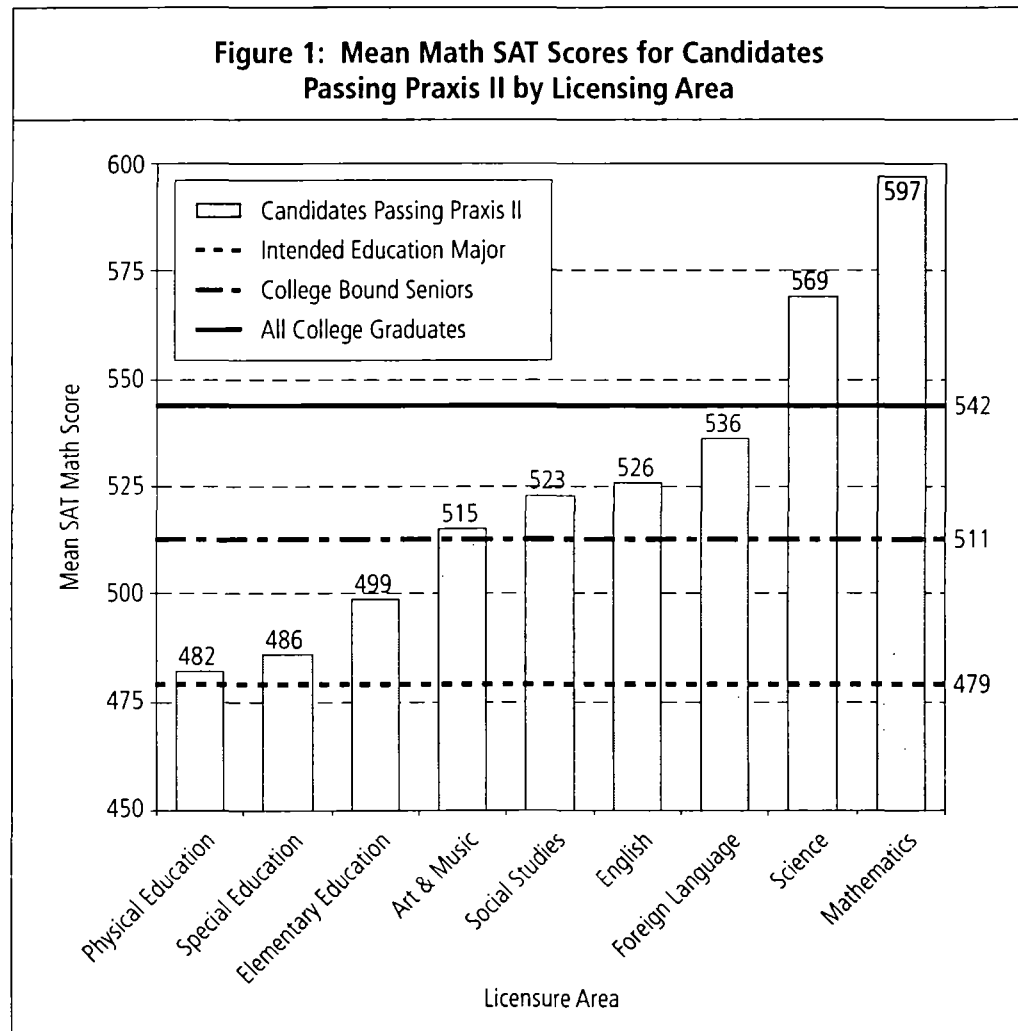
At almost every checkpoint along the path to becoming a teacher, however, college graduates who score higher on standardized tests tend to abandon teaching at higher rates than lower-scoring students. Or, as a group of Harvard researchers put it in *Who Will Teach?*: "[C]ollege graduates with high test scores are less likely to become teachers, licensed teachers with high test scores are less likely to take teaching jobs, employed teachers with high test scores are less likely to stay, and former teachers with high test scores are less likely to return."¹

Among high-school students who took the Scholastic Aptitude Test in 1994-95, those who intended to study education in college scored

Good teachers possess a mixture of characteristics that we can't always quantify: patience, enthusiasm, inspiration, creativity, and, above all, a passion for the subjects they teach and for teaching itself.

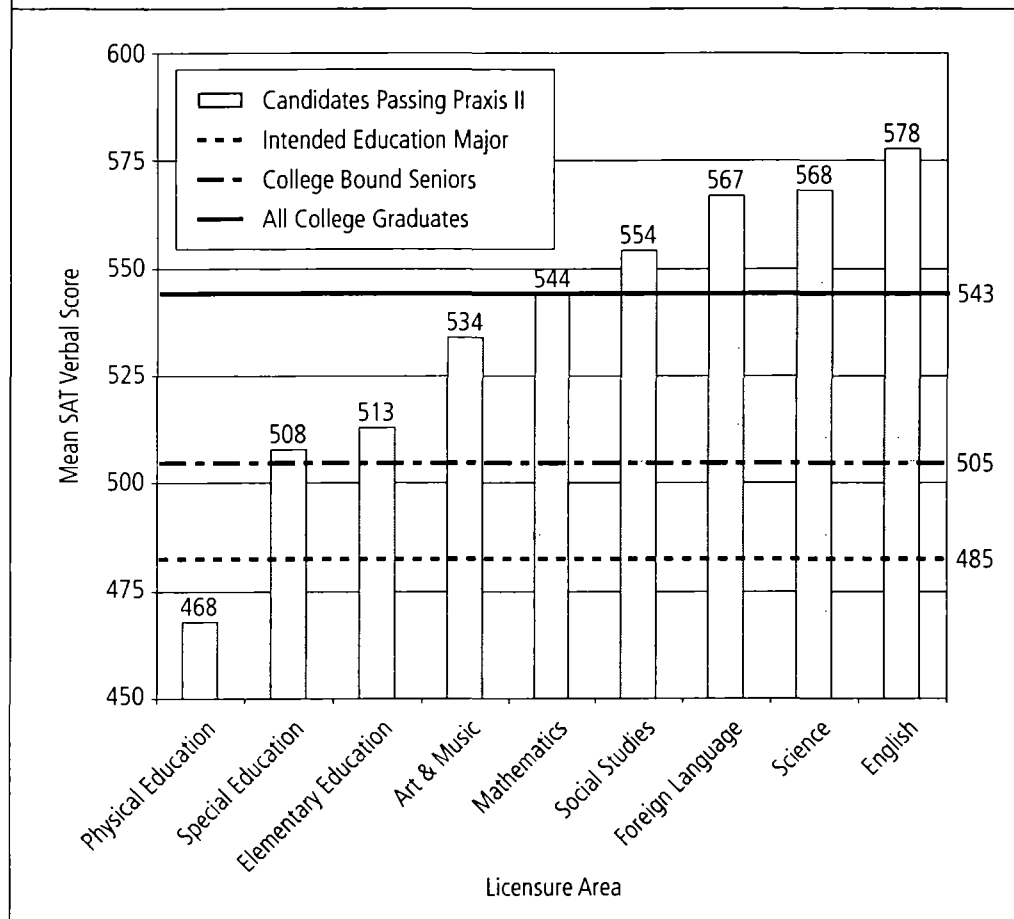
lower on both the verbal and math sections than students expressing an interest in any other field.² In the course of working toward their degrees, however, students often change majors and, in some cases, fail to graduate. Researchers have found that the average SAT and ACT scores of potential teachers who actually passed the Praxis I exam, administered by twenty-two states to students seeking admission to colleges of education, were equal to or slightly higher than the average scores of college-bound seniors.³

But the same study (whose authors are themselves staff members of ACT, Inc. and the Educational Testing Service, which develops both the SAT and Praxis tests) also found that potential teachers who passed the Praxis II exam, which thirty states use to grant initial teaching licenses, scored significantly lower on the SAT than their fellow college graduates. The study also revealed a sharp divide within the teaching corps. As Figures 1 and 2 show, teachers who passed the Praxis II in specific content areas such as science or English actually had higher average math and verbal scores than all college graduates, while teachers who pursued licenses in nonacademic sub-



Source: Drew H. Gitomer, Andy S. Latham, and Robert Ziomek, *The Academic Quality of Prospective Teachers: The Impact of Admissions and Licensure Testing* (Princeton, N.J.: Educational Testing Service, May 1999), 27.

Figure 2: Mean Verbal SAT Scores for Candidates Passing Praxis II by Licensing Area



Source: Drew H. Gitomer, Andy S. Latham, and Robert Ziomek, *The Academic Quality of Prospective Teachers: The Impact of Admissions and Licensure Testing* (Princeton, N.J.: Educational Testing Service, May 1999), 28.

jects such as elementary education and physical education had much lower average scores than college graduates overall.

The ETS/ACT study's findings are borne out by the fact that, in 1992-93, 30 percent of graduating education majors scored in the bottom quartile on their college entrance exams, versus 18 percent of humanities majors and 14 percent in math, computer science, and natural sciences. Education majors were more likely to be in the bottom quartile and less likely to be in the top quartile than any other major.⁴

Other evidence of teachers' weak verbal and quantitative skills comes from the Graduate Record Examinations required to enter graduate school. In 1987-88, education majors earned an average score of 462 on the general test; the average for all test-takers was 554. Students taking the GRE to prepare for graduate work in education (undergraduate education majors and nonmajors alike) scored worse than students intending to study any other field. Undergraduate education majors who intended to do graduate work in education earned the lowest scores of all.⁵

Once they have graduated from college, high-scoring students continue to be driven away from teaching at a faster rate than their low-scoring peers. In a study of teachers licensed in North Carolina from 1975 to 1982, a team of Harvard researchers found that those with high scores on the National Teacher Examination were less likely to enter teaching within three years of being licensed than teachers with low NTE scores⁶; that teachers with high NTE scores left teaching sooner than those with low NTE scores⁷; and teachers with high NTE scores were less likely to return to teaching within five years of leaving than teachers with low NTE scores.⁸ Another study found that, among those 1992-93 college graduates who had actually taught,

Four million students a year are taught English, math, or history by teachers who have neither college majors nor minors in the subject they're teaching.

18 percent had college entrance exam scores in the top quartile of scores. And teachers who expected still to be teaching in two years were almost twice as likely to be in the bottom quartile as those teachers who expected to change careers.⁹ Considering that about a third of all teachers leave the field within five years of beginning to teach (a number that rises to one-half for teachers in high-poverty schools), the likelihood that teachers who leave are also the most academically talented individuals is even more disturbing.

Although teachers fare less well than other professionals on standardized tests such as the SAT and the GRE, there is evidence that they are no less literate than other college graduates and far more literate than the adult population in general.¹⁰ Using data from the National Adult Literacy Survey, ETS compared teachers with other college-educated adults and found that teachers performed equally well on all three literacy tests included in the NALS (see Figure 3). Yet only about 50 percent of teachers scored at or above Level 4 (Level 5 being highest) on prose, document, and quantitative literacy. Surely it's comforting that

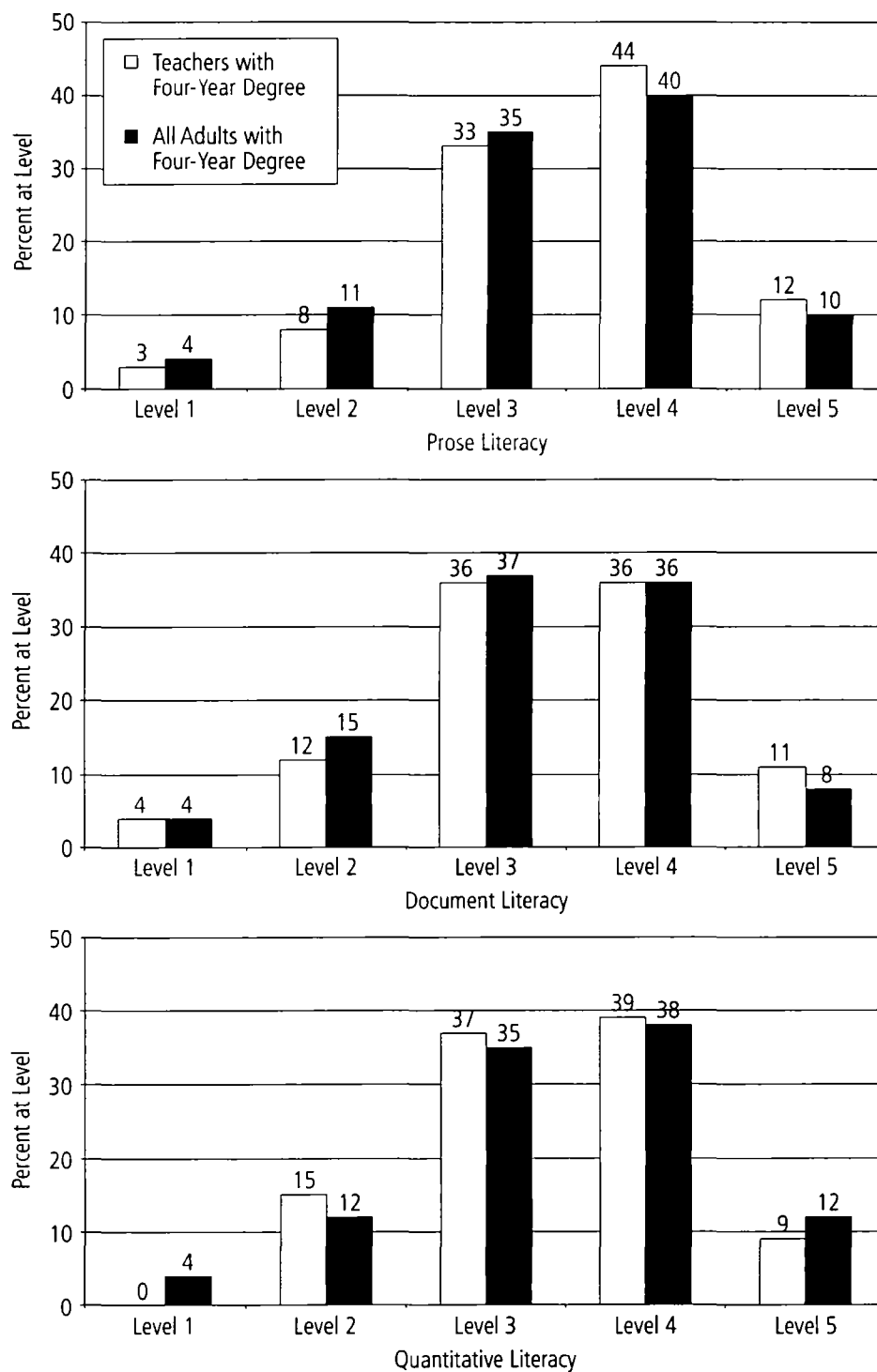
teachers are not less literate than other college-educated adults, but how satisfied should we be by this evidence? It indicates, after all, that just half the nation's teachers can summarize an argument made in a lengthy newspaper article; use a bus schedule correctly; and use information from a newspaper article to determine how much money should go to raising a child. The other half cannot function at this level. Yet they are teaching our children.

Subject Area Knowledge

In terms of credentials, teaching is one of the most-schooled professions. Virtually all teachers have bachelor's degrees and 45 percent have master's degrees, too. Some are in academic subjects, but more frequently, they are in education.

More important than degrees earned is the amount of education that teachers have had in the subjects they teach. It would be best for a high-school physics teacher to have majored in physics, and for a history teacher to have majored in history. What percentage of teachers have degrees in the subjects they are teaching? Depending

Figure 3. Literacy Levels of Teachers with a Four-Year Degree Compared to Those of All Adults with a Four-Year Degree



Source: Barbara A. Bruschi and Richard J. Coley, *How Teachers Compare: The Prose, Document, and Quantitative Skills of America's Teachers* (Princeton, N.J.: Educational Testing Service, 1999), 6.

on how one defines “in-field” teaching, the picture can look more or less rosy. In grades 9 through 12, more than 90 percent of English, math, science, social studies, and foreign language teachers possess either an undergraduate or graduate major or minor in their main teaching assignment.¹¹

But looking at teachers’ main teaching assignments papers over what policymakers have called education’s “dirty little secret”: the widespread practice of asking teachers to teach some classes far distant from their specialties—for instance, an English teacher teaching a math class. By modifying the definition of “out-of-field” teaching to include teachers who taught any classes in subjects in which they had neither a major or minor, University of Georgia sociologist Richard Ingersoll has found more disturbing trends.¹²

Of secondary-school teachers (grades 7-12) who actually taught math, Ingersoll reports that about a third did not major or minor in math, math education, or related fields such as physics or engineering. About a quarter of secondary-school

Just half the nation’s teachers can summarize an argument made in a lengthy newspaper article.

English teachers did not major or minor in English, reading education, or related fields such as literature, speech, or journalism. One-fifth of social studies teachers had no major or minor in any social science, public affairs, social studies education, or history. One-fifth of science teachers didn’t major or minor in any of the sciences or in science education. When broken down further, more than half of teachers in the physical sciences (chemistry, physics, earth science, or space science) did not major or minor in any of the physical sciences. More than half of all history teachers did not major or minor in history. (Whatever happened to the old saw that the only thing history majors can do is teach history?) The impact of this is felt widely: four million

students a year are taught English, math, or history by teachers who have neither college majors nor minors in the subject they’re teaching.

If this practice were only happening in middle schools, it might not be so harmful. It is perhaps debatable whether one really needs to have majored in a college science to teach seventh-graders. As Table 1 shows, however, Ingersoll found a whopping 41 percent of twelfth-graders being taught one of the physical sciences by out-of-field teachers, as are 61 percent of twelfth-graders in history classes and 14 percent of twelfth-graders in English. In general, though, middle schoolers fare worse when it comes to out-of-field teaching: 74 percent of them are taught physical science by teachers with no major or minor in physical science; the corresponding percentages in English and math are 32 percent and 49 percent.

Out-of-field teaching varies not only by grade but also by poverty level and what track a student is in. In high poverty schools, 43 percent of math teachers had no major or minor in math-related fields, versus 27 percent in low poverty schools. Similarly, in most subjects, students in low tracks are assigned to out-of-field teachers at higher rates than students in high tracks; 25 percent of low-track children are

**Table 1: Percentage of Public Secondary School
(Grades 7-12) Students in Each Field Taught by Teachers
Without a Major or a Minor in That Field**

	English	Math	Science	Life Science	Physical Science	Social Studies	History
Public total	20.8	26.6	16.5	38.5	56.2	13.4	53.9
Track of class							
Low-track	24.7	33.5	20.4	42.3	66.8	14.3	55.1
Medium-track	11.8	15.7	9.2	31.4	42.8	8.9	44.9
High-track	11.2	20.4	7.2	20.7	43	11.2	51.1
Grade level of class							
7th grade	32.2	48.8	31.8	60.4	73.8	23.9	56.3
8th grade	32.9	37.1	23.8	32.9	75.7	19.7	60.5
9th grade	15.7	18.1	10.7	27.9	61.7	8.7	48.7
10th grade	11.1	16.8	8.9	29.3	45.7	8.8	51.1
11th grade	11.2	15.9	6.4	23.5	36.8	6.8	47
12th grade	13.9	24.2	13.1	25.3	41	11.3	62.4

Source: Richard M. Ingersoll, "The Problem of Underqualified Teachers in American Secondary Schools," *Educational Researcher* 27, no. 9 (March 1999), 5.

taught English by out-of-fielders, versus 11 percent of high trackers. That means the children most in need of knowledgeable, skilled teachers are least likely to get them.

The numbers may be even worse. Several education scholars have bemoaned the fact that only 38 percent of all public-school teachers have any academic major, as opposed to a major in education, and have chastised the National Center for Education Statistics (and, by implication, Ingersoll) for allowing majors such as "math education" to count as "in-field" teaching. Not counting math education and kindred degrees makes a tremendous difference: only 37 percent of secondary-school math teachers possess an actual major or minor in math, physics, or engineering; another 30 percent majored or minored in math education. But Ingersoll points out that, at least at the University of Georgia, a degree in math education requires as many math credits as does a degree in math. And it's not altogether clear that a seventh-grade math teacher needs a college degree in math, or that an elementary-school teacher needs to major in an academic field. The fact that 66 percent of high-school teachers majored in an academic field makes the situation seem slightly less alarming.¹³ Also, 50 percent of teachers with three or fewer years of experience majored in academic subjects (versus 36 percent of teachers with twenty years of experience or more), indicating that perhaps this trend has begun to reverse. (Then again, it could just indicate that teachers with academic majors tend to leave the profession at higher rates because of their greater marketability.)

The problem of out-of-field teaching is most acute in math and science, and in both the upper grades and high poverty schools. Wherever it happens, though, it short-changes children who should learn from teachers who are intimately familiar with their subjects and it harms teachers who, already forced to juggle burdensome teaching loads, are then asked to master a whole new subject—or teach one they haven't mastered at all.

The quality of our education system is determined more by the quality of the teaching that goes on each day than by any other single factor.

Their Own Words

Another indicator of teacher quality is what teachers think of their own preparedness. Here the most pressing problems seem to be in areas that have become important rather recently. For instance, only 20 percent of teachers who teach students with Limited English Proficiency or diverse cultural backgrounds feel well prepared to do so. Just 20 percent of teachers say they understand how to integrate technology into the classroom, and only 36 percent think they are well prepared to implement state or district curricular and performance standards (see Table 2). Our training of teachers has obviously not caught up with the headlong rush into equipping all schools with com-

puter technology, the burgeoning LEP population and rising diversity of our schools, or with the attempts to raise K-12 academic standards.¹⁴

Student Learning

Everything a teacher does should be aimed at improving student learning, so using student learning as a measure of teacher quality should enable us to account for what teachers do—and thus get a measure of teacher quality that goes beyond teachers' test scores from years earlier.

Teacher quality can be measured via student performance in two ways: by comparing our students' performance against that of students from other countries (and thus our teachers' performance against that of teachers from other nations), and by gauging our students' performance against benchmarks that we think they should meet. Obviously these are crude comparisons, as we haven't controlled for family and community difference, for cultural variation, or for differing societal investments in schools and teachers. Still, it seems reasonable to suggest that the quality of our education system is determined more by the quality of the teaching that goes on each day than by any other single factor.

The most recent international comparison of student performance, the Third International Mathematics and Science Study (TIMSS), found that the United States lagged far behind other nations, especially in the upper grades. In twelfth grade, 14 nations had significantly higher average math scores than the U.S.; only two, Cyprus and South Africa, had lower scores. In twelfth-grade science, 11 nations had higher average scores than the U.S. and, again, just two had lower scores. The results likely

Table 2: Percent of Full-time Public School Teachers Indicating How Well Prepared They Feel to Do Various Activities in the Classroom: 1998

Activity	How well prepared teachers feel			
	Very well prepared	Moderately well prepared	Somewhat well prepared	Not at all prepared
Maintain order and discipline in the classroom	71	24	4	1
Implement new methods of teaching (e.g. cooperative learning)	41	41	16	2
Implement state or district curriculum and performance standards	36	41	20	3
Use student performance assessment techniques	28	41	26	4
Address the needs of students with disabilities*	21	41	30	7
Integrate educational technology in the grade or subject you teach	20	37	34	9
Address the needs of students with limited English proficiency or from diverse cultural backgrounds*	20	33	30	17

* Percents are based on teachers who teach students with these characteristics
 Note: Percents are computed across each row, but may not sum to 100 because of rounding.

Source: Bernie Greene, et. al., *Teacher Quality: A Report on the Preparation and Qualifications of Public School Teachers* (Washington, D.C.: U.S. Department of Education, 1999), 48.

would have been even worse had East Asian nations participated in the two twelfth-grade tests. At the eighth-grade level, twenty nations outscored the U.S. in math, nine in science. In fourth grade, the U.S. did significantly better: only nine nations outscored our children in math at this level and just one did so in science. For some reason, U.S. performance drops precipitously after fourth grade, leaving U.S. students in the cellar by the time they reach twelfth grade. International comparisons thus find our education system seriously deficient in the areas where, not coincidentally, we have the highest percentage of out-of-field teachers at the secondary level.¹⁵

National measures of where U.S. students are relative to where we expect them to be have similar results. Over 20 percent of twelfth graders scored below "Basic" on the 1998 National Assessment of Educational Progress in reading, with "Basic" denoting "partial mastery of the knowledge and skills that are fundamental for proficient work at a given grade."¹⁶ Wide racial gaps also persist: 43 percent of black twelfth-

graders scored below "Basic," as did a woeful 64 percent of black fourth-graders. In the most recent math assessment, 31 percent of twelfth-graders scored below "Basic," as did 62 percent of black twelfth graders.¹⁷

That means that lots of U.S. children—from a fifth of an entire grade to two-thirds of an entire racial group—are not reaching levels that the nation considers even "partial mastery." Whether academically talented persons are being drawn into teaching, whether teachers know their subjects well, and whether teachers themselves feel well-prepared to handle the challenges they face are all important indicators of teacher quality. The most important of all, however, is the ultimate measure of school effectiveness: how much and how well the students are learning. Here we see that large portions of the pupil population are not achieving at levels that society has deemed necessary to survive in our high tech, knowledge-based economy. Can there be more compelling evidence of the inadequacy of our teaching force?

¹ Richard J. Murnane, et. al., *Who Will Teach? Policies that Matter* (Cambridge, Mass: Harvard University Press, 1991), 10.

² See Table 131 in Thomas D. Snyder, et. al., *Digest of Education Statistics 1997*, (Washington, D.C.: U.S. Department of Education, 1997), 135.

³ Drew H. Gitomer, Andy S. Latham, and Robert Ziomek, *The Academic Quality of Prospective Teachers: The Impact of Admissions and Licensure Testing* (Princeton, N.J.: Educational Testing Service, May 1999). Passing the Praxis I exam is not an impressive feat: in Virginia, the state with the highest cutoff scores, candidates only had to answer 70 percent of the math questions correctly in order to pass. This on a test where only 12 percent of the questions involve the use of algebra, versus 25 percent on the twelfth-grade National Assessment of Educational Progress (NAEP) math exam. Yet 44 percent of Praxis I takers nationally would fail to pass Virginia's standard. Minnesota, which sets the lowest cutoff score, only requires candidates to answer 50 percent of the test questions correctly. Ten percent of Praxis I takers nationally would fail to meet this standard. See Ruth Mitchell and Patte Barth, "How Teacher Licensing Tests Fall Short," *Thinking K-16* (Washington, D.C.: The Education Trust, 1999).

⁴ Robin R. Henke, et. al., *Out of the Lecture Hall and into the Classroom: 1992-93 College Graduates and Elementary/Secondary School Teaching* (Washington, D.C.: U.S. Department of Education, 1996), 58.

⁵ See Table 2.7 in Diane M. Wah and Dawn S. Robinson, *Examinee and Score Trends for the GRE General Test* (Princeton, NJ: Educational Testing Service, 1990), 64-65.

⁶ Murnane, et. al., 64.

⁷ *Ibid.*, 69.

⁸ *Ibid.*, 85.

⁹ Henke, et. al., 58.

¹⁰ See Barbara A. Bruschi and Richard J. Coley, *How Teachers Compare: The Prose, Document, and Quantitative Skills of America's Teachers* (Princeton, N.J.: Educational Testing Service, 1999).

¹¹ Bernie Greene, et. al., *Teacher Quality: A Report on the Preparation and Qualifications of Public School Teachers* (Washington, D.C.: U.S. Department of Education, 1999), 19.

¹² See Richard M. Ingersoll, "The Problem of Underqualified Teachers in American Secondary Schools," *Educational Researcher* 27, no. 9 (March 1999).

¹³ Greene, et. al., 12.

¹⁴ All statistics on teacher preparedness are from Greene.

¹⁵ See Harold W. Stevenson, *A TIMSS Primer* (Washington, DC: Thomas B. Fordham Foundation, 1998).

¹⁶ See Patricia L. Donahue, et. al., *NAEP 1998 Reading Report Card for the Nation and the States* (Washington, DC: US Department of Education, 1999).

¹⁷ See Clyde M. Reese, et. al., *NAEP 1996 Mathematics Report Card for the Nation and the States* (Washington, DC: US Department of Education, 1997).

Teacher Training and Licensure: A Layman's Guide

Dale Ballou and Michael Podgursky

Concern over the quality of U.S. teachers has renewed interest in the ways they are prepared and licensed. Today's most prevalent prescription for boosting teacher quality follows a regulatory approach: more clinical training, less alternative certification, more rigorous exams of pedagogical knowledge, and universal accreditation of teacher education programs. Podgursky and Ballou conclude that such policies are misguided. The knowledge base upon which the required training would be built is not scientifically grounded. Nor have the self-policing organizations of the education profession proven that they maintain rigorous criteria in assessing teacher performance. Although testing prospective teachers is popular, the choice of a cutoff score is essentially arbitrary and denies schools the opportunity to consider otherwise strong candidates. In light of these drawbacks, the authors suggest that hiring decisions should be vested in local school officials whose opportunity to assess candidates' skills is superior to that of a remote licensing agency. The best policy is to hold schools accountable for their pupils' performance while removing unnecessary encumbrances on their ability to recruit widely and hire the ablest persons they can find to teach their students.

Overview of Teacher Training and Licensure

In 1983, the National Commission on Excellence in Education issued a report on the state of American education entitled *A Nation at Risk*. This report called attention to a number of serious problems in our public schools, among them the quality of teaching.

Fifteen years later, teachers are again the focus of public attention. The continuing growth of the school-age population and the press for smaller classes, combined with the impending retirement of a substantial share of the current workforce over the coming decade, has fueled concerns about the nation's ability to staff its classrooms without a reduction in teacher quality. The National Commission on Teaching and America's Future, a private organization funded by the Carnegie and Rockefeller Foundations, has issued two well-publicized reports critical of teacher preparation, calling for a national crusade to reform it. The quality of education schools was also

at the forefront of debates surrounding reauthorization of the Higher Education Act. Amendments were offered to set specific performance targets for any teacher training program receiving federal support. In Massachusetts, 59 percent of candidates failed the state's first examination of prospective teachers in 1998. This set off an acrimonious public debate about professional standards that led to the resignation of the commissioner of education and to an ongoing debate about the role of schools of education in teacher preparation.

To teach in a public elementary or secondary school, it is normally necessary to hold a state license (often, though inaccurately, termed a certificate).¹ The purpose of the license is to assure the public that the teacher has met certain minimum standards of proficiency. Accordingly, when professional quality appears to be low, as it does today in public education, the solution seems obvious to many: raise the standards for a license. Hence the many proposals to enforce stricter licensing standards and to demand more of teachers before they are permitted to practice.

In this paper we review these proposals. The rest of this introduction comprises a brief overview of the current system of licensing and the reasons that teachers are licensed in the first place. In the second section, we take up proposals to reform teacher education. We first consider whether the training offered prospective teachers is grounded in a solid research base, as it is in professions like medicine. We then turn to specific reform proposals involving the accreditation of teacher education programs, subject matter preparation and teaching methods. We conclude that the evidence does not support many of the reforms currently underway.

In the third section, we look at an alternative approach to teacher licensure, based on testing teachers' knowledge and skill. We review the arguments for and against subject matter testing and the growing use of authentic or performance-based assessment. While teacher testing serves some valuable purposes, we conclude that imperfections in our test instruments make it unwise to give too much weight to test results in deciding who should be permitted to teach.

In the final section, we describe the role that teacher licensing should play within a broader set of policy initiatives designed to enhance school accountability.

The system of certificates and endorsements that states use is detailed and complex. Missouri, a typical state in this regard, confers certificates in 73 different subject areas and 119 vocational areas.

The Current Licensing Regime

Licensing requirements vary considerably from state to state, although some reciprocity exists between states. In most states, authority for licensing teachers and approving teacher training programs rests with the state board of education or state education agency. However, the National Education Association (NEA) has long proposed that such regulatory authority be vested in independent professional

boards whose membership is predominantly practitioners, such as those in medicine or law. NCTAF has made a similar recommendation. There has been considerable movement in this direction. Fifteen states now have such boards, with ten established since 1990.

Table 1 displays information on the variety of licensing regulations. Every state requires new teachers to hold a bachelor's degree. In some states, this degree must be earned in education from an approved teacher training program. In others, prospective teachers must complete education courses while majoring in an academic discipline such as English or history, or acquire a master's degree in education afterwards. In either case, an approved program involves a minimum number of credit hours in education courses (usually about a semester of work) plus student teaching (a second semester). Many programs have added requirements of their own to the minimum set by the state, so that it can take more than a year to satisfy all professional education requirements.

All states have some mechanism for approving teacher training programs. In professions such as medicine or law, licensure requires that the practitioner graduate from a program accredited by a recognized private professional association. For example, in order to sit for medical board exams, a medical student must be enrolled in a program accredited by the Liaison Committee on Medical Education. In education, by contrast, most state-approved teacher training programs are not accredited by the profession's dominant private accrediting group, the National Council for Accreditation of Teacher Education (NCATE). Fewer than ten states mandate NCATE

Table 1. Requirements for Initial Teaching License

Licensing Requirement	Number of States
BS/BA awarded by an accredited or state-approved institution	50
BS/BA with education major	13
BS/BA in academic discipline (e.g., history, English)	12
Required course work in pedagogy	50
Field experience/Student teaching required	39
Teacher Testing	
Basic Skills Prior to Teacher Training ^a	25
Basic Skills Prior to Certification ^a	22
Pedagogy Prior to Certification ^a	25
Subject Matter Prior to Certification ^a	22
^a Tests required of some or all applicants	

Source: National Association of State Directors of Teacher Education and Certification. *Manual on the Preparation and Certification of Educational Personnel 1998-99* (Dubuque, Iowa: Kendall/Hunt Publishing Company, 1998).

accreditation, although others have entered into arrangements whereby NCATE participates in the state's own review of its programs.

Most states also require prospective teachers to pass one or more tests before they are admitted into a teacher education program or granted a license (or both). There are four types of tests: basic skills, general knowledge, pedagogical knowledge, and content knowledge. The last focuses on subject knowledge relevant to the teacher's field (e.g., music for music teachers).

The system of certificates and endorsements that states use is detailed and complex. Missouri, a typical state in this regard, confers certificates in 73 different subject areas and 119 vocational areas.

Not surprisingly, given this complex system, it is virtually impossible for every teacher in every classroom for every hour of the day to be in compliance with all these regulations. As a consequence, every state has provisions for emergency or temporary licensure. Critics like the NCTAF allege that districts use these emergency or provisional licenses in an opportunistic way to staff their courses, covering up lax or irresponsible management and an unwillingness to raise teacher pay. Other policies have lowered entry barriers for non-traditional teachers (e.g., Teach for America, Troops to Teachers). Even so, in 1993-94, 92 percent of teachers reported that they were fully certified in their main teaching assignment.²

Why Do We License Teachers?

Occupational licensing is a policy by which the government prevents practitioners of a trade from selling their services to the public if they do not hold a license. The usual justification for this type of restriction is that licensing protects the public from incompetent or unscrupulous practitioners. In these markets, it is argued, consumers do not have the expertise to judge the quality of the services they are buying. Transactions may be infrequent, and the costs of making a mistake may be very great. Doctors and lawyers, for example, know far more about the quality of their services than the typical buyer, and mistakes can be very costly for the consumers. In this type of situation, unregulated markets work poorly or not at all. Government intervention to establish standards of minimum quality may therefore serve the public interest.

Teacher licensing is different. Parents do not buy services from teachers as they do from doctors or lawyers. Teachers are hired by school administrators, not by the public at large. These administrators ought to be expert judges of teaching ability: after all, hiring staff is one of their most important functions. Administrators are also in a good position to acquire information about the teachers they might hire—indeed, they are generally better positioned to evaluate teachers than either the

The case for licensing reform turns on whether hiring decisions will improve if administrators are constrained to offer employment only to teachers who have met the proposed licensing standards.

public or a state licensing agency. Among the information administrators rely on are college transcripts, letters of recommendation, impressions formed during interviews and sample lessons, and even classroom observations (when applicants have done student or substitute teaching in the district).

However, there is no assurance that administrators will use the information at their disposal to make good hiring decisions. The public needs to be protected from corrupt and incompetent administrators and from the pressure school boards can put on superintendents and principals to hire friends or relatives of board members. Political patronage, sheer incompetence, laziness, and bureaucratic red tape have all had adverse effects on teacher selection. By requiring districts to hire teachers who have demonstrated at least a minimum level of competence, licensing protects the public from administrators and school boards that would engage in such abuses.

Advocates of licensing reform have not quantified the amount of nepotism, corruption, incompetence, and the like in American school systems. We suspect that gross abuses are not widespread. Most administrators care about the quality of the teachers they hire. They do not knowingly prefer inferior candidates. However, hiring policies are imperfect: in particular, there is systematic evidence that school administrators do not attach enough importance to the quality of an applicant's academic record and other indicators of cognitive ability.³ Thus, while it is doubtful that the majority of administrators consciously hire inferior applicants, there is compelling evidence that many overlook valuable predictors of teaching performance and often fail to hire the best person available. The case for licensing reform turns on whether hiring decisions will improve if administrators are constrained to offer employment only to teachers who have met the proposed licensing standards.

In addition, it must be shown that licensing reform is a better way of dealing with the problem of professional quality than the alternatives. This point is particularly relevant to teacher licensing. Usually the state issues occupational licenses to practitioners who work in the private sector, selling their services to private buyers (households, firms, non-profit organizations). In public education, by contrast, both the teachers who are licensed and the licensed administrators who hire them are state employees. This raises the possibility that more direct remedies for administrative failure are available to the state, an important point to which we return in the final section. It represents another difference between teacher licensure and licensure in professions dominated by private practice, such as medicine and law.

Proposals to Reform Teacher Education

Licenses are awarded to professionals who present evidence of minimal competence. Almost always, this evidence includes proof that the practitioner has completed an approved program of study or training at an accredited institution. Policies that set standards for the training of professionals are therefore an important part of a licen-

sure system, and as we will see, reform of teacher education is a major focus of current debate about teacher licensure.

In 1986, an organization of deans of leading schools of education, the Holmes Group, issued a report calling for significant restructuring of teacher education. In the view of these deans, traditional programs completed in the course of a four-year undergraduate degree were seriously deficient. Prospective teachers, many of whom majored in education rather than an academic discipline, did not acquire sufficient command of the subjects they were to teach. The courses they took in professional education (e.g., teaching methods) lacked rigor and often failed to incorporate approaches based on up-to-date research. The Holmes Group recommended that would-be teachers complete an academic major as undergraduates and that teacher education be a post-baccalaureate program of study (as in the medical and legal professions). These post-graduate programs would involve one or two years of classroom study, followed by a year-long internship in a professional development school (analogous to a teaching hospital) where newly trained teachers would work under the supervision of expert mentor teachers.

The recommendations of the Holmes Group have been endorsed by other organizations that have been prominent advocates for licensing reform, notably the National Commission on Teaching and America's Future. In its 1996 report, the commission added a recommendation of its own: that all licensed teachers complete their preservice training in programs accredited by the National Council for Accreditation of Teacher Education (NCATE).⁴ Although NCATE does not require accredited programs to follow all the recommendations of the Holmes Group, NCATE approval would nonetheless become an enforcement mechanism to compel college administrators to upgrade underfinanced and poorly designed programs of teacher education.

In addition, the NCTAF has sought to close loopholes that permit unlicensed teachers to be hired on waivers (temporary and emergency certificates), a practice used to fill vacancies in districts that have trouble finding enough licensed instructors. The commission also opposes alternative certification (alternate route) programs that streamline entry by reducing preservice training. While nominally supportive of alternate programs for individuals making mid-career changes, the commission opposes any relaxation of requirements that would, in their view, put untrained teachers in the classroom. The model of alternative certification supported by the commission calls for spending a year in a master's program before teaching. Since this is an option that has always been available to college graduates seeking to become teachers, the commission is effectively opposed to alternate routes in all but name.

While the NCTAF claims that effective programs of teacher education equip teachers with strategies and techniques that result in high levels of student achievement, it is rather vague on what these strategies and techniques are.

The Knowledge Base for Professional Education

In the vernacular of teacher educators, the research identifying best teaching practices constitutes the profession's *knowledge base*. Drawing an explicit parallel between education and medicine, the Holmes Group and the National Commission have argued that licensing and accreditation standards should reflect the best research on what teachers need to know and do, just as medical research provides the underpinning for the training and licensing of physicians.

The following passage from the 1996 NCTAF report typifies this view.⁵

Students will not be able to achieve higher standards of learning unless teachers are prepared to teach in new ways and schools are prepared to support high-quality teaching....Teaching in ways that help diverse learners master challenging content is much more complex than teaching for rote recall or low-level basic skills. Enabling students to write and speak effectively, to solve novel problems, and to design and conduct independent research requires paying attention to learning, not just to covering the curriculum. It means engaging students in activities that help them become writers, scientists, mathematicians, and historians, in addition to learning about these topics. It means figuring out how children are learning and what they actually understand and can do in order to plan what to try next. It means understanding how children develop and knowing many different strategies for helping them learn.

Teachers who know how to do these things make a substantial difference in what children learn. Furthermore, a large body of evidence shows that the preparation teachers receive influences their ability to teach in these ways. However, many teachers do not receive the kind of preparation they need.

While the commission claims that effective programs of teacher education equip teachers with strategies and techniques that result in high levels of student achievement, this passage is rather vague on what these strategies and techniques are. Effective teachers are said to “engage students in activities” and “figure out how children learn,” but just how these things are done is not specified. Instead, numerous citations appear to a research literature that, in the commission's view, has established a knowledge base for professional education analogous to the scientific foundation for the practice of medicine.

The first citation to the literature that accompanies this passage is to an article by three prominent educators at Vanderbilt University, which contains the following assessment of the research literature.⁶

Because the research reviewed examined a broad range of teacher behaviors, and because measures of effectiveness are not specifically tied, in most cases, to those behaviors, the available evidence does not allow identification of how differences in teachers' capabilities that might be related to their preservice preparation accounted for differences in their performance. Quite clearly,

teachers learn to do some things through their education courses that might reasonably be expected to improve student achievement.

In other words, prospective teachers learn to do something in their education courses that we think helps them later, but we aren't sure just what it is. The experts cited here expressly deny that education research has identified which state-of-the-art pedagogical practices make teachers more effective in the classroom.

Although it is surprising to find this admission in a paper cited by the National Commission, those who have watched the succession of innovations coming out of the nation's schools of education will have surely anticipated this conclusion. Practices that are successful in one setting turn out not to work equally well elsewhere, for reasons which are often difficult to identify. Widely different methods sometimes succeed with similar kinds of students. The lack of a solid foundation for many pedagogical innovations is evident in the large number that turn out to be passing fads. It also hampers efforts to establish rigorous standards for teaching training and licensure. Indeed, this much is admitted by those who are closely involved in this effort, as evident in the following remarks by the president of the newly formed Teacher Education Accreditation Council, an organization that seeks to provide an alternative to NCATE.⁷

At the moment, most professional educational standards are formulated at fairly abstract levels so it has not been possible to really test and prove them. Others are quite specific and prescriptive—for example, about how teacher education should be administered and organized. These also have not been tested empirically and their opposites might work just as well.... More to the point, the current standards, upon close reading, give teacher educators little guidance on key questions—like the relative roles of phonics and calculators in reading and mathematics instruction, for example. The teaching profession does not have, despite the pronouncement of standards, a clear conception of educational malpractice. Until we do, the noble standards we enact are somewhat premature. They certainly await confirmation by further research.... We simply do not have the evidence for many standards at this time. Few standardized educational practices and innovations are grounded in solid research....

NCTAF's claims notwithstanding, there is no knowledge base for pedagogical practice comparable to that underlying medicine. Consider, for example, the findings of the process-product research carried out in the 1970s and early 1980s. Psychologists and educators involved in this effort claimed that they had at last identified what effective teachers should do. We excerpt some of these findings from an article by one of the leading researchers in this area.⁸

***NCTAF's claims
notwithstanding,
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knowledge
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Students achieve more in classes where they spend most of their time being taught or supervised by their teachers rather than working on their own or not working at all... Students learn more when their teachers' presentations are clear rather than vague or rambling.... and when they are delivered with enthusiasm.... Students also learn more when the information is well structured...and when it is sufficiently redundant and well sequenced....

Achievement is maximized when teachers structure the material by beginning with overviews, advance organizers, or reviews of objectives; outline the content and signal transitions between parts; call attention to main ideas; summarize parts of the lesson as they are completed; and review the main ideas at the end.

Some of the prescriptions in this passage are obvious (e.g., presentations should be clear rather than vague or rambling). But others suggest useful practices that might

One of the curious aspects of insisting that new teachers be trained in state-of-the-art methods is that the state of the art changes every few years.

not have occurred to a beginning teacher unaided. However, it would be a mistake to suppose that there exists a professional consensus on the behaviors described here. The teaching practices identified by the process-product research are at odds with the current enthusiasm for child-centered or discovery learning, in which students work cooperatively in groups, with the teacher playing a limited role as facilitator of students' development of their own knowledge. (More on this below.) Moreover, many of the prescriptions based on the process-product literature are very general (be organized, don't make questions too hard or too easy) and offer little guidance in concrete situations. Good teaching (as these researchers recognize) depends very much on making right choices within the broad guidelines. Often this will be a matter of applying common sense. In other situations the reasons for making one choice over another will be so subtle and context-specific (depending on the personalities of teachers and students) that effective

practice will be very hard to learn anywhere but on the job.

[T]here is reason to question whether students can learn and effectively transfer to practice all or even much of the pedagogical knowledge and skills that would be taught in extended programs. Considerable evidence exists that experienced teachers think differently about their work than do novices....

Teachers may learn some things best, such as cooperative learning strategies, once they have an experiential base upon which to build.⁹

One of the curious aspects of insisting that new teachers be trained in state-of-the-art methods is that the state of the art changes every few years. Teachers who were trained to do one thing must therefore learn to do another when the winds of education thinking change direction. Indeed, it is a commonplace among education reformers that public officials rarely provide sufficient funds to retrain teachers in new methods and new curricula, and that many reforms consequently fail to alter classroom practices. If this is truly the problem (and not that the reforms themselves

are ill-conceived), then policy ought not be so greatly concerned with making sure teachers have been trained in the latest techniques, but rather with guaranteeing that prospective teachers are flexible, open-minded, and able to learn. The focus should be on recruiting reasonably intelligent people into the profession, not on pedagogical training.

We have mentioned the possibility that reforms are ill-conceived. The weakness of the knowledge base for teacher education has allowed many bad ideas to flourish. As noted by the president of the Teacher Education Accreditation Council:

Few standardized educational practices and innovations are grounded in solid research and yet so many of them have had the support of the profession. If only because some have proven demonstrably harmful to students and their teachers, we should be cautious about standards that are based on little more than the consensus of large segments of the profession.¹⁰

Poor ideas secure a following in part because the scientific foundation for pedagogical prescriptions is weak. However, ideology also plays a large role in shaping the views of educators, as shown by the influence of the constructivist theory of learning on the teaching practices endorsed by leading schools of education. In the teaching methods inspired by this theory, teachers do not function as authoritative sources of knowledge, imparting facts and ideas directly to students. Rather, they are supposed to act as facilitators of students' discovery and production of their own knowledge. Unfortunately, this attempt to make education child-centered often means that students are deprived of the general knowledge required to make sense of the natural and social worlds. As a result, they are in no position to produce their own theories or test their own hypotheses. They show less interest in school work, particularly as they grow older, and they learn less.¹¹

The influence of the constructivist paradigm is evident in extreme versions of whole language reading instruction, wherein children are denied systematic instruction in phonics. Proponents of this method hold that, if the language environment is sufficiently rich, children will discover on their own how to decode words, or decoding itself will be supplanted by whole word recognition. As it has turned out, this is one of the areas in which education research has produced definitive guidance on pedagogical practice: children need to be given instruction in phonics. Summarizing these findings, the National Research Council has determined that reading instruction must include systematic teaching of phonics. Yet the resistance of many advocates of the whole language approach to these findings indicates that controversies of this kind will surely be repeated as teacher educators espouse pedagogical practices for ideological reasons rather than because the evidence indicates they best promote student learning. Indeed, since the measurement of student achievement is itself an ideologically charged issue, it is difficult to confront educators with factual data on learning outcomes that will persuade them to change their minds.¹²

Constructivist-inspired pedagogical approaches are not restricted to English, but have also influenced teaching practices in the hard sciences and mathematics. Guidelines issued by the National Council for Teachers of Mathematics also reflect the predilection for student-centered learning popular in schools of education. Their application in the classroom has too often resembled whole language reading instruction, in which the teacher stands by while the student tries to guess what the word is. Worse, students can easily become confused about the very nature of mathematics, as the authors of a recent study of state mathematics standards explain.¹³

[C]onstructivism, a theoretical stance common today, has led many states to advise exercises in having children discover mathematical facts, or algorithms, or strategies. Such a mode of teaching has its values, in causing students better to internalize what they have thereby learned; but wholesale application of this point of view can lead to such absurdities as classroom exercises in discovering what are really conventions and definitions, things that cannot be discovered by reason and discussion, but are arbitrary and must merely be learned.

Students are also sometimes urged to discover truths that took humanity many centuries to elucidate, the Pythagorean theorem, for example. Such discoveries are impossible in school, of course. Teachers so instructed will necessarily waste time, and end by conveying a mistaken impression of the standing of the information they must surreptitiously feed their students if the lesson is to come to closure.

Another example of pedagogical innovation driven by ideology is the use that teacher educators have made of the theory of multiple intelligences developed by Howard

The profession has not demonstrated that it can reliably weed out bad ideas over time, converging on a set of practices that represents the best of what is known about how to teach.

Gardner of the Harvard Graduate School of Education.¹⁴ This theory posits the existence of several types of human intelligence, each operating in its own distinctive domain: linguistic, logical-mathematical, spatial, bodily-kinesthetic, musical, interpersonal, and intrapersonal. This theory has been seized upon by educators eager for a more egalitarian alternative to the view that there is one general intelligence. The existence of multiple intelligences provides obvious support for teachers who believe that building student self-esteem is the key to further achievement. No student need feel smart or dumb compared to others: rather, all are intelligent in their own distinctive way. Numerous pedagogical approaches have been inspired by this theory, and many hundreds of references to Gardner's work have appeared in the education literature.

The research support for Gardner's theory is not, however, very convincing.¹⁵ Yet even if this were not the case, it is unclear what pedagogical prescriptions should be based on this view of intelligence. Some educators have argued that the school curriculum needs to be more balanced, including activities that engage each intelligence. But,

as an astute critic of this theory has written, the notion that there are eight intelligences does not imply that school should be the institution responsible for developing all of them.¹⁶ The curriculum should be based on an assessment of what students need to learn and be able to do. The desire to accommodate multiple intelligences can easily lead to situations in which important skills are de-emphasized in the name of balance.

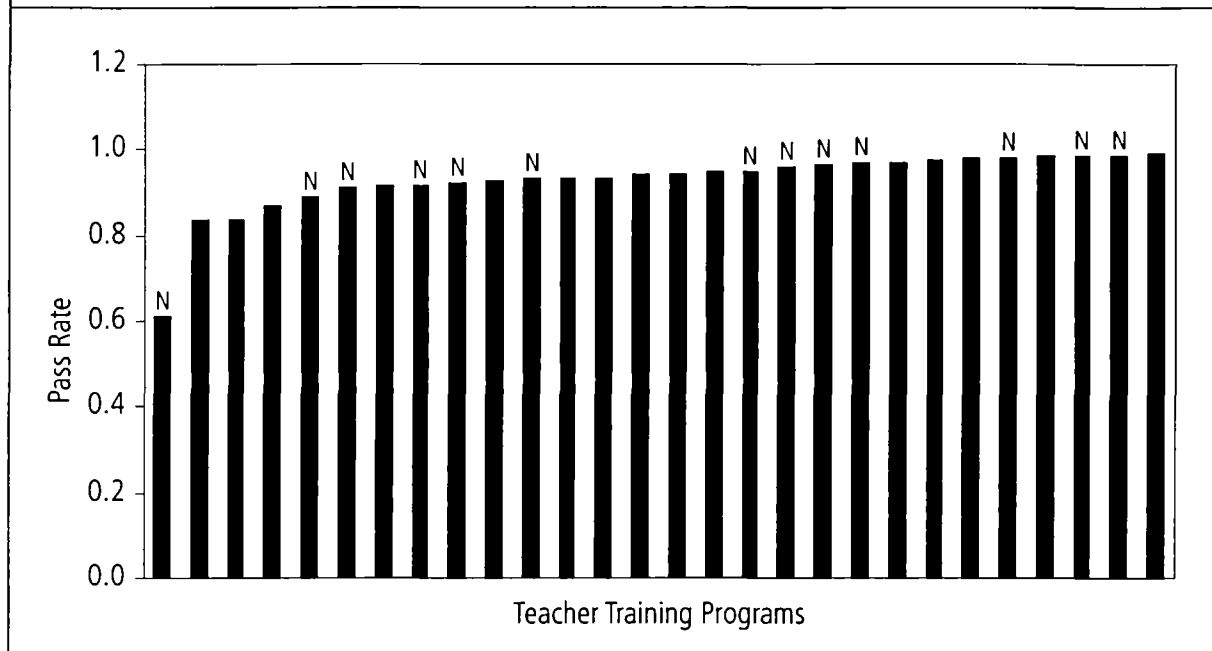
To summarize, prospective teachers are introduced to some good ideas in their education classes. They are also exposed to bad ones. The profession has not demonstrated that it can reliably weed out the bad ideas over time, converging on a set of practices that represents the best of what is known about how to teach. Thus, while it is plausible that better preservice training will improve teachers' subsequent performance, it cannot be taken for granted that teacher educators know how to make good use of an extra year of teacher preparation—if that should be required—or that they can be trusted to police themselves by accrediting programs of teacher education. This is all the clearer when we look at the activities of the National Council on Accreditation of Teacher Education (NCATE).

Accreditation of Teacher Education

NCATE bases accreditation decisions on evidence that teacher education programs have met standards concerning program content, student quality, faculty quality, and program autonomy.¹⁷ In each of these areas, the Council's efforts fall far short of ensuring that accredited programs are in fact of high quality. We focus on the first two.

Although NCATE requires that programs recruit candidates who demonstrate potential for professional success, it does not require any particular admissions test or specify a passing score. Criteria for successfully completing training are just as vague. NCATE standards require that institutions ensure the competency of their graduates before recommending them for licensure, but competency is left undefined. Instead, NCATE indicates that a program can meet this standard by assessing graduates through the use of multiple sources of data such as a culminating experience, portfolios, interviews, videotaped and observed performance in schools, standardized tests, and course grades.¹⁸ This is a requirement that program administrators use various methods of assessment, not that graduates be held to any particular standard of achievement.

The results of teacher licensing examinations indicate that student quality makes little difference to accreditation decisions. Figure 1 displays pass rates on the National Teacher Examination (NTE) for graduates of teacher training institutions in Missouri.¹⁹ Each bar represents an institution. An N above the bar denotes an NCATE-accredited program. As the figure shows, NCATE schools are to be found at the top, middle, and bottom of the distribution. Indeed, the weakest institution in the state, as measured by licensure pass rates, is NCATE-accredited.

Figure 1. Pass Rates on NTE Exams in Missouri by Institution

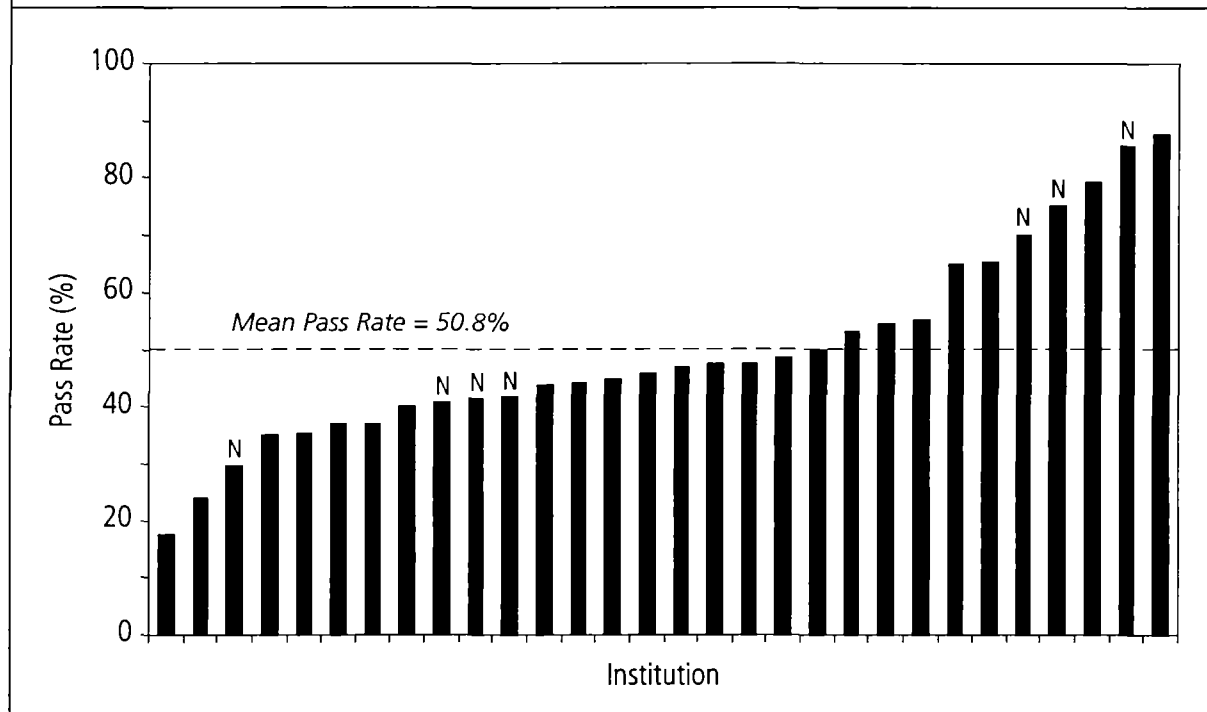
All NTE exams, 1994-95 to 1996-97. Programs with $N > 150$ tests. "N" denotes NCATE accreditation.

Figure 2 displays results for teacher licensing examinations recently administered in Massachusetts. (To improve comparability of results, we use scores on the Communications and Literacy Skills test taken by all students in each program.) As in Missouri, NCATE-accredited programs are not concentrated at the upper end of the distribution. Performance at four of the seven accredited institutions was distinctly mediocre.

Further evidence on NCATE standards comes from Pennsylvania, where there are large numbers of both accredited and non-accredited programs. Although the state would not identify the college attended by a given test-taker, it did indicate whether the institution was accredited by NCATE or not. On this basis we have plotted the (smoothed) distribution of test scores for all teachers seeking elementary certification between 1994 and 1997 in Figure 3. There is no substantial difference between the two distributions. Figure 4 presents analogous distributions for Missouri. In this case, scores from NCATE-accredited programs are distinctly inferior. Compared to the non-NCATE distribution, there are fewer NCATE test-takers in the center of the distribution and more in the left-hand tail, creating an NCATE bulge among the lowest scores.

NCATE standards for the content of professional education are also vague. Here is the council's first standard in this area.²⁰

The unit has high quality professional education programs that are derived from a conceptual framework(s) that is knowledge-based, articulated, shared,

Figure 2. Pass Rates by Teacher Training Institution: Massachusetts

Source: Massachusetts State Department of Education. Pass rates for Communications and Literacy Skills Test. All programs with at least 15 test takers. "N" denotes NCATE accreditation.

coherent, consistent with the unit and/or institutional mission, and continuously evaluated.

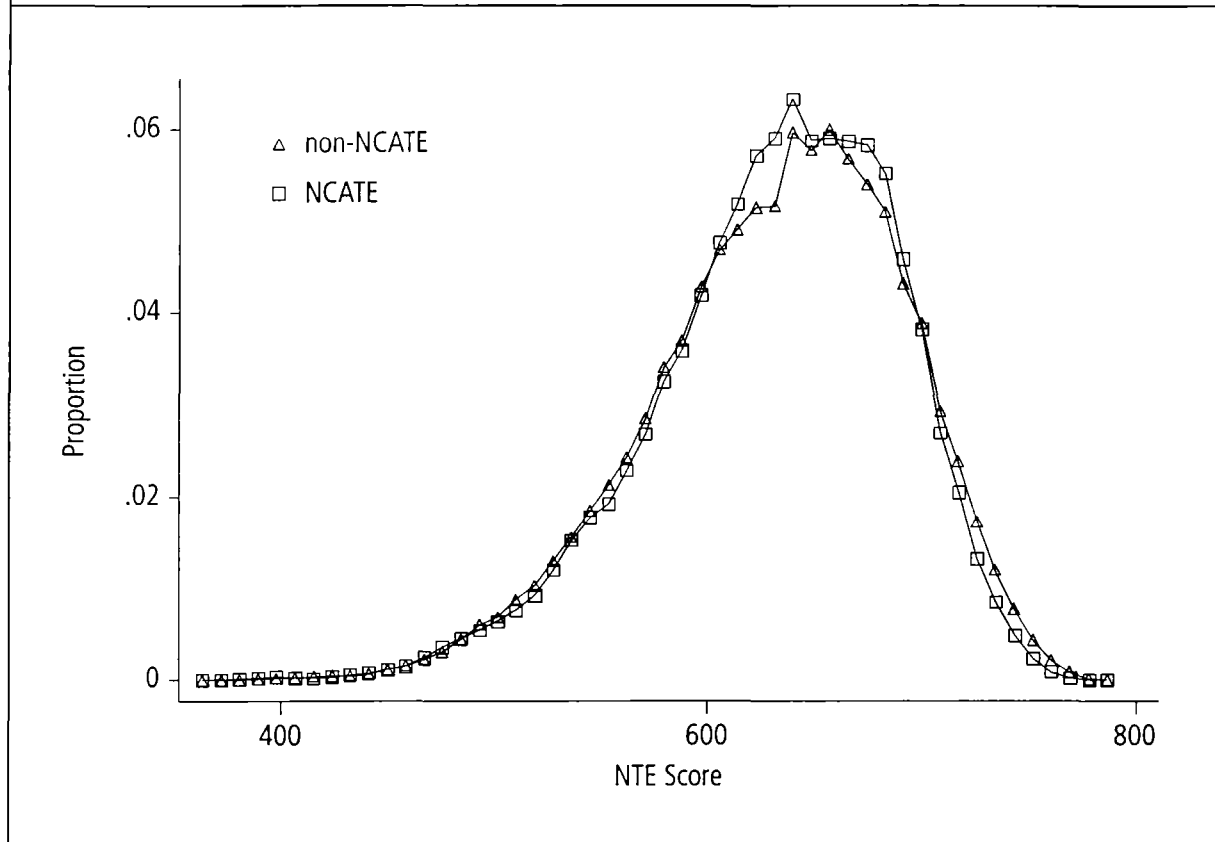
Several indicators follow that are meant to provide suggestions on how the program can meet this standard. These indicators are scarcely more precise, though some contain phrases that are code words within education circles, signaling the kind of program NCATE is apt to find acceptable. Typical of the indicators are these two:²¹

The framework(s) reflects multicultural and global perspectives which permeate all programs.

The framework(s) and knowledge bases that support each professional education program rest on established and contemporary research, the wisdom of practice, and emerging education policies and practices.

NCATE's standard on professional and pedagogical studies for initial teacher preparation is even more nebulous.²²

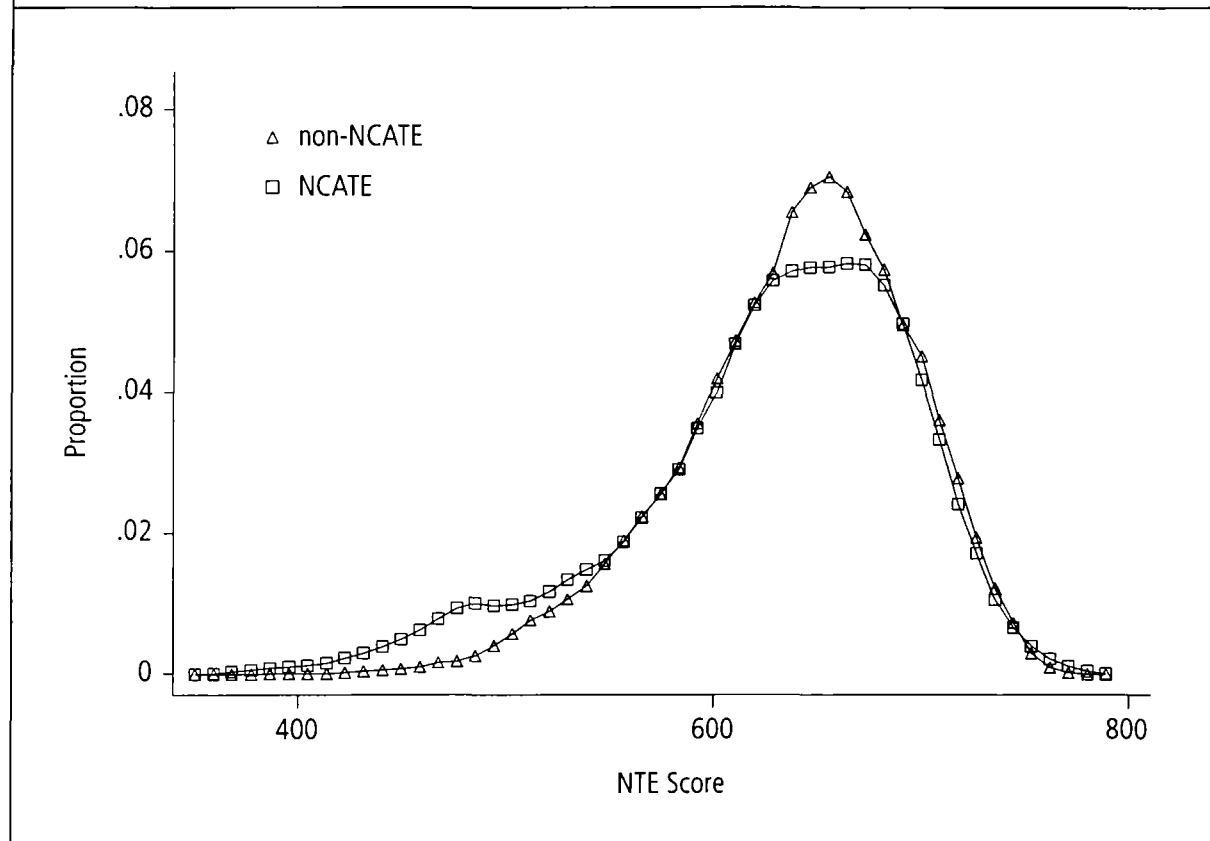
The unit ensures that teacher candidates acquire and learn to apply the professional and pedagogical knowledge and skills to become competent to work with all students.

Figure 3. Distribution of NTE Elementary Education Test Scores: Pennsylvania

Source: Pennsylvania Department of Education. Elementary Education NTE scores for 8,223 NCATE and 11,436 non-NCATE test-takers for academic years 1994-95 to 1996-97.

This is followed by indicators that this standard can be met if candidates complete studies that deal with different student approaches to learning, individual and group motivation, instructional strategies for developing critical thinking, verbal, nonverbal, and media communications for fostering active inquiry, and so forth. At no point in these standards and indicators does the council endorse *particular* strategies for developing critical thinking that it believes superior to others. Teachers are to learn how to motivate students, but the council expresses no views on which motivational techniques are best.

This inspires little confidence that institutions accredited by NCATE offer superior training. Still, it is possible to test this hypothesis. If the claim is correct, then once we control for the general academic achievement or ability of students entering a teacher-training program (inputs), performance on licensing exams (output) should be higher in NCATE than in non-NCATE institutions. We have conducted such an analysis using our sample of Missouri teachers.²³ The results fail to support the claim that graduates of NCATE-accredited institutions learn more between the start of teacher

Figure 4. Distribution of ETS Elementary Education Test Scores: Missouri

Source: Missouri Department of Elementary and Secondary Education. Elementary Education NTE scores for 3,756 NCATE and 2,723 non-NCATE test-takers for academic years 1993-94 to 1996-97.

training and their graduation. Indeed, the estimated effect of attending an accredited institution is negative, although statistically insignificant.

Scores on licensing examinations represent only one indicator of program quality. NCATE's defenders have argued that graduates of accredited programs excel in other ways. Because they are better prepared for the challenges of the classroom, they are less likely to quit during the early years of their careers, when attrition is notoriously high. It is also alleged that teachers trained in accredited programs exhibit more professionalism in their relations with students and colleagues.

Data from two surveys conducted by the U.S. Department of Education permit us to test these claims. By most measures, there is little difference between graduates of accredited and non-accredited programs.²⁴ Virtually identical percentages sought teaching jobs after graduating (Table 2). Of those who obtained a job, a substantial majority (80 percent in both groups) expressed no regret at having chosen teaching as a career, saying they would make the same choice again. More than half of both groups intended to spend their entire careers as teachers. Fewer than a fourth (and

Table 2. Comparison of New NCATE and Non-NCATE Teachers

Indicator	NCATE	Non-NCATE
Applied for a teaching job (%) ¹	92.0	90.0
Certainly or probably would become a teacher, if given the chance to start over again (%) ²	80.2	79.7
Plan to spend full career as teacher (%) ²	58.6	58.4
Sometimes feel it is a waste of time to do a good job (%) ²	24.4	18.9
Time spent after school on lesson preparation, grading, parent conferences (hrs. in the most recent week) ²	10.4	9.7
Moonlight in a non-teaching job during the school year (%) ²	13.2	12.0
Received an offer, conditional on having applied (%) ¹	82.0	84.0
Mean teaching salary ¹	\$19,843	\$20,076

¹ **Source:** *Baccalaureate and Beyond Longitudinal Study, First Follow-Up, 1993-94*. Sample restricted to certified teachers.

² **Source:** *Schools and Staffing Survey, 1993-94*. Sample restricted to persons who earned their bachelor's degrees in 1990 or later and who started teaching no earlier than 1992.

more NCATE than non-NCATE graduates) indicated that they sometimes felt it was a waste of time to do their best in the classroom. NCATE teachers spent somewhat more time during the week preceding the survey on instruction-related activities outside school (preparing lessons, grading papers, etc.). However, the difference between the two groups was not significant at conventional levels. A slightly larger proportion of NCATE teachers moonlighted during the school year, but again, the difference was not statistically significant.

In short, there is little evidence that teachers trained in NCATE-accredited schools conduct themselves more professionally, are more likely to continue teaching, or experience more satisfaction with their career choice. Perhaps more revealing, there is no evidence that those hiring new teachers think so either. The percentage of non-NCATE applicants who found a teaching job was as high as among NCATE applicants. The jobs they obtained paid as well.

Subject Matter Preparation

Both the Holmes Group and the NCTAF have recommended that teachers complete more college course work in the subjects they will teach, urging that teachers earn a major, or at least a minor, in their fields. Well-intentioned as this proposal is, the amount of subject matter preparation it would require is often excessive. For example, guidelines for NCATE accreditation prepared by the National Council of Teachers of Mathematics (NCTM) recommend that teachers of mathematics in grades 5 to 8 should understand fundamental concepts of calculus. This is a demanding requirement for someone who will be teaching arithmetic.²⁵ The council's pur-

pose is understandable: to ensure that all teachers of mathematics, at whatever level, grasp basic mathematical concepts and share an aptitude for quantitative reasoning. By requiring advanced training in the subject, the council hopes to screen out the incompetent from teaching even low level math courses, where they can do considerable damage. Yet people who haven't studied calculus can still be effective teachers of mathematics at lower levels. A better screening device would recognize this. Instead, the NCTM erects a high barrier that will exacerbate the shortage of qualified math teachers.

Ironically, this policy fails on its own terms: to ensure that teachers of mathematics (or any other subject) will have mastered the material they will be teaching. Standards in many American colleges are so low that requiring teachers to major or minor in their subjects is no guarantee that they will actually understand them. This is evident in the number of prospective teachers who cannot pass relatively low level examinations in the subjects they have studied.²⁶

Sadly, standards in higher education may fall still further if the reform of teacher licensing requires a history teacher, for example, to major in history rather than social studies education. Well-intentioned though this regulation is, it cannot ensure that prospective teachers bound by it will be as well-trained and enthusiastic about their subject as teachers who majored in history before it became a requirement. An influx of relatively weak students into courses they would not have chosen for themselves will put pressure on academic standards and may dilute the education once offered history majors.

All this said, requiring secondary school teachers to earn a major or a minor in their subjects might still make sense, if there were not a clearly superior policy that could be adopted instead: requiring teachers to pass a test of subject knowledge. We return to this issue in the next section.

Requiring secondary school teachers to earn a major or a minor in their subjects might make sense, if there were not a clearly superior policy that could be adopted instead: requiring teachers to pass a test of subject knowledge.

Training in Teaching Methods

At present, most prospective teachers complete their courses in professional education and their student teaching within the conventional four-year undergraduate degree. The Holmes Group and other proponents of reform would instead require would-be teachers to spend two to three years in post-graduate professional study and internships. As previous discussion has shown, teacher educators are by no means agreed that an extended program of this kind will significantly improve classroom practice. Additional objections have been raised by educators from liberal arts colleges, who argue that combining the study of education with the liberal arts in a traditional four-year undergraduate program offers important opportunities for intellectual synthesis and personal development.²⁷

In the states that have most actively promoted alternative certification, more than ten percent of new teachers have entered through alternate routes.

In the face of such doubts, the evidence offered to support the proposed reform is not strong. In its 1996 report the National Commission cites a study purporting to show that graduates of five-year programs are better prepared than teachers who completed teacher education within the traditional four-year degree.²⁸ The investigators followed 1,400 teachers from a consortium of eleven teacher preparation programs, seven of which had five-year programs. They found that more graduates of the five-year programs became teachers (90 percent to 80 percent) and that they remained in teaching longer. Yet differences of this kind are to be expected even if the extra year of training per se had no effect. Individuals who enroll in a five-year degree program are likely to have a stronger initial commitment to teaching for the simple reason that they will have lost an extra year if teaching turns out to be the wrong career decision. Moreover, this investment of an extra year may make them more willing to persevere even if their initial experience in the classroom is unsatisfactory. In short, while the National Commission claims that the greater success of five-year graduates demonstrates the superiority of the training they received, there is every reason to think that these groups differed before they enrolled in teacher education.

What of these teachers' performance in the classroom, a matter of presumably greater concern? The only indicator of effectiveness available to researchers was a survey completed by supervising principals. There was no statistically significant difference between the two groups in the ratings teachers received.

Many states have adopted alternative certification programs that streamline entry into the profession by reducing preservice training. In most states, private schools (and, in some, charter schools) are permitted to hire unlicensed teachers who may never have taken an education course. This makes alternative certification a valuable test case: if education courses are critically important for new teachers, teachers who come through alternative route programs but otherwise lack prior training should be demonstrably inferior to those who have graduated from teacher education programs.

Although the best way to answer this question would be to compare conventionally trained teachers to alternative teachers on the basis of student achievement, this has seldom been done. The small set of studies that exist do not afford a strong basis for generalization.²⁹ We therefore turn to other, less direct indicators.

The first of these is the fact that so many teachers without standard licenses are hired. In the states that have most actively promoted alternative certification, more than ten percent of new teachers have entered through alternate routes. (In New Jersey, which has done the most, the share has ranged from 23 to 40 percent.) This kind of evidence may seem to beg the question, of course: such patterns of hiring