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Recruiting, Preparing and Retaining High Quality Teachers: An Empirical Synthesis

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Executive Summary

Background: Teacher Supply and Demand

Quality education rests largely on finding and keeping good teachers. Yet, many teachers leave the profession, whether because of frustration with the system or planned retirements. There is reason to believe that a teaching shortage will exist during the next six years as the teachers' pool ages and K-12 enrollments increase.

In addition to retirements, staffing difficulties are associated with inadequate salaries, student discipline, student motivation, and in high poverty urban schools, lack of opportunities for advancement and environments perceived as unsafe.

Further complicating the matter of teacher supply and demand are factors such as the reduction in class sizes, a federal requirement for "highly qualified" teachers, the trend toward reduced teacher autonomy, and the pressures associated with high-stakes testing.

High Quality Teachers

Arguments persist over how to define the characteristics of a good teacher. For example, it is not clear that a person's content knowledge, verbal skills, or enthusiasm for learning, necessarily mark a person as likely to be a "successful" teacher.

Moreover, the appropriate indicators of quality might well depend on the circumstances and the context of the teaching.

Methods used to measure quality are similarly controversial. The most frequently used indicators of teacher quality are imprecise. There are, for example, many ways of defining "content knowledge." Compounding the problem is that some of the indicators used to signify complex phenomena, such as "student achievement," are inadequate. Student achievement may be defined in a variety of ways and many forces that affect student achievement lie outside the control of the school.

The complexity of teaching and the long list of possible indicators of quality suggest that there should be no single model of teacher preparation.

Recruiting, Preparing and Retaining High Quality Teachers

Among the approaches currently used to recruit teachers are improved salaries, community college programs, and outreach to students in high school to encourage them to pursue teaching as a career.

It has also been suggested that fewer state-specific certification laws would facilitate teacher transfers and the reentry of those returning after an absence from the profession. Offering sign-up bonuses and forgivable loans, as well as portable seniority guarantees can increase the attractiveness of the teaching profession. Wider collaboration between community colleges and Colleges of Education would facilitate the entrance of minority students into the profession.

Arguments continue about matters such as whether certified teachers do better than "under-certified" teachers; the importance of verbal skills; the role of salary levels in

attracting and retaining teachers; the assignment of higher priority to retention of teachers, and the use of mentoring as a means of encouraging new teachers, especially in urban schools.

Recommendations

Teacher Recruitment

- Salaries matter—Colleges of Education should be strong and consistent advocates for adequate teacher salaries.
- Colleges of Education at four-year institutions of higher education should seek to establish collaborative programs with community colleges to recruit new teachers. Community colleges are preparing an increasing proportion of teachers and they enroll a large number of minority students. Four-year institutions, on the other hand, have expertise and connections not found in the community college environment. Partnerships would prove mutually beneficial.
- Colleges of Education should establish programs to encourage high school students to consider careers as teachers.

Teacher Preparation

- Colleges of Education should seek to develop training programs that reflect complex models of teacher quality. Research clearly shows that teaching cannot be reduced to a few indicators of quality that transcend all situational variations.
- Colleges of Education should seek to develop programs that will ease the transition from the lecture hall to the classroom. Such programs might well

include beginning teacher induction programs that match new teachers with experienced ones.

Teacher Retention

- Colleges of Education should, in collaboration with school districts, develop programs to improve the retention of existing teachers. Reducing turnover of existing teachers would greatly reduce the difficulties in finding new teachers. In the short term, this may be the single most effective strategy for reducing the need for new teachers.

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Background: Teacher Supply and Demand

The Governor's Task Force on Efficiency and Accountability in K-12 Education, in a December 2001 report, put the problem this way: "Many of the teachers and administrators in Arizona's K-12 public education system are talented, hardworking, and dedicated professionals. However, they are trapped in a system that is failing them. It is one that neither rewards excellence nor penalizes failure."[1]

While the report's rhetoric is stark, Arizona's K-12 public school system in fact does not rank well in comparison with those of other states. In the Morgan Quitno Press rankings of states on 21 education indicators, Arizona's overall ranking is 44th.[2] On average class size, it ranked 50th. On the indicator, "Percent of public school teachers who stated that routine duties and paperwork interfere with their job," Arizona ranked 49th.[3]

Few would argue that an essential part of improving the quality of education in Arizona is the recruitment, preparation, and retention of high quality teachers.

This report addresses the key issues the literature indicates bear on improving the teacher corps.

A Teacher Shortage: Looming or Not?

Current discussions about teacher quality take place in an environment of uncertainty about teacher supply and demand. In recent years, many media articles have referred to a looming national teacher shortage, said to be produced by the confluence of an increasing number of students and an aging teacher pool. More recently, though, Secretary of Education Rod Paige contended that the approaching shortage is "contrived."[4]

Whether or not one believes there is likely to be a national teacher shortage depends to a large extent on the interpretation given a widely circulated analysis by economist William Hussar. *Predicting the Need for Newly Hired Teachers in the United States to 2008-2009* concludes that more than two million new hires will be required between now and the 2008-2009 school year.[5] The media and some researchers have interpreted "new hires" to mean "new entrants."[6] [7]

Hussar's paper, however, defines "new hires" as ***both*** new entrants ***and*** teachers returning after an absence. Moreover, it should be noted that the paper's model "does not analyze the issue of supply related to demand of teachers. Instead, it is assumed that there will be enough supply to meet demand, which reflects historical precedent."[8]

Even so, the distribution of public school teachers' ages displayed in Hussar's paper shows the modal age as 46, with the largest proportion between 35 and 52. Moreover, this distribution is from the 1993-1994 school year, and thus would now have shifted considerably towards the older end of the spectrum despite an influx of new teachers. More importantly, there are trends and forces, discussed below, that could prove Hussar's "historical precedent" assumption false. In January 2003, the Morrison

Institute for Public Policy released *Is There A Teacher Shortage? Teacher Demand and Supply in Arizona.* According to the author, while the supply of teachers in Arizona slightly exceeds the demand, in critical areas such as special education, however, there are shortages.

Teacher Turnover vs. Teacher Shortage

Richard Ingersoll of the University of Pennsylvania has challenged the theory that teacher retirements will produce a shortage.[9] Ingersoll confirms increases in both student numbers and in teacher retirements, but contends that these are not the principal reasons for staffing difficulties. He argues that difficulty in finding staff has more to do with inadequate salaries, student discipline, student motivation, and, in high poverty urban schools, poor opportunities for advancement and unsafe environments.

In Ingersoll's study, pregnancy, child rearing, health problems, and family moves all account for more teacher turnover than retirement. It is this "revolving door" of people moving in and out of the teaching profession that accounts for his finding, nationally, that by the end of five years only 61 percent of teachers will still be in place.[10]

Ingersoll concludes that reducing turnover would improve teacher availability more than would increasing the supply. It is worth noting that the teachers made available by reducing turnover would be experienced teachers, not novices, and research indicates that teacher experience is important in student achievement.[11] [12]

Ingersoll found that small private schools suffered the most turnover, 22.8 percent per year, compared to 13.2 percent for public schools (of the 13.2 percent only 6 percent actually left teaching).[13] Those who argue that public schools lack incentives for

performance (e.g., Dale Ballou and Michael Podgursky[14] or Eric Hanushek[15]), often claim private schools are superior in this regard because they can offer differentiated salary schedules. Ingersoll's study, however, indicates that such differentiation doesn't act as an incentive to stay.

Seventy-nine percent of those moving from small private schools to other schools listed salary as their principal reason, as did 73 percent of those from small private schools who left the teaching profession. By contrast, only 25 percent of teachers leaving small private schools for other schools and 34 percent of those leaving the teaching profession altogether mentioned not having adequate administrative support.[16]

Influences on Teacher Supply and Demand

As noted earlier, Hussar assumes that supply will meet demand. There are, however, a number of forces and trends that could affect whether there is to be a teacher shortage or an adequate supply of teachers. Examples include:

1. ***The Elementary and Secondary Education Act of 2001 (ESEA, widely known as the No Child Left Behind Act).*** ESEA requires that any teacher hired after the start of the 2002-2003 school year must be "highly qualified," and all teachers must be "highly qualified" by 2005-2006. By "highly qualified," ESEA means those who hold at least a bachelor's degree, have full state certification in the areas in which they are teaching (or have passed the state's licensing exam), and who have not had any certification requirements waived on "an emergency, provisional, or temporary basis."[17]

If strictly enforced, this provision will reduce supply, especially in cities. Chicago, for example, estimates that 25 percent of its teachers in its lowest performing schools do not meet this requirement. In Los Angeles, the figure is 23 percent.[18] Baltimore puts the number at 33 percent.[19] Secretary of Education Paige, while upholding the "highly qualified" requirement, has called for reductions in state certification requirements and for alternative routes to certification to help states meet the requirement. Assistant Secretary of Education Susan Neuman has also declared the Department of Education's intent to enforce the requirement firmly: "The previous administration was waiving this and waiving that. This administration is serious. We don't intend to waive any requirements [of ESEA]."[20]

2. ***Pressure to Reduce Teacher Autonomy.*** Currently, people who enter teaching report that they enjoy having flexibility, being creative and being able to respond to specific needs of individual children.[21] The policies of the U. S. Department of Education, ESEA requirements, and the increasing number of privately managed schools could all diminish this autonomy.

Tom G. Carroll, Executive Director of the National Commission on Teaching and America's Future, argues that to insure high quality teachers in classrooms, teachers must be given even more control over instructional decisions.[22] By contrast, the U.S. Department of Education has concluded that high quality teachers are largely those who have high verbal ability and strong content knowledge.[23] A number of instructional programs favored by the Department of Education are tightly scripted and leave little room for teacher

creativity. Indeed, Assistant Secretary Neuman has declared that the proper implementation of ESEA "will stifle and hopefully kill [creative teaching]." [24]

Private, for-profit corporations such as Edison Schools, Inc., and Chancellor Beacon Academies, Inc., use scripted curricula that leave little opportunity for teacher spontaneity. A person who is excited by the promise of autonomy and creativity is not likely to find following a script very rewarding. Private companies currently enroll only a small fraction of all students, but the number of schools they manage is increasing. In Michigan, for example, the percent of charter schools managed by private corporations grew rapidly from 16 percent in 1986 to 71 percent in 2000 and has since climbed to 75 percent.[25] [26]

It is worth noting that a similar trend to reduce teachers' decision-making power occurred in the 1960s when the nation reviewed science and other education after the Soviet Union launched Sputnik in 1957. The United States then undertook a massive curriculum reform effort in which curriculum developers attempted to construct materials that would directly speak to the student and bypass teachers. The goal was to construct materials that were "teacher proof." It is not clear that a teacher-proof curriculum is pedagogically desirable.

One small study suggests that new and experienced teachers perceive reductions in autonomy differently. Virginia's Standards of Learning (SOL) program is not a script, but it does prescribe what must be taught. Experienced teachers contended that "all [post-SOL] instruction reflects something that is *less*: less flexibility, less freedom, less critical thinking, less hands-on activity."

Teachers with two years of experience or fewer saw the SOL as providing continuity and opportunities for collaboration—since all were teaching the same material.[27]

While it is not clear that reducing teacher autonomy will negatively affect the supply of teachers or change the type of person attracted to teaching, the impact of reduced teacher autonomy deserves careful study.

3. ***High-Stakes Testing.*** In recent years, testing has taken on important roles beyond its traditional purpose of monitoring achievement. It now often influences or determines such "high-stakes" outcomes as high school graduation eligibility, retention in grade, and required attendance at summer school. Some states also maintain test-based rewards and punishments for teachers, administrators, and districts.

   Although some of the evidence is anecdotal, it suggests that the pressures of high-stakes testing are forcing some teachers to retire or leave the profession earlier than they would have otherwise. In New York State, a formal study found substantial numbers of teachers requesting transfers from grade four, the first grade where the state imposes high-stakes tests.[28]

   Many states have implemented high-stakes testing programs that carry sanctions for teachers whose children do not score well. In addition, ESEA increases both the amount and consequences of testing. It requires states to test all children annually in reading and math in grades three through eight. Testing in science will be added in two years. At the time ESEA became law, only nine states had testing programs large enough to satisfy the Act's testing mandate.[29]

The law contains requirements for schools to make "Adequate Yearly Progress" (AYP) on these tests. Schools (and districts) that fail to make AYP are subject to increasingly severe sanctions. Pressures from and anxiety about these sanctions might increase transfers or turnovers.

4. ***Trend to Smaller Classes.*** Research indicates that smaller classes yield increased achievement, especially for poor and minority students.[30] [31] As a consequence, some states and some districts have moved to mandate smaller classes in the early grades. The impact of smaller classes on teacher supply and teacher quality is not clear.

   Early reports from the California class size reduction evaluation, and anecdotal evidence from Los Angeles and other cities, suggested that class size reduction may have the effect of drawing qualified teachers out of inner city classrooms to teach in the suburbs. The summary of evidence in the final evaluation report, however, does not support that conclusion.

   It is also not known the extent to which the possibility of teaching smaller classes may promote retention of current teachers, attract teachers out of retirement, or increase the attractiveness of teaching as a career choice.[32]

Summary

Quality education rests largely on finding and keeping good teachers. Yet, many teachers leave the profession, whether because of frustration with the system or planned retirements. There is reason to believe that a teaching shortage will exist during the next six years as the teachers' pool ages and K-12 enrollments increase.

In addition to retirements, staffing difficulties are associated with inadequate salaries, student discipline, student motivation, and, in high poverty urban schools, lack of opportunities for advancement and environments that are perceived as unsafe.

Further complicating the matter of teacher supply and demand are factors such as the ESEA requirement for "highly qualified" teachers, the trend toward reduced teacher autonomy, the pressures associated with high-stakes testing, and class size reduction programs.

Indicators of Teacher Quality

Statements indicating the importance of teacher quality abound: "Good teaching matters."[33] "Good Teaching Matters…A Lot."[34] "The difference in education quality relates to the quality of the teacher."[35] "Research has found teacher quality to be a key determinant of student success."[36] How good teaching reveals itself, though, is a matter of considerable controversy.

A number of indicators[37] such as the following have been used to indicate teacher quality:

- Highest degree held,
- Highest degree held in field of teaching assignment,

- Content knowledge (usually indicated by degrees, but occasionally via test scores),
- Willingness to participate in ongoing professional development,
- Competitiveness or prestige of college attended,
- Certification(s) by state,
- Certification by the National Board of Professional Teaching Standards,
- Passage of state or national test such as the National Teachers Examination or Praxis,
- Verbal ability,
- Grade point average,
- Rank in graduating class,
- Peer and/or principal evaluations,
- Student performance,
- Value added—a specific variant of student performance (the increased achievement attained by students of a particular teacher, usually in the form of standardized test scores),
- Ratings from interviews.

These indicators gauge individual teacher quality. Some may be aggregated so as to indicate quality in a school, district, or state; for instance, the percent of teachers with a master's degree or the percent of fully certified teachers. None of these indicators, however, is wholly satisfactory. The lore of education is replete with stories of how a single teacher, not the general quality of a school's faculty, transformed someone's life. Richard Rothstein has observed that whether a child takes an Advanced Placement course

in the eleventh grade might depend as much on his or her first grade teacher as the tenth grade teacher.[38] Aggregations of statistics cannot capture such phenomena and, therefore, risk pushing policy makers that use them into ill-considered decisions.

Problems in Measuring Teacher Quality

Some indicators of teacher quality are controversial. For instance, Bracey,[39] Kohn,[40] Sacks,[41] and Popham[42] all contend that scores from standardized tests, be they gain scores or scores from a single test, are inappropriate to judge teacher quality. One of the most common methods for determining the "value-added" by teachers analyzes student gains on standardized tests.

However, psychometricians have repeatedly pointed out that gains in test scores tend to be unreliable[43] and recent research indicates that year-to-year changes in test scores at the school level are themselves volatile and mostly unrelated to what took place in the classroom.[44] [45] Critical, but generally more positive, reviews of tests as evaluative tools can be found in publications of the National Research Council.[46]

Of most concern might be that none of the individual measures reflects the complexity of teaching. As William Glasser has written, "What parents, administrators, school board members, politicians, education reporters, and teacher educators misunderstand is that being an effective teacher may be the most difficult of all jobs in our society."[47] Glasser advanced this view because teaching is context dependent and requires teachers to be aware of and maneuver among a large number of variables that affect the performance of students in their classrooms.

Richard Murnane, for example, suggested that a teacher's enthusiasm for learning, a quality not captured in any formal measure, might contribute to increased achievement on the part of children.[48] Finally, teachers in different settings may need different characteristics. Martin Haberman has compiled a set of such personal qualities he argues urban teachers of poor children require over and above any content or pedagogical knowledge.[49]

How teachers are assigned to classes and courses further complicates the measurement of quality. In some districts, transferring teachers must be placed before new teachers can be assigned. In some districts budgetary uncertainty holds up the whole process. Teachers are assigned from patronage or by reputation or because the principal has,[50] for example, a full-time music teacher but only three music classes.[51]

Defining Teacher "Success"

Understanding teacher quality is also difficult because the definition of what constitutes "success" in teaching is a matter of dispute. Most research on teacher quality has presumed a traditional teacher-led class of lecture, discussion, and testing. There are, however, other models of successful teaching. For example the CPB/Annenberg video series, "Minds of Our Own," presents the case for hands-on learning in contrast to "teacher talk."[52] One segment presents a veteran physics teacher, who by all usual accounts is "successful."

In the videotape the teacher lectures and gives demonstrations, then tests with paper and pencil. The tape reveals that some of his students have fundamental misconceptions of the nature of electricity that his instructional technique prevents him

from seeing, misconceptions revealed only when students engage in hands-on manipulation of electrical currents. Researchers at the Wisconsin Center for Education Reform have also argued for hands-on learning, especially for science because scientific concepts are often counter-intuitive to children's every-day experience. The power of their everyday experience makes children's misconceptions difficult to change by lectures and demonstrations alone.[53]

The Role of Content Knowledge

In a speech on the release of the report, *Meeting the Highly Qualified Teachers Challenge*, Secretary of Education Paige announced, "We now have concrete evidence that smart teachers with solid content knowledge have the greatest effect on student achievement."[54]

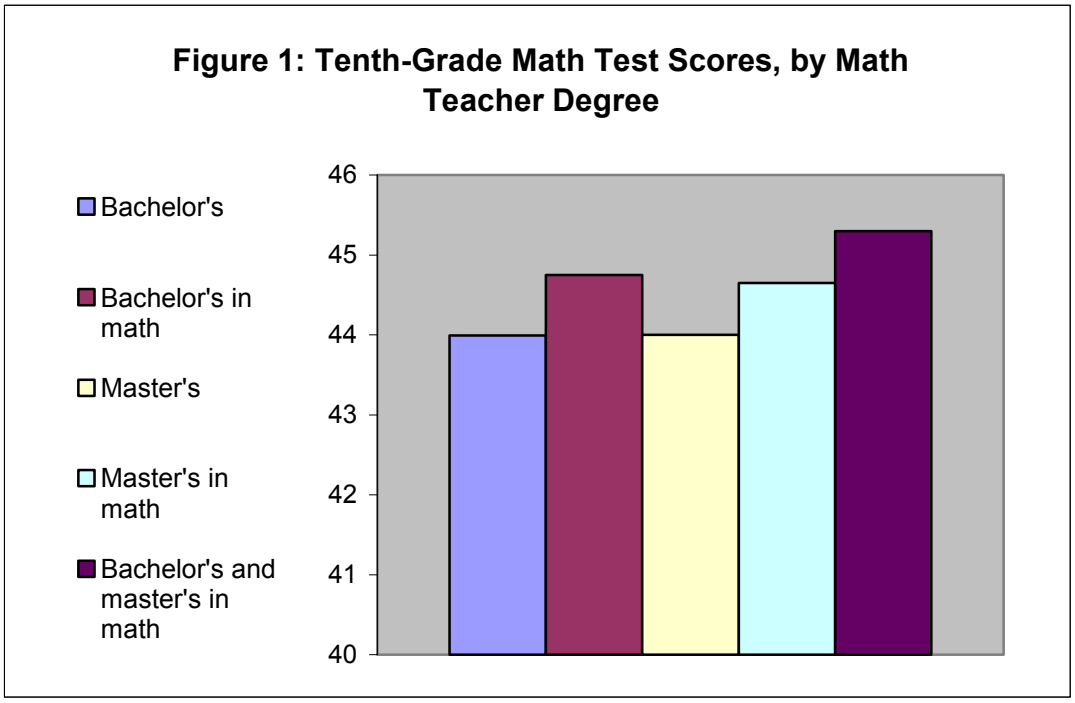
Research on the importance of content knowledge has, however, produced inconsistent findings when "content knowledge" is defined by test scores. Gene Glass and Linda Darling-Hammond both reviewed teacher characteristics and concluded that paper and pencil tests generally are poor predictors of teacher success.[55] [56]

The Bush Administration contends that pedagogical coursework is ineffective and has urged Colleges of Education to reduce or eliminate courses in how to teach. The administration contends that the focus should instead be on content knowledge. Researchers infer content knowledge in a variety of ways. David Monk found that the number of courses taken in mathematics and science mattered, but with diminishing returns above a certain threshold, such as five courses of college math.[57] He also found,

however, that courses in pedagogy affected student achievement, sometimes more than content courses.

The importance of content knowledge, as defined by degrees held, was analyzed by Dan Goldhaber and Dominic Brewer.[58] Starting with eighth grade test data from the National Education Longitudinal Study of 1988, they were able to determine if students taught by teachers with advanced degrees gained more when tested as 10th graders.

Overall, Goldhaber and Brewer found that teachers with a master's degree didn't influence achievement more than teachers with a bachelor's degree (99 percent of American teachers have at least a bachelor's). Because there are many paths towards a master's degree, they refined their analysis to look at degrees by subject matter. They found no bachelor's-master's differences for teachers holding degrees in English and history. For science, they found a small difference, seven tenths of one item, favoring children taught by a teacher with a bachelor's in science rather than a bachelor's in something else. They did not report results for teachers with master's degrees in science. Goldhaber and Brewer give attention to "the subject in which teacher training was found to be most important—math."[59] They acknowledge, though, that even for math "the improvement is relatively small." The various outcomes are shown in Figure 1.



Source: ***Phi Delta Kappan*****, October 1998, p. 137.**

The largest difference is between those who have a non-math bachelor's and those who hold both a bachelor's and a master's in mathematics (columns 1 and 5). On the test, 1-4 test questions answered correctly separate those with non-math bachelor's degrees from those who hold bachelor and master's degrees in math. The difference between a non-math bachelor's and a math bachelor's is about .7 test questions (columns 1 and 2). The difference between having a bachelor's in math and both a bachelor's and a master's in math is about .5 test questions (columns 2 and 5). Oddly, those with a non-math bachelor's but a master's in math don't produce as great achievement as those with a bachelor's in math, albeit the difference is tiny (columns 2 and 4).

The Goldhaber and Brewer findings are limited to results at the eighth and tenth grades based on one relatively short test (40 questions) that covers predominantly arithmetic. If the research included the upper grades where students are taking advanced mathematics, the teachers' content knowledge and degree attainments might have been found to be more important.

Summary

Arguments persist over how to define the characteristics of a good teacher. It is not clear that a person's content knowledge, verbal skills, or enthusiasm for learning necessarily mark a person as likely to be a "successful" teacher. Moreover, the appropriate indicators of quality might well depend on the circumstances and the context in which a person teaches. Different contexts might require different personal qualities to be successful.

Methods used to measure quality are similarly controversial. The most frequently used indicators of teacher quality are imprecise. There are, for example, many ways of defining "content knowledge." Compounding the problem is that some of the indicators used to signify complex phenomena, such as "student achievement," are inadequate. Student achievement may be defined in a variety of ways and many forces that affect student achievement lie outside the control of the school.

The complexity of teaching and the long list of possible indicators of quality suggest that there should be no single model of teacher preparation.

Recruiting, Preparing and Retaining High Quality Teachers

Recruiting Qualified Teachers

What Matters Most, issued in 1996 by the National Commission on Teaching and America's Future (NCTAF), outlined what teacher preparation should stress to build a more qualified teacher corps:[60]

- Stronger disciplinary preparation that incorporates an understanding of a discipline's core concepts, structure, and tools of inquiry as a foundation for subject matter pedagogy,
- Greater focus on learning and development, including strategies for responding to different developmental stages and pathways for learning,
- More knowledge about curriculum and assessment design as a basis for analyzing and responding to student learning,
- Greater understanding of how to help special-needs students and address learning differences and disabilities,
- Multicultural competence for working in a range of settings with diverse learners.
- Preparation for collaboration with colleagues and parents,
- Technological skills for supporting student learning and professional learning in the Information Age,
- Strong emphasis on reflection and inquiry as means to continually evaluate and improve teaching.

The NCTAF recommendations are quite consistent with the characteristics of high quality teachers described by Arizona's Teacher Education Partnership Commission in 2002.[61]

The Role of Teacher Certification in Teacher Preparation

The NCTAF, and the nation's largest certification organization, the National Council for the Accreditation of Teacher Education (NCATE), hold that these aspects of teacher preparation should be integral parts of teacher certification. Linda Darling-Hammond, Executive Director of NCTAF, and Arthur Wise, Executive Director of NCATE, have argued that teachers should be certified, and have contended that a sizable body of research concludes that certified teachers are more effective than uncertified, emergency certified, or provisionally certified teachers. They argue that a certification process is essential, but that the bureaucracy of certification should be reduced and that certificates should be portable across states.

Interstate certification itself would trim some bureaucratic procedures. One third of "new hires" each year are actually teachers returning to the field after some period of absence or teachers switching schools, districts, or states. Teachers are often looking for new positions in a new state. (Ingersoll, noted earlier, found more turnover from moves than from retirement.) They are often stymied by state-specific certification laws that require them to take courses or pass tests, or both, to obtain certification in their new venue.

Massachusetts, for example, will certify teachers from other states only after they have passed the Massachusetts teacher competency test. This is not merely a bureaucratic hurdle. One study has already found that the Massachusetts test does not predict future success.[62] In a review of predictors of teaching success, Gene V Glass found that written tests generally have little or no predictive value.[63]

Critique of Certification as Part of the Preparation Process

In 2001 the Abell Foundation of Baltimore, Md., released a report, *Teacher Certification Reconsidered: Stumbling for Quality,* a report challenging the necessity and even the utility of certification.[64] *Stumbling for Quality* claims that certification largely serves the self-interests of colleges of education and organizations like NCATE and NCTAF. It asserts, "Certification is an inhospitable process, deterring from entering public school teaching many capable individuals who possess the most powerful attribute identified for raising student achievement,"[65]

According to *Stumbling for Quality*, that "most powerful attribute" of successful teachers is verbal ability, usually defined as scores on a vocabulary test or the SAT. The report also argues, however, that attendance at a prestigious university is itself a measure of verbal ability. This loose definition of verbal ability is problematic. For example, even the most selective colleges and universities admit students with a wide range of scores on college admissions tests, such as the SAT and ACT. Elite institutions of higher education also take many variables other than test scores into account in admissions decisions. Large public universities show even larger variability in SAT and ACT scores.

Stumbling for Quality also identifies on-the-job experience as important. It admits formal preparation is a factor, but suggests it is more important after the teachers have been hired. The report largely dismisses the body of research used to support the importance of certification as being unscientific, unsound, and selectively used and interpreted, arguing that "the field is still flooded with research that is flawed, sloppy, aged, and sometimes academically dishonest."[66]

Stumbling for Quality supports alternative routes to certification. It recommends eliminating coursework requirements for certification, moving teacher qualification and selection decisions to the district level, reporting the verbal ability scores of teachers in each district, and relying on induction and professional development programs for people once hired.[67]

Not surprisingly, *Stumbling for Quality* is controversial and its findings contested.[68] [69]

Certified vs. Uncertified Teachers: A Recent Comparison

A 2002 study bears on the issue of whether or not certification produces higher quality teachers, quality in this instance being defined by student achievement.[70] Ildiko Laczko-Kerr and David Berliner studied 109 pairs of recently hired teachers from five low-income districts in Arizona. The pairs and the districts were matched on a number of educational and demographic characteristics. Test results from the SAT-9 showed that students taught by teachers the study designated as "under-certified"—those with emergency, temporary or provisional certification—showed less growth than students taught by teachers with regular certification.

One sub-group of under-certified teachers, those entering classrooms through the popular alternative teacher induction program, Teach for America, did no better than other under-certified teachers. The study's conclusions would be more forceful had the researchers been able to match for initial student achievement as well as teacher characteristics, but, even so, it is strongly suggests that teacher certification matters.

Are Teachers' Verbal Skills Adequate?

The Abell report has given considerable visibility to the criterion of "verbal ability." It is, therefore, worth considering the verbal abilities of teachers. It has often been said that those who go into teaching have less verbal ability than those headed for other fields. For many years, this contention hung on a single datum: the SAT verbal scores of high school students who said they intended to become teachers were lower than those who planned to major in most (but not all) other fields.

For this contention to be necessarily true, all high school seniors who stated their intent to become teachers would have to follow through and no one could enter teaching from other majors. Neither of these logically necessary outcomes pertains. Many students switch majors and most teachers come to the profession through subject matter fields.

A 1996 study by the U. S. Department of Education confirmed that college students who prepared to be teachers were more likely to score in the bottom quarter of SAT takers than those who were preparing for a different career and less likely to score in the upper quarter. Fifty-three percent of the teachers-to-be did score in the middle two quarter where, nationally, 50 percent of the students would score.[71]

The results were somewhat different for actual teachers. Some 28.6 percent of secondary teachers scored in the top quarter while 22 percent scored in the bottom. For elementary teachers, 11.7 percent scored in the top quarter with 31.5 percent scoring in the bottom quarter.

Another test of teacher abilities, this time measured by achievement in college, was conducted by John Lee. Using a large national database,[72] Lee examined numerous

variables, the most germane of which here was the grade point average of students at the end of their sophomore year—that is, before education majors began to take education school courses, which allegedly award too many high grades. The average GPA of students intending to major in education was 2.88, while those headed for other majors was 2.87. [73]

In a different approach to evaluating teachers' verbal skills, Barbara Bruschi and Richard Coley at Educational Testing Service examined data from the National Adult Literacy Survey for teachers and other professionals. They found that, "On average, teachers perform as well as other college educated adults across all three literacy scales [prose, document, and quantitative]. Teachers with four-year degrees perform similarly to others with four-year degrees, and teachers with graduate studies or degrees perform at a comparable level to other adults with graduate studies or degrees."[74]

Taken together, these studies suggest that teachers have sufficient verbal skills to carry out their jobs

The Role of Teacher Pay in Teacher Recruitment and Retention

While reformers devote considerable attention to making teaching more attractive and intrinsically rewarding—and thereby increasing the probability of retaining teachers—extrinsic rewards are important, too. According to the American Federation of Teachers, the average teacher's annual salary in the United States in 2000-2001 was $43,250. Among states, salaries ranged from a high of $53,507 in Connecticut to a low of $30,265 in South Dakota. Arizona ranked thirty-fifth with an average salary of

$36,502 [75] (estimates from the National Education Association give the Arizona figure as $36,302, with a ranking of 38th).[76]

The American Federation of Teachers (AFT) figures place the average starting salary for new teachers just under $29,000 in 2000, while that for new college graduates in other fields was $42,712. June Gordon found money one of two large factors in why so few Asian-Americans become teachers; their families encourage them to enter occupations that offer greater pecuniary rewards.[77] [78] One survey of teachers' thinking about leaving teaching found that dissatisfaction with salary was the leading reason given for their thoughts.[79]

Teacher Pay and Urban Schools

To the extent money plays a role, it might well handicap those who need strong teachers most: poor, minority, and low achieving students in urban areas. An analysis of teacher retention and movement in New York found that teachers who left these areas had stronger credentials than those who stayed (they went to more competitive colleges, were less likely to have failed a teacher competency test, were more likely to be certified in all teaching assignments, and were less likely to be uncertified in any).

The teachers, who left but stayed in teaching, went to districts with less poverty and fewer minority students. They received average increases in salary from $4,800 in the state overall to $7,500 in New York City. Teachers who taught in high poverty, high minority, and low achieving schools also had lower starting salaries than those who were in non-poor schools.[80]

An inference from this study is that increasing teachers' starting salaries in poor and low achieving schools might keep stronger teachers in these schools. This inference led New York City to increase starting salaries for 2002-2003 to $39,000, up $7,000 from the previous year. Experienced teachers started as high as $61,000. In addition, both the city and the state added bonuses for those willing to work in difficult schools: $3,400 from the state, 15 percent over base pay from the city.[81] Whether these increases actually improve teacher retention rates will not be known for several years.

State Efforts to Improve Teacher Salaries

In Arizona, the Governor's Task Force on Efficiency and Accountability in K-12 Education addressed the salary issue in 2001. One recommendation says simply, "Teachers' pay must be increased substantially."[82] It also recommends a pay-for-performance bonus system that is linked to student achievement and that withholds bonuses or increases in base pay for teachers and administrators "whose students consistently under perform." It is non-specific about how such a system would work. It recommends that teachers be involved in both the plan of their professional development and the construction of instruments that will be used to evaluate them.[83]

Like Arizona, many other states are aware of the state-by-state salary discrepancies reported by the AFT and are moving to make the extrinsic rewards of teaching more comparable to those of other occupations. In the 2000 legislative session, 426 bills in 41 states were proposed to address recruitment issues.[84] A variety of incentives emerged. California, for example, provides tuition tax credits, bonuses for NBPTS certification, forgiveness of loans, supplemental retirement accounts, and funding

to raise beginning teacher salaries to $34,000. A separate program offers $20,000 in fellowships competitively awarded to 1,000 candidates who earn credentials and who agree to teach in a low performing school for four years.[85]

Maryland offers $1,000 signing bonuses for students in the top ten percent of their graduating classes. Virginia has a scholarship loan program that makes part-time as well as full-time students eligible and which supports students interested in teaching in either high poverty schools, or in discipline areas with actual shortages (typically mathematics, science, and special education). [86]

While such incentive programs benefit teachers in one state they can act to the detriment of teacher recruitment in another. Teachers, for example, appear to be emigrating from Oklahoma to Texas, which has higher salaries.[87]

In addition to raising salaries, some states are trying to attract students to teaching at an earlier age and to recruit teachers from non-traditional sources. According to Hirsch, Koppich and Knapp, 12 states have programs to get high school students thinking about careers as teachers. Six other states have similar programs in community colleges. A number of states have also passed laws, which permit retired teachers to return to teaching and not suffer any retirement benefits loss. In other programs, retired teachers work part-time and get paid at the full-time rate for a beginning teacher.[88]

Needed: A Focus on Retention

Whether or not these new incentive programs increase the ability of schools to retain qualified teachers is an empirical question not yet answerable. Ingersoll's study suggests that they may be misguided because they focus more on recruitment than

retention. In accord with Ingersoll's findings, Jennifer Cuthbertson observed as she left teaching, "Programs exist to lure people to the teaching profession, but few exist to encourage us to stay."[89]

Cuthbertson's experience applies generally. To date, considerably more attention has been paid to recruiting teachers than to establishing ongoing programs of professional development or to removing incompetent teachers. Even less attention has been paid to teacher preparation. According to the Center for the Study of Teaching and Policy, "The research base concerning teacher preparation is relatively thin."[90] Programs that recruit on the basis of money incentives and high college achievement could fail to achieve any long-term goals unless programs also pay attention to the preparation of teachers for teaching and to on-the-job professional development.

Mentoring New Teachers

David Hasselkorn, president of Recruiting New Teachers, Inc., has observed, "Teaching is not just about a command of subject matter. It's also about understanding how children learn, being able to connect with them, and knowing how to organize curriculum, instruction, and the classroom so that the children *can* learn…And that doesn't always come with an undergraduate credential or a track record of success in another career."[91]

Hasselkorn favors induction programs that link novices with experienced mentors. He also contends that many of the people best qualified to cope with urban school settings are already there as aides or other support staff. He favors programs such as the Dewitt Wallace-Reader's Digest Foundation's Pathways to Teaching program which

recruits such aides and provides them with the preparation and training they need for full teacher certification. Without regulatory accommodations, these programs will be threatened by the "highly qualified teachers" requirements of the Elementary and Secondary Education Act of 2001.

Once hired, removing teachers from the classroom is difficult. To make dismissal easier, a few states, such as Oregon and Georgia, have eliminated tenure. According to Hirsch, Koppich, and Knapp, though, "While teacher dismissal has remained a state policy concern, less attention has been paid to the larger issue—developing and implementing more comprehensive teacher evaluation policies and procedures."[92]

Employing a Diverse Teaching Staff

Recruitment and retention are of special concern in connection with hiring minority teachers. A search of the Internet using terms such as "Hispanic teachers" or "African-American teachers" yields hundreds of media stories across the nation, with headlines such as "Number of Latino Teachers Lags Behind Latino Enrollment"[93] or "Few Black Teachers in Nation's Classrooms."[94] U. S. Department of Education statistics reveal that for the school year 1999-2000 African-Americans made up 17 percent of the nation's K-12 students, but only seven percent of the teachers, while Hispanics constituted 15 percent of students and only 4 percent of the teachers. Four percent of the students are Asian as are 1 percent of the teachers.

In California, Latinos[95] make up 41 percent of the students, but only 12 percent of the teachers.[96] Education demographer, Harold Hodgkinson states that 40 percent of pre-school age children are non-white.[97] Another demographer, William H. Frey, has found

that 69 percent of the nation's foreign-born residents are in six states: California, Florida, Illinois, New Jersey, and New York.[98] [99] Arizona ranked eighth in gains of foreign-born residents between 1990 and 2000, after the six named states and Georgia.[100] Among urban areas, Phoenix has the largest proportion of Hispanics at 25.1 percent, double the average for all 276 metropolitan areas.[101]

Why Teacher Diversity Matters

Do these teacher-student ethnic disparities matter? If it is presumed that the principal determinant of teacher quality is verbal ability or terminal degree, the answer is no (with one exception—Hispanics are less likely to have a master's degree). But it is in the realm of matching teacher characteristics to student characteristics for minority students that one most often encounters arguments for the importance of cultural and personal characteristics.

From the cultural standpoint, some such as Lisa Delpit and John Ogbu have argued that if students bring one culture into the classroom and the teachers bring another, there might well be lack of understanding if not actual conflict.[102] [103] A report from the Tomas Rivera Center found that having Latino teachers in Latino classrooms was correlated with increased academic achievement.[104] Latino teachers were also less likely to place Latino students in remedial programs and more likely to put them in gifted programs.[105] Martin Haberman finds similar outcomes for African American students.[106]

Other research indicates that white teachers are more likely to perceive minority students as having low ability. The teachers consequently lower their aspirations for these students.[107]

Recruiting for Diversity

How then to recruit and retain teachers of color? Gandara and Maxwell-Jolly suggest sign-up bonuses and forgivable loans, portable seniority guarantees, and an active campaign within the university to direct its graduates of color to schools with students of color. They also recommend teacher preparation programs that begin in the community colleges rather than the four-year institutions.[108] In this, they echo Haberman.

Haberman observed that 54 percent of Hispanics and 45 percent of African-Americans enrolled in any post-secondary programs were in community colleges. He also contended that these institutions had been the most successful for helping these minorities make the transition from high school to college and would thus seem a natural place for programs to develop them as teachers.[109] A 2002 report emphasizes the role of community colleges in teacher preparation generally, and especially to close what it refers to as "the diversity gap."[110]

Several researchers suggest that the most likely candidates for urban-minority teaching positions are older than the typical college student, and likely to be already working successfully in the schools in some para-professional position. They can relate to the students and know what they're getting into.[111]

The importance of qualities other than "verbal ability" can be seen in the case of teacher Jaime Escalante. Escalante, the model for the lead role in the movie, "Stand and Deliver," succeeded in teaching calculus to large numbers of Hispanic high school students in Los Angeles. When he moved to Sacramento, Escalante enjoyed much less success both in the numbers who took his courses and in their successes on the calculus

Advanced Placement tests. One reason appears to be that in Los Angeles he sometimes used a gruff Spanish as a motivational tool.

In Sacramento, his students are almost equally divided among Hispanics, African-Americans, whites, and Asians and his culture-based device, is not available to him.[112] Gandara and Maxwell-Jolly frame the ethnic-match issue this way:

> While there is no body of research that concludes that teachers of the same ethnicity or social background necessarily produce superior academic outcomes for ethnic minority students, a substantial literature indicates the positive influences of teachers on students with whom they share a common background. [113]

"Star Teachers of Children in Poverty"

According to Martin Haberman, recruiting more teachers for high-poverty, high-minority schools is not sufficient, nor will learning content and standard pedagogy by themselves make them successful. Teaching in city schools is a tough job requiring special characteristics. Over a long career, Haberman has developed what he refers to as "Dimensions of Effective Teaching," which are attributes of those mostly urban school teachers Haberman refers to as "Star teachers of children in poverty."

These dimensions include persistence; generating the desire to learn in others; taking responsibility for the learning of at-risk students; forming generalizations from specific acts; taking a professional rather than personal approach to the classroom;

knowing what they must do to satisfy the school system and avoid burnout, and an awareness that teachers and students alike make serious errors.[114]

Haberman asserts these dimensions can be assessed by the structured interview protocol he has developed. Other important characteristics he has observed in teachers that have never lent themselves to discovery through interviews. These include organizational ability, physical/emotional stamina, a disposition to coaching rather than direct instruction, and an emphasis on student effort rather than ability.

Summary

Among the approaches currently used to recruit teachers are improved salaries, bonuses for teaching in high-poverty schools or in areas of shortages, community college programs, and outreach to students in high school to encourage them to pursue teaching as a career.

It has also been suggested that fewer state-specific certification laws would facilitate teacher transfers and the reentry of those returning after an absence from the profession. Offering teachers sign-up bonuses and forgivable loans, as well as portable seniority guarantees might enhance the attractiveness of the teaching profession. Wider collaboration between community colleges and Colleges of Education would facilitate the entrance of minority students into the profession.

Arguments continue on whether certified teachers do better than "under-certified" teachers—those with emergency, temporary, or provisional certification; the importance of verbal skills; the role of salary levels in getting and keeping teachers; the assignment

of greater priority to retention of teachers, and using mentoring as a means of encouraging new teachers, especially in urban schools.

Recommendations

Taken as a whole, the evidence contained in the literature suggests the following recommendations:

Teacher Recruitment

- Salaries matter—Colleges of Education should be strong and consistent advocates for adequate teacher salaries.
- Colleges of Education at four-year institutions of higher education should seek to establish collaborative programs with community colleges to recruit new teachers. Community colleges are preparing an increasing proportion of teachers and they enroll a large number of minority students. Four-year institutions, on the other hand, have expertise and connections not found in the community college environment. Partnerships would prove mutually beneficial.
- Colleges of Education should establish programs to encourage high school students to consider careers as teachers.

Teacher Preparation

- Colleges of Education should seek to develop training programs that reflect complex models of teacher quality. Research clearly shows that teaching cannot be reduced to a few indicators of quality that transcend all situational variations.

- Colleges of Education should seek to develop programs that will ease the transition from the lecture hall to the classroom. Such programs might well include beginning teacher induction programs that match new teachers with experienced ones.

Teacher Retention

- Colleges of Education should, in collaboration with school districts, develop programs to improve the retention of existing teachers. Reducing turnover of existing teachers would greatly reduce the difficulties in finding new teachers. In the short term, this may be the single most effective strategy for reducing the need for new teachers.

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