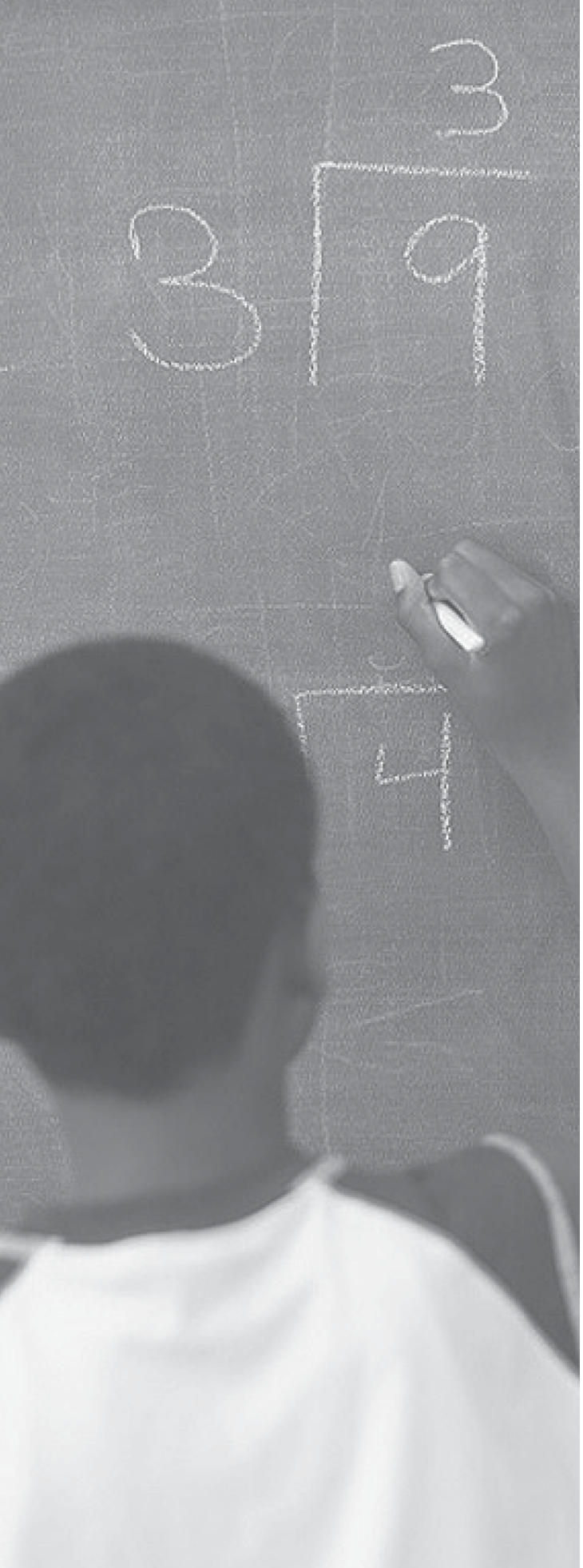

Teaching Inequality

How Poor and Minority Students Are Shortchanged on Teacher Quality

A Report and Recommendations by the Education Trust

By Heather G. Peske and Kati Haycock

Next month, for the first time, leaders in every state must deliver to the Secretary of Education their plans for ensuring that low-income and minority students in their states are not taught disproportionately by inexperienced, out-of-field, or uncertified teachers.

For many, this process will be the first step in helping the citizens of their states to understand a fundamental, but painful truth: Poor and minority children don't underachieve in school just because they often enter behind; but, also because the schools that are supposed to serve them actually *shortchange* them in the one resource they most need to reach their potential – high-quality teachers. Research has shown that when it comes to the distribution of the best teachers, poor and minority students do not get their fair share.

Two years ago, with support from the Chicago-based Joyce Foundation, three states—Ohio, Illinois and Wisconsin—and their three biggest school systems—Cleveland, Chicago and Milwaukee—set out with the Education Trust to tackle this very problem. Together, teams of stakeholders in each jurisdiction collected data on teacher distribution and identified patterns. In every case, they found large differences between the qualifications of teachers in the highest-poverty and highest-minority schools and teachers serving in schools with few minority and low-income students. The teams then analyzed the information to determine possible reasons for the patterns, and came up with strategies to achieve a fairer distribution.

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The Education Trust

This report draws from their experiences in an effort to help other states and cities as they prepare their own action plans. The report:

- Describes teacher distribution patterns nationally, along with selected findings in these pilot states and districts;
- Summarizes evidence about how differences in teacher quality affect student achievement, especially among low-income students, students of color and low-achieving students of all races;
- Explains the requirement in No Child Left Behind that all groups of children receive their fair share of strong teachers;
- Shares key lessons from the pilot states and districts that may be useful to other states and districts as they move to address the problem of teacher distribution; and,
- Sets forth a range of strategies that can be used to address this problem — some from the stakeholder groups in the pilot states and districts, and others from the Education Trust.

Not all of these lessons and recommendations will be applicable in every state and district; but together, we hope they will provide a useful foundation for much-needed conversations and action on this problem.

The Distribution of Teacher Quality in the U.S.

Every year, a large number of children enter school substantially behind. Sometimes that's because of poverty. Sometimes it's because they speak a language other than English. Sometimes there are other issues. But regardless of the reason, many children – especially low-income and minority children – are entering the classroom without the knowledge and skills they need to succeed.

Unfortunately, rather than organizing our educational system to pair these children with our most expert teachers, who can help "catch them up" with their more advantaged peers, we actually do just the opposite. The very children who most need strong teachers are assigned, on average, to teachers with less experience, less education, and less skill than those who teach other children.

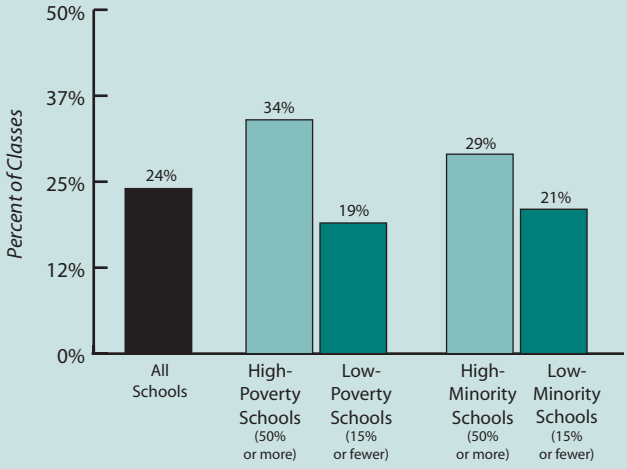
Certainly, there are fine, dedicated teachers who have devoted their lives to low-income and minority children, but they are the exception. Overall, the patterns are unequivocal. Regardless of how teacher quality is measured, poor and minority children get fewer than their fair share of high-quality teachers.

For example, despite clear evidence that brand-new teachers are not as effective as they will eventually become, students in high-poverty and high-minority schools are disproportionately assigned to teachers who are new to the profession. Children in the highest-poverty schools are assigned to novice teachers almost twice as often as children in low-poverty schools.[1] Similarly, students in high-minority schools are assigned to novice teachers at twice the rate as students in schools without many minority students.[2]

Students in high-poverty and high-minority schools also are shortchanged when it comes to getting teachers with a strong background in the subjects they are teaching. Classes in high-poverty and high-minority secondary schools are more likely to be taught by "out-of-field teachers" – those without a major or minor in the subject they teach. (See Figure 1).

In high-poverty secondary schools, more

Figure 1. More Classes in High-Poverty, High-Minority Secondary Schools Are Taught By Out-of-Field Teachers*

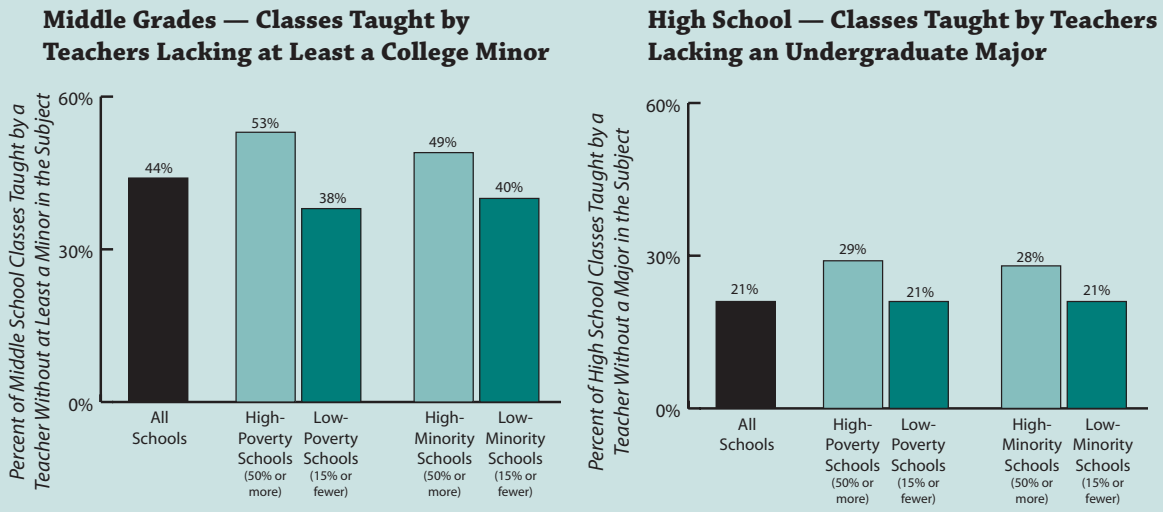


* Teachers lacking a college major or minor in the field. Data for secondary-level core academic classes.

Source: Reported in *All Talk, No Action: Putting an End to Out-of-Field Teaching*, Craig D. Jerald, The Education Trust. 2002

than one in three core academic classes are taught by out-of-field teachers, compared to about one in five classes in low-poverty schools.[3] When it comes to minority students, the same pattern persists. In secondary schools serving the most minority students, almost one in three classes are assigned to an out-of-field teacher compared to about one in five in low-minority schools. Importantly, these are teachers without a college major or *minor* – by most accounts, a low-bar in terms of demonstrating knowledge of content (See Figure 2).

Figure 2.



NOTE: Figures are for core academic courses only.

Source: Reported in *All Talk, No Action: Putting an End to Out-of-Field Teaching*, Craig D. Jerald, The Education Trust. 2002

Given the importance of math skills to work and citizenship in the 21st century, we might expect to see more attention to ensuring that math teachers have a strong grounding in their subject and that they are fairly distributed. Instead, the opposite is the case; there is more out-of-field teaching overall and more inequality. Nearly half of the math classes in both high-poverty high schools and high-minority high schools are taught by teachers who don't have a college major or minor in math or a math-related field, such as math education, physics, or engineering.[4]

The situation in grades five through eight is even worse. In high-poverty and high-minority middle schools, about 70 percent of math classes – seven out of every 10 classes – are taught by a teacher who does not even have a college *minor* in math or a math-related field.

Of course, teacher quality cannot be measured only by years of experience and knowledge of basic skills and subject matter. At some time in our lives, almost all of us have heard about a brand-new teacher who was remarkable or a veteran teacher who was ineffective. And nobody who has spent much time in higher education would argue that deep knowledge of subject matter necessarily translates into quality teaching.

But substantial bodies of research show that these proxies for teacher effectiveness, though imperfect, do matter to teachers' ability to produce student learning. So when all of the proxies tilt one way – *away* from low-income and minority students – what we have is a system of distributing teacher quality that produces exactly the opposite of what fairness would dictate and what we need to close achievement gaps. This system, quite simply, enlarges achievement gaps.

The Distribution of Teacher Quality: A Look at How These Patterns Play Out in Three States

Three Midwest states (Illinois, Ohio, and Wisconsin) and three school districts (Chicago, Cleveland, and Milwaukee) organized teams, in collaboration with Education Trust, to examine the distribution of teachers in their schools and propose solutions. Teams included state and district officials, plus union representatives, business leaders, researchers, and community groups. Each team used multiple, research-based indicators of teacher quality, depending on available data. The stakeholder teams sought to understand who taught whom in which schools in their districts. Every one of the teams uncovered inequities. The full reports from the teams, with recommendations tailored to each site, will be released by the states and districts later this summer. Here we highlight some of the selected findings from the research.

Figure 3. Highest-Poverty and Highest-Minority Schools in Wisconsin Are More Likely to Be Assigned Novice Teachers (<3 Years)

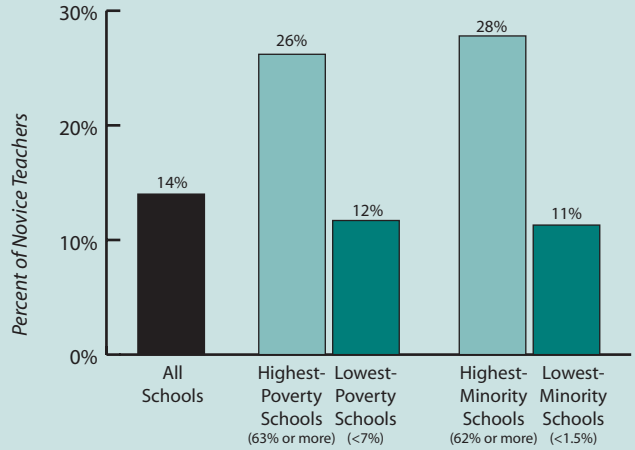
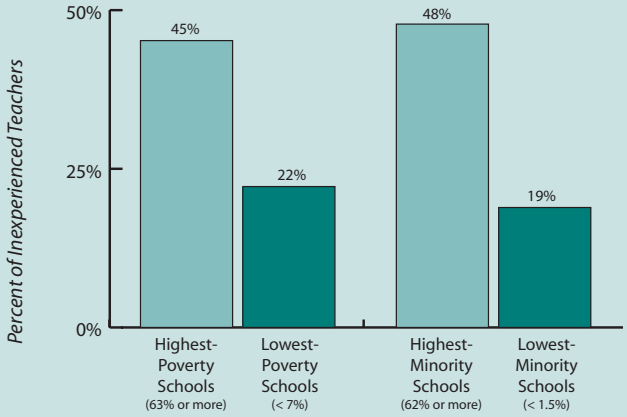


Figure 4. Highest-Poverty and Highest-Minority Schools in Wisconsin Are More Likely to Be Assigned Inexperienced Teachers (≤5 Years)



Source: Teacher Distribution Project: Wisconsin. April 5, 2006.

How Teacher Experience Is Distributed in Wisconsin

In Wisconsin, just as in the national data, students of color and students growing up in poverty are disproportionately assigned to novice teachers.

Statewide, one in seven teachers (14 percent) had fewer than three years of teaching experience. But in the highest-minority schools,[6] that figure rises to about one in four teachers, compared to about one in 10 in the lowest-minority schools. The imbalances were similar in high- and low-poverty schools (See Figure 3).

When the Wisconsin stakeholder committee expanded its definitions to include teachers with five years of experience or less, the results were even more staggering. Almost one out of every two teachers in the highest-minority schools had less than five years of experience, compared with only one in five in the lowest-minority schools (See Figure 4).

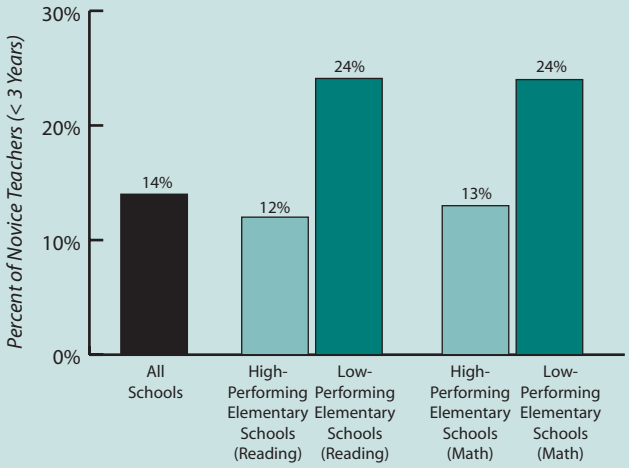
Curious about the relationship between teacher experience and school achievement, the Wisconsin committee also analyzed staffing at schools that are ranked high or low by the state's accountability system. The group found significant differences: Schools that were low performers had approximately twice the percentage of novice teachers as high-performing schools (See Figure 5).

In Milwaukee, Wisconsin's largest city, the stakeholder committee conducted an analysis of the distribution of teacher experience *within* the district.

As in the rest of the state, experienced teachers in Milwaukee are more likely to be teaching in schools

with fewer low-income and minority students. In the highest-poverty schools in the district, 40 percent of the teachers had five years or fewer of experience, compared to the least-poor schools where 25 percent of the teachers were inexperienced. Similarly, in the schools with the most minority students, teachers who had five years or less of experience made up 40 percent of the faculty, compared to schools with fewer minority students, where 26 percent of the teachers were inexperienced.[7]

Figure 5. More Novice Teachers in Low-Performing Wisconsin Elementary Schools



NOTE: Low-performing in reading is 70.2% proficient or lower; high-performing is 96.2% or higher. Low-performing in math is 57% proficient or lower; high-performing is 92.9% or higher.

Source: Teacher Distribution Project: Wisconsin. April 5, 2006.

Schools serving the most English-language learners also had more inexperienced teachers than other schools. In schools where almost half of the students were English-language learners (45 percent), nearly half of the teachers had five or fewer years of experience, compared to the schools with the fewest English-language learners (15 percent or fewer), where 35 percent had five or fewer years of experience.

How Highly Qualified Status is Distributed in Ohio

Participating states and districts also looked at other teacher characteristics. For example, the Ohio team looked at the distribution of highly qualified teachers in the state.[8]

The committee found that highly qualified teachers in Ohio are more likely to be teaching in schools with less poverty, fewer students of color, and in schools with higher achievement. In elementary schools with the highest-minority enrollments, about one in eight teachers is not highly qualified, which may not seem alarming until you see that in low-minority elementary schools only one in 50 teachers is not highly qualified. Similarly, in the highest-poverty elementary schools, one in eight teachers is not highly qualified, while in lowest-poverty elementary schools, only one in 67 doesn't meet the highly qualified criteria.

The problem worsens in Ohio's middle and high schools. In the highest-poverty and highest-

Figure 6. High-Poverty Middle Schools in Ohio Have Fewer Highly Qualified Teachers

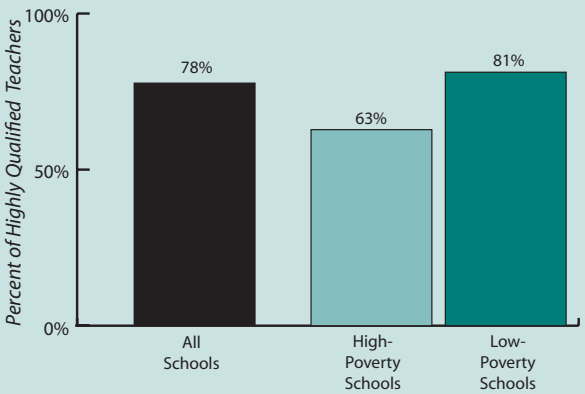
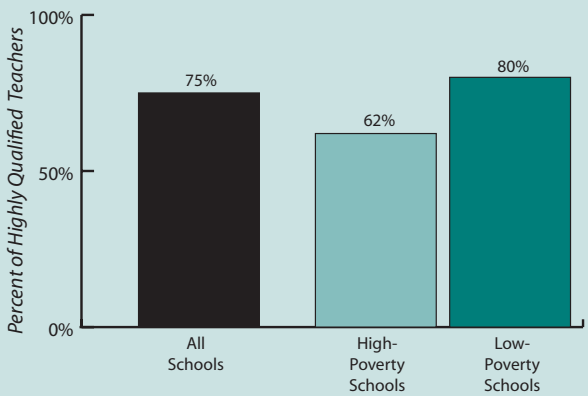


Figure 7. High-Poverty High Schools in Ohio Have Fewer Highly Qualified Teachers



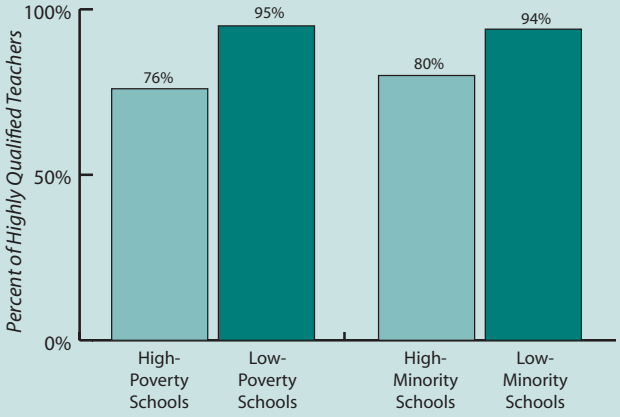
Source: Ohio Department of Education. Key Findings from the Ohio Distribution of Teacher Characteristics Study. September 23, 2005.

minority secondary schools, nearly four out of 10 teachers are not highly qualified, about double the rate for the lowest-poverty and lowest-minority schools (See Figure 6 & 7).

In high school math – one of the most critical content areas for students' academic success – there are large gaps in teacher qualifications. In the highest-poverty high schools, nearly one in four math teachers was not highly qualified, compared to one in 20 in the lowest-poverty high schools. Similarly, in the highest-minority high schools, one in five math teachers was not highly qualified, compared to one in 16 in the lowest-minority schools (See Figure 8).

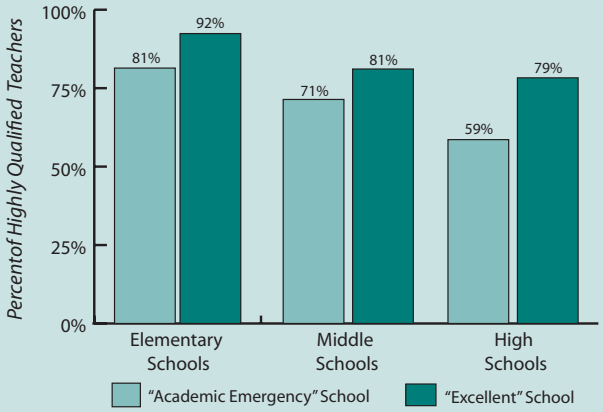
The stakeholder committee in Ohio, as in Wisconsin, was interested in any relationship between the percentage of highly qualified teachers and school performance in the state's accountability system. Not surprisingly, at all school levels — elementary, middle, and high – where there were proportionally fewer highly qualified teachers, the schools were lower performing. (See Figure 9)

Figure 8. High School Math Classes in Ohio



Source: Ohio Department of Education. Key Findings from the Ohio Distribution of Teacher Characteristics Study. September 23, 2005.

Figure 9. Fewer Highly Qualified Teachers in Ohio's Low-Performing Elementary, Middle and High Schools



Source: Ohio Department of Education. Key Findings from the Ohio Distribution of Teacher Characteristics Study. September 23, 2005.

How Teachers' Basic Academic Skills are Distributed in Chicago

Some of the state and district stakeholder groups were interested in examining measures of teachers' basic skills, especially their verbal skills, because of considerable research that suggests that these are important in teacher effectiveness. But only one district – Chicago – had data that enabled the stakeholder team to get a handle on something close: failure on teacher licensure exams.[9]

In their analysis of this measure, the Chicago team discovered a similar pattern for other measures. In short, teachers in the highest-poverty schools and highest-minority schools in the district were much more likely to have failed the test of basic skills than teachers in the schools serving fewer poor or minority students. In the highest-poverty schools in the district, one in eight teachers had failed the exam at least once — twice the rate of teachers in low-poverty schools.

The Chicago Sun-Times identified this same problem in 2001, when it found that in schools with the fewest White students, teachers were five times more likely to have failed at least one test and 23 times more likely to have failed five or more tests than teachers in schools with the most White students.[10]

Combining Measures for a Look at the Distribution of Teacher Quality in Illinois

Of course, none of these indicators in isolation guarantee teacher quality, much less provide an adequate measure of a teacher's actual ability to take students to needed levels of achievement.

Theoretically, teachers could be weak on one measure, but strong on others, just as schools weak on one measure could be strong on others. Available research suggests otherwise. "Even though it is feasible that some schools have less skilled teachers as measured in one dimension, while others have less skilled

teachers as measured by another dimension, this is generally not the case," say Lankford, Loeb and Wyckoff based on their analysis of teacher distribution in New York.[11]

The Illinois Education Research Council linked multiple measures of teacher quality into an overall "index," called the Teacher Quality Index (TQI), to look at distribution patterns. They found that the multiple measures revealed a similar pattern as single indicators. A large database for all Illinois teachers from 2002-2003 was built that allowed researchers to look at the distribution of all 140,000 teachers in the state using five teacher attributes[12] that have been shown in previous research to be related to student achievement, weighted them appropriately, and assigned each school a TQI rating. Then they lined schools up from top to bottom on their TQI ratings and divided them into quartiles. Schools in the top quartile had teachers who were more experienced, better educated, had stronger academic skills, and the like, than those in schools in the bottom quartile.

Going one step further, they then analyzed patterns of teacher distribution and demographics. They

Figure 10. As Minority Enrollment Increases in Illinois, Teacher Quality Decreases

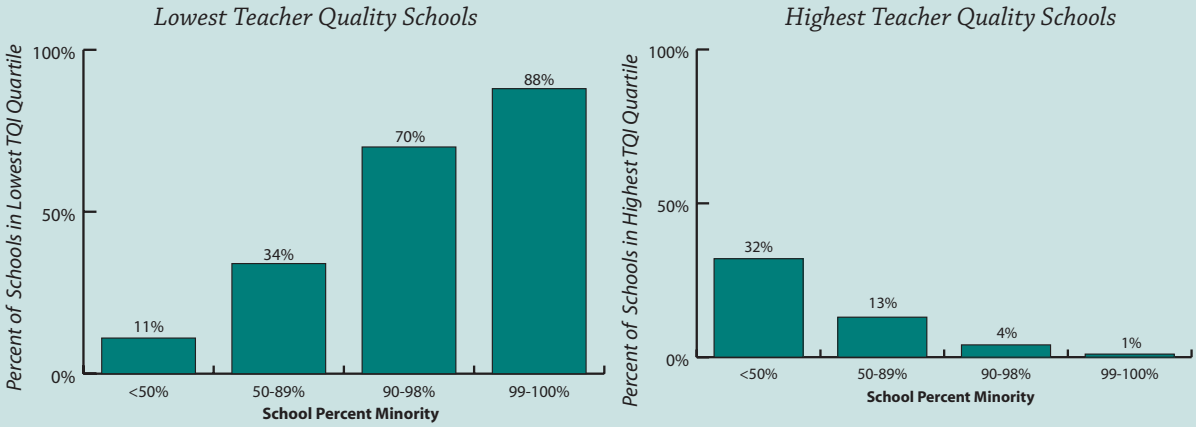
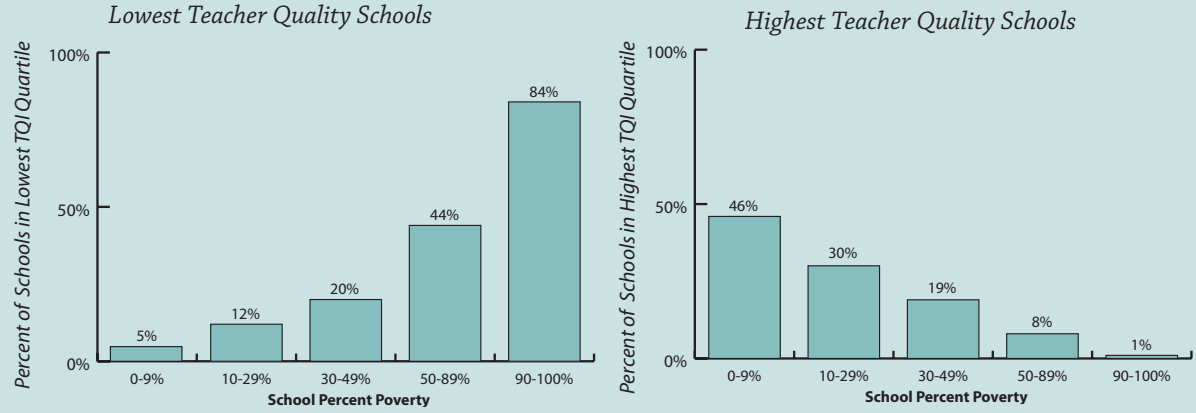


Figure 11. As Poverty Increases in Illinois, Teacher Quality Decreases



Source: Presley, J., White, B. and Gong, Y. (2005). Examining the Distribution and Impact of Teacher Quality in Illinois. Illinois Education Research Council.

concluded that students in the highest-poverty and highest-minority schools are assigned teachers who are qualitatively different from teachers in other schools.

Schools with the highest concentrations of minority students in the state were particularly affected, with 61 percent of those schools with TQIs in the bottom 10 percent of the state. A full 88 percent of these high-minority schools had TQIs that fell in the bottom 25 percent of the state. In contrast, of schools that had the fewest minority students, only 11 percent were in the bottom TQI quartile, and only one percent were in the bottom 10 percent (See Figure 10).

The patterns were similar when looking at income. Of the schools with the most low-income students, for example, 84 percent were in the bottom quarter in teacher quality, and more than half (56 percent) of those fell in the very bottom 10 percent for teacher quality. Only 1 percent of

the highest-poverty schools had a teacher quality index in the top quarter of the state. That's only three schools in the state. Compare these figures to schools with the fewest low-income students, where almost half (46 percent) of the schools had a teacher quality index in the top quarter and only 5 percent had a teacher quality index in the bottom quarter (See Figure 11).

The Impact of Teacher Distribution on Student Achievement

Repeated research over many years shows that the same measures employed by the state and district stakeholder committees in this project are in fact related – albeit imperfectly – to teachers' abilities to produce gains in student learning.

Following is a brief review of relevant research on the indicators used by the various stakeholder teams.[14]

- **Teachers' Academic Skills and Knowledge** ***(e.g., Performance on Assessments)***
  Researchers consistently have found that a teacher's level of literacy, as measured by vocabulary skill and other standardized assessments, is related to student achievement.[15] For example, in a study of teachers in several metropolitan Alabama districts, Ferguson and Ladd found that a significant increase in the test scores of teachers who teach African-American children would produce a substantial decline in the Black/White test-score gap in that state.[16] Two reviews of the research on teacher quality concluded that teachers' levels of literacy accounted for more of the variance in student achievement than any other measured characteristic of teachers.[17]

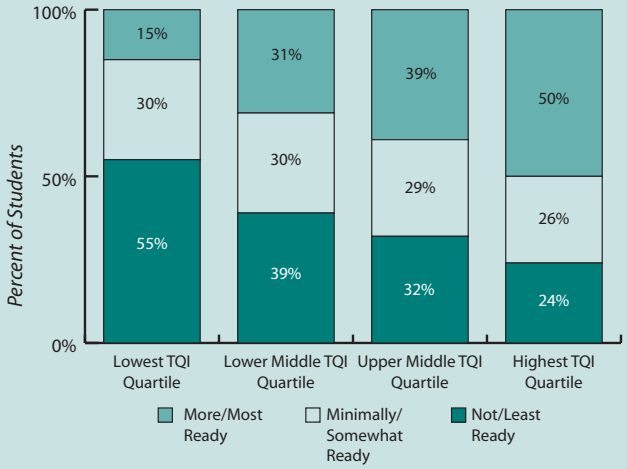
  Each study of teachers' academic skills and knowledge uses a slightly different measure, but the findings are so robust and so consistent that there is broad agreement that teachers' academic skills have a considerable impact on student achievement. Indeed, both Whitehurst's[18] 2002 recent review of the literature and Darling-Hammond and Young's critique of that review agree that teachers' academic skills have an important effect on student learning.[19]
- **Mastery of Content** ***(e.g., Major or Minor in Field, Passing Tests of Content Knowledge)***
  Not surprisingly, there is also considerable research showing how important teachers' content knowledge is to their effectiveness with students, especially at the middle and high school levels. The data are especially clear in mathematics and science, where teachers with a major in the subject they teach routinely elicit higher student performance than teachers who majored in something else.[20]
  Content knowledge, albeit at a lower standard, can also be demonstrated by a minor in the subject taught or by passing a test in the subject area. A requirement for demonstrating content knowledge is embedded in the "highly qualified" teacher provisions of the *No Child Left Behind Act*.
- **Experience**
  The evidence is incontrovertible that experience makes teachers more effective. Most research suggests that teachers are considerably more effective after completing two years on the job. Murnane was one of the first to document the relationship between teacher experience and student achievement; controlling for other factors, teacher effectiveness escalated in the first three years of teaching.[21] Similarly, Rivkin, Hanushek, and Kain reported that, beginning teachers in mathematics and second- and third-year teachers "perform significantly worse than more experienced teachers."[22] In a recent study of teachers in New York City, researchers found that as teachers gained experience in their first three or four years, student performance increased.[23]
- **Pedagogical Skill** ***(e.g., Certification, Courses in pedagogy)***
  Clearly, content knowledge is not sufficient for effective teaching. That said, large-scale research is less clear about the value of measurable proxies for teaching knowledge like coursework in pedagogy, advanced education degrees, and scores on exams about pedagogy. Some researchers find a relationship (see, for example, Darling-Hammond and Young's overview); others don't. Teacher licensure has been correlated with some measure of quality, though it is not a very strong predictor of student achievement.
- **Combined Index of Teacher Quality**
  As described earlier, researchers at the Illinois Education Research Council looked at a combination

of measures and documented significant differences in the combined characteristics of teachers in high- and low-poverty schools. They also attempted to understand how, if at all, these differences affected student achievement.

Their answer: Teacher quality turns out to matter a lot. In the highest-poverty high schools that had high Teacher Quality Indices, for example, there were about twice as many students meeting state standards as there were in similarly poor high schools that had low TQIs. In elementary and middle schools, when the TQI increased, so too, did the percentage of students who met or exceeded state standards, even after controlling for students' background characteristics.[24]

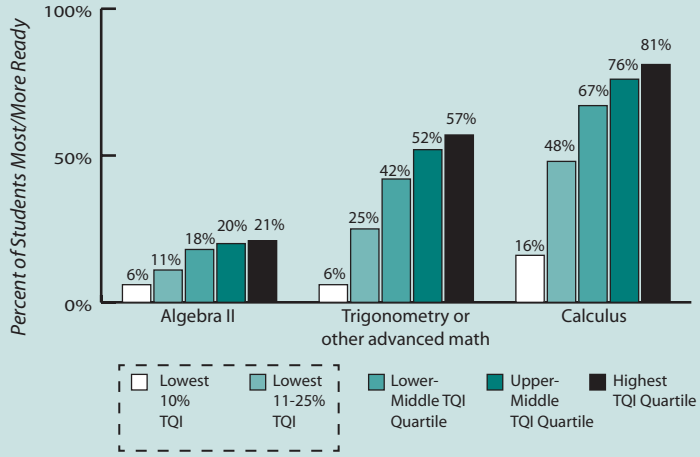
Since Illinois administers the ACT assessment to every 11th-grader, the IERC researchers were also able to evaluate the impact of teacher quality on the college-readiness of students in the class of 2002 who took particular sequences of mathematics courses. Not surprisingly, students who took more advanced mathematics courses in high school generally were more likely to perform at the college-ready level on the ACT. But there were stunning differences in levels of readiness according to the quality of teachers in a school. In schools with just average teacher quality, for example, students who completed Algebra II were *more* prepared for college than their peers in schools with the lowest teacher quality who had *completed calculus*[25] (See Figures 12 & 13).

Figure 12. College Readiness Increases with Teacher Quality



Source: Presley, J. and Gong, Y. (2005). The Demographics and Academics of College Readiness in Illinois. Illinois Research Council

Figure 13. College Math Readiness Affected by Teacher Quality More than Courses Taken



Source: Presley, J. and Gong, Y. (2005). The Demographics and Academics of College Readiness in Illinois. Illinois Research Council

- **Beyond Proxies: Data from Value-Added Research**

  The variation in teachers' impact on children is probably clearest in the research of the statisticians and economists who are studying the relationship between individual teachers and the growth students achieve in their classrooms during the school year. This approach is called "value-added" measurement.

  William L. Sanders, who founded the Value-Added Research and Assessment Center at the University of Tennessee, Knoxville, found that, on average, low-achieving students gained about 14 points each year on the Tennessee state test when taught by the least effective teachers, but more than 53 points when taught by the most effective teachers. Teachers made a difference for middle- and high-achieving students as well.[26]

Federal Law Could Address Equity More Directly

The federal government, through the Title I program, sends billions of dollars a year to districts specifically to ensure that students from low-income families get extra services and support. Title I presumes that there are equal educational opportunities for all students *before* federal funds are applied, and that the federal money provides "extras" for students growing up in poverty. But the way that teachers are assigned to schools makes the presumption patently untrue.

The schools that have the most low-income children get the most federal Title I money, but they also get the least in terms of teacher talent. High-poverty schools are more likely to have inexperienced teachers and under-qualified teachers. These teachers are paid less than veteran and fully credentialed teachers who are concentrated in more affluent schools. Consequently, school districts actually often spend less money in Title I schools and other high-poverty schools than in other schools, even after the addition of Title I funds. [1]

Title I is supposed to prohibit this kind of inequality, but the law contains a massive loophole. The law ostensibly demands "comparability" in the educational opportunities provided in Title I schools and non-Title I schools. But the law allows districts to ignore disparities in teacher qualifications across different schools, and the resulting disparities in teacher salaries. Any district that has a single-salary schedule – that is, that pays all teachers according to the same criteria – is deemed to have established comparability, despite the fact that a single-salary schedule does nothing to ensure equality in how teachers are assigned to schools.[2]

This is a loophole that lets states and districts off the hook for ensuring genuine comparability. In our work in California, we have seen the loophole's effect. Millions of dollars in that state are being directed away from high-poverty schools to subsidize higher teacher salaries in schools with fewer children in poverty.[3]

This is allowed to happen because school districts generally don't tell individual schools how much money they have to spend on salaries, but rather allot the number of teaching positions to be filled. Whether a school hires a teacher who makes $35,000 or $55,000 makes no difference to the school's budget, because the budget process uses only average salaries.

Very few districts set any limits on the concentrations of the highest- or lowest-paid teachers in schools. Principals in more affluent schools don't have to worry about the salary costs of highly experienced teachers – they are free to recruit all of the proven, talented teachers in the district. Principals in high-poverty schools, who often are relegated to hiring mostly novices, get no additional money to train and support their inexperienced, lower-paid staff. This makes the current salary schedule work as a sort of Robin Hood in reverse, robbing the poor to pay for the rich.

There is evidence that some districts actually may be defrauding the Title I program by allotting Title I money based on average teacher salaries for the district rather than the actual salaries for teachers covered by Title I, who may be paid significantly less . Federal officials should investigate whether federal funds meant for high-poverty schools are being spent in those schools and take action against districts that are misdirecting federal funds.[4]

If Congress closed the comparability loophole and stopped looking the other way on blatant inequality between Title I and non-Title I schools, it would force districts to confront the discriminatory effects of the current system.

In the meantime, school districts should not wait until they are forced by law to end unfair budget practices. Individual school budgets should reflect the needs of the students they serve. By weighting students according to the challenges they present, systems could (1) create incentives to serve the children who need the most help and (2) ensure high-poverty schools (as well as schools with more English-language learners and students with disabilities) have additional resources to compete for teacher talent. School budgets also should reflect the actual salaries that teachers are paid to ensure that funds intended to supplement the education of students growing up in poverty are actually reaching the schools serving these students.

[1] Roza, M. and Hill, P. "How Within District Funding Inequities Help Some Schools to Fail," Brookings Papers on Education Policy 2004, available online at: http://www.crpe.org/pubs/pdf/InequitiesRozaHillchapter.pdf.

[2] NCLB, Section 1120A.

[3] See www.hiddengap.org.

[4] Roza, M, Miller, L., and Hill, P. "Strengthening Title 1 to Help High-Poverty Schools: How Title 1 Funds Fit Into District Allocation Patterns," Center on Reinventing Public Education, 2005. http://www.crpe.org/workingpapers/pdf/TitleI_reportWeb.pdf

These teacher effects appear to be cumulative. For example, Tennessee students who have three highly effective teachers in a row score more than 50 percentile points above their counterparts who have three ineffective teachers in a row – even when they started with the same score.[27] An analysis in Dallas found essentially the same pattern. [28]

The cumulative impact of teacher quality is biggest for initially low-achieving students. A recent study in Tennessee suggested that students who fail the state's fourth-grade examination are six times more likely to pass the graduation examination if they have a sequence of highly effective teachers than if they have a sequence of the least effective teachers.[29] In sum, students whose initial achievement levels are comparable have "vastly different academic outcomes as a result of the sequence of teachers to which they are assigned."[30] Differences of this magnitude — 50 percentile points in just three years — are stunning. For an individual child, it means the difference between a "remedial" label and placement in the accelerated or even gifted track. And the difference between entry into a selective college and a lifetime of low-paying, menial work.

Sadly, however, data on actual teacher effectiveness in promoting student learning show much the same teacher maldistribution as other measures. In Tennessee, for example, African-American students are about twice as likely as White students to be assigned to the state's least effective teachers, and considerably less likely than White students to be assigned to the most effective teachers.[31] Data from Dallas, one of the few districts outside of Tennessee to have collected such data over multiple years, show much the same pattern.[32]

No matter which measure we look at, the pattern is basically the same. In state after state, district after district, we take the children who are most dependent upon their teachers for academic learning and assign them to teachers with less of everything. Less experience. Less education. Less knowledge of content. And less actual teaching skill.

Federal Law Requires Equity

Inequalities in educational opportunities have always bedeviled public education. For more than 40 years federal policy has tried to address the problem. Title I is the most significant component of this effort, providing billions of dollars to schools serving concentrations of poor children. The idea behind Title I is simple: Because poor children often enter school behind, they need extra educational services to catch up.

The law's intent, however, is thwarted every day by the fundamental fiction on which it is based—the notion that these are somehow extra dollars on top of an equitable base of state and local resources.

The truth is quite different. Even with the addition of Title I dollars, schools serving concentrations of poor and minority children provide those children with less of the very thing they need the most to catch up with other children: effective teachers. (See sidebar)

The maldistribution of teachers has persisted over decades without improvement. Congress, realizing that achievement gaps cannot be closed without closing gaps in teacher quality, in 2002 finally demanded that states address the issue. With the *No Child Left Behind Act* (NCLB), Congress insisted that states and districts had to commit to identifying and addressing shortages of qualified teachers in high-poverty and high-minority schools if they wanted to continue receiving federal funds to help with the education of disadvantaged students. Every state and district that wanted to participate in Title I had to develop a plan *"to ensure that poor and minority children are not taught at higher rates than other children by inexperienced, unqualified, or out-of-field teachers."*[33]

Those provisions were ignored by the U.S. Department of Education until recently. No regulations were issued to govern the "equity plans" and states were not asked to produce them. But in fall, 2005, the education department began to scrutinize compliance with the teacher-quality provisions of the law and focused attention on the required equity plans.[34]

All states must submit by July 7, 2006 their "equity plans" for ensuring that poor and minority children are not taught by inexperienced, unqualified, or out-of-field teachers at higher rates than other children.[35]

Lessons Learned

Over the course of our work, we have learned some lessons about how to approach teacher-distribution issues. Before offering some recommendations for tackling the substantive issues, we have listed some of the strategies that can help make the process constructive and effective.

- **The Data Dilemma**
  Most states and districts have yet to enter the information age when it comes to data on the distribution of teacher quality. Even when necessary information has been collected, it often is maintained in bureaucratic silos in different formats, so it cannot be connected. For example, data on teacher qualifications from the personnel department needs to be connected to data on school demographics and data on student achievement from the school accountability office. But these typically reside in different departments, and are organized in different and sometimes incompatible formats.

  As education leaders implement more immediate reforms to balance access to teacher talent, they also must lay the foundation for more strategic planning and monitoring in the future. Accurate data collection and compatibility are fundamental to addressing distribution patterns.
- **Non-educators Need a Seat at the Table**
  Inequality in teacher distribution is a complicated problem that has developed over a long time. It cannot be solved by educators alone, at least in part because they are often "too close" to the problem to see it clearly.

  The solution will require honest conversations with a broad range of stakeholders about equity and about the new, broader goals of public education. Parent representatives, community advocates, and business leaders all have a stake in this issue and deserve to be included in crafting solutions.

  Inequality in teacher distribution is a complicated problem that has developed over a long time.
- **Single indicators in isolation are easy to ignore**
  Any individual measure is by itself inadequate to capture the range of qualities that go into effective teaching. Stakeholders may question whether inexperience or lack of certification represent serious problems when confronted by anecdotes about an inexperienced teacher who was terrific in the classroom right from the start, or the teacher who wasn't yet fully certified but connected with students in powerful ways. But the truth is that, on average, these things matter a lot. The best approach – that is, the best approach short of using actual data on how much students grow in each teacher's classroom – is to look at teacher quality through a number of lenses, including experience, educational background, certification, etc. That said, large inequalities in any one of these indicators should not be dismissed.

  Aggregating all the proxies into a single measure of quality, like the Teacher Quality Index in Illinois, creates a richer portrait and avoids the pitfalls of single-measure analyses. The combined measure has more power to explain the differences in student outcomes and helps stakeholders understand that the differences in teacher quality have quantifiable, discernable effects on student achievement.
- **From Teacher Qualities to Teacher Quality: Measuring Teacher Effectiveness**
  While combined indices are more powerful than looking at indicators in isolation, we need to move to a more direct measure of teacher quality. What really matters is teachers' effectiveness at growing students' knowledge. With annual assessments, it is possible to determine how much students have grown during their year in an individual teacher's classroom. By controlling for external variables, we can isolate the individual teachers' contribution, or value-added. This method looks at what was taught in a classroom, but doesn't disadvantage teachers who take the toughest assignments.

Now that it is possible to connect gains in student achievement with the teachers who were responsible for them, we can get much more sophisticated in how teachers are educated, assigned, supported, evaluated and compensated. As new data systems are designed, they should connect individual teachers with student achievement over time to get an accurate measure of teacher effectiveness.

- **Respect for Teachers' Abilities and Professionalism Must Be at the Heart**
  Although research has been mounting for decades that teachers are the single most important factor in how much students learn, too many people – both inside and outside education – cling to the myth that factors outside of school override anything teachers can do. This myth, which survives because of its appeal to underlying assumptions about race and class, not only demeans the contributions of teachers, but prevents meaningful change by excusing what should not be excused. Education leaders who want to ensure equity in access to teacher quality need to make the case that teachers matter.
- **Talent is Drawn to Challenge**
  Many stakeholders mistakenly believe it is not possible to recruit an adequate supply of qualified teachers into urban districts without first solving big, systemic problems. This belief constantly gets in the way of discussions about the distribution of teacher quality.

  Contrary to conventional wisdom, though, many of our biggest and poorest school districts today are attracting more new teachers than they have in decades. Among our participating cities, for example, Chicago has received 13,700 applications for about 1,500 teacher vacancies from candidates applying for the 2006-2007 school year. The district estimates that by the end of the hiring season, they will receive 18,500 applications.

  Bureaucracy, closed hiring processes and late hiring have as much to do with the problems of staffing as does applicant interest. Clear-eyed analysis is needed to ensure that our solutions are focused on the real problems.

As new data systems are designed, they should connect individual teachers with student achievement over time to get an accurate measure of teacher effectiveness.

A Plan for Equity

In the coming weeks, states must outline the steps they will take to end the unfair distribution of teacher quality. To help states confront and solve the teacher-distribution problem, we are recommending a range of actions that states should consider in devising their equity plans.

Some of these suggestions will take longer to implement than others, and some will require significant changes to long-standing practices.

This much is clear: States and districts cannot ignore the imbalance in teacher quality any longer. It is a primary cause of the achievement gap in American education, and as long as that inequity persists, so too will the gaps that separate poor and minority students from other young people.

Immediate steps

Overhaul hiring practices for teachers

Current hiring practices often put schools that serve low-income students, students of color and low-performing students at a disadvantage when it comes to effective and qualified teachers.

- Give principals more authority to choose who teaches in their schools.
- Scale back prerogatives that allow senior teachers to pick their assignments.
- And, finally, take a cue from professional sports and start using a "draft strategy." That is, put high-poverty, struggling schools at the head of the hiring line, allowing them to have the first pick of teaching talent. If we can give struggling sports teams first dibs on talented new

players, can't we do the same for low-performing schools and provide these schools a decent shot at giving good teachers to the students who need the most help?

Pay Effective Teachers More in High-Need Schools

Lock-step salary schedules don't recognize great teachers and don't provide incentives for teachers to take on the toughest assignments. School districts need to get more sophisticated about identifying the most effective teachers and pay them more to teach in schools with shortages.

Balance the challenge

Balance the challenge of working in high-poverty schools by giving teachers reduced student loads, so they can have more time with individual students, more time to collaborate with their colleagues and more time for coaching and induction. It's hard to imagine any schools in which these kind of incentives would not be welcome, but the goal is to provide extra support to the teachers who take on the most challenging work. That means focusing first on high-need schools.

Give teachers "a break"

Recognize the toll that teaching in the poorest communities can take on teachers by providing fully paid sabbaticals, enabling teachers to recharge their intellectual and emotional batteries. This would encourage teachers to return to the classrooms where they are most needed and stem the tide of more experienced teachers leaving high-poverty schools.

Rethink tenure

Districts can improve the overall quality of the teaching force by reserving tenure for those teachers who demonstrate effectiveness at producing student learning. At the same time, districts need to help ineffective teachers improve, and encourage those who do not improve to leave the profession.

Place the best principals in the schools that need them the most

After teachers, principals have the biggest effect on school success. Supportive, collaborative principals are hugely important to attracting and holding strong teachers in high-poverty schools. Districts should provide salary incentives to attract high-quality, experienced principals to work in schools that serve high concentrations of poor and minority students. That includes linking principal pay to both improved conditions and improved achievement in their schools.

Ban unfair budgeting practices

District budgeting policies should not allow the most advantaged schools to "buy" more than their share of the most highly paid teachers. Staff budgets should be set at the school level and should be proportionate with student needs.

Improve the supply of teachers in critical areas

The higher-ed world must ramp up the work of supplying teachers in shortage areas, like math, science, special education and bilingual education.

Longer-term

Build better data systems

To help identify the most effective teachers, we need better data systems that link individual teachers to the academic achievement of their students over time. This information will help administrators identify the unusually effective teachers – and those who need extra help.

That said, states and districts should not wait for better data systems before tackling teacher-distribution issues. They can act on the data that are available to get more effective teachers to low-income students and students of color.

Evaluate Teacher-Prep Programs

More sophisticated data systems about student achievement and teacher effectiveness should be used

as a tool to gauge the quality of teacher-preparation programs. Louisiana is one state that holds higher education institutions accountable for the quality of the teachers they prepare. One step that other states and districts can take is to look at the new teachers whose contracts are not renewed by source institution. Institutions that produce large numbers of teachers who are so ineffective that they are let go early on or leave the profession should either be improved or closed.

Eliminate state-level funding gaps

States should make sure that all schools get their fair share of funding. States need to take more responsibility for funding education and target that funding to high-poverty districts. Schools and districts that serve high concentrations of low-income families need more money to reach the same educational goals as more affluent districts. But in most states, these schools and districts actually get less money – hampering their efforts to compete for the best teachers.

More sophisticated data systems about student achievement and teacher effectiveness should be used as a tool to gauge the quality of teacher-preparation programs.

Rethink teacher compensation

States and districts need to completely re-evaluate teacher compensation, including paying more to teachers for their effectiveness in growing student learning, the challenge of their teaching assignment, and the roles they play within schools. The current system, which pays teachers based on experience and continuing education, is unrelated to teacher effectiveness and out of step with the goals of education reform.

Conclusion

Addressing gaps in access to teacher quality is the most critical element of a successful education reform agenda. But the reality is that many states simply do not know how teacher quality is distributed. And states that have that information will find change difficult because the current inequitable distribution is deeply rooted in tradition—and in politics.

We do not believe that the inequalities that exist today are the result of intentional actions to hurt children. And no purpose is served by pointing fingers of blame, especially at teacher unions. For, while some contract provisions need to be re-considered in light of unintended consequences, it's worth remembering that every teacher contract has been approved by a school district. School districts, not teacher unions, are responsible for balancing competing interests among stakeholders. It would appear that pleasing powerful constituents has sometimes forced equity to take a back seat.

The simple truth is that public education cannot fulfill its mission if students growing up in poverty, students of color and low-performing students continue to be disproportionately taught by inexperienced, under-qualified teachers.

These manifestly unequal opportunities make a mockery of our commitment to equal opportunity and undermine genuine social mobility. What we have is a caste system of public education that metes out educational opportunity based on wealth and privilege, rather than on student or community needs.

Young people learn as much or more by watching what adults do as they learn from any classroom curriculum. Right now, they are learning that where you are born and how much money your parents make determine educational opportunity. Nowhere is this clearer -- or more destructive -- than in access to effective teachers.

Education leaders and policymakers must confront this legacy more openly and honestly than ever before. If Americans truly value equality of opportunity, it is time to teach by example.

Notes

[1] "Novice" in this case refers to teachers with three years or less experience. National Center for Education Statistics, *Monitoring Quality: An Indicators Report*, December 2000.

[2] National Center for Education Statistics, *Monitoring Quality: An Indicators Report*, December 2000.

[3] *All Talk, No Action: Putting an End to Out-of-Field Teaching*, Craig D. Jerald, The Education Trust, 2002.

[4] Ibid

[5] Ibid

[6] Highest-minority schools in Wisconsin serve 61.5 percent or more minority students. Lowest-minority schools serve 1.5 percent or fewer minority students.

[7] In Milwaukee, the highest-poverty schools are defined as those in which more than 80 percent of the students receive free or reduced-price lunch. Lowest-poverty schools have fewer than 50 percent of students receiving free and reduced-price lunch. The highest-minority schools enroll 90 percent or more minority students, compared to less than 60 percent in the lowest-minority schools.

[8] To be considered highly qualified in Ohio, a teacher must hold a bachelor's degree with a major or 30 coursework hours in the content area he/she is teaching; demonstrate subject-matter knowledge by passing the PRAXIS exam if he/she is new to the profession as of 2002; or successfully complete the HOUSSE process (for not-new teachers); and be fully certified by the state. To learn more about the HOUSSE provisions in Ohio, see *http://www.ode.state.oh.us/teaching-profession/PDF/HighlyQualifiedTeachers20Oct.pdf*

[9] Note that the Chicago Public Schools Research Department did not have access to teachers' test results for 30 percent of the teachers, likely because they were veterans who entered teaching before testing was required.

[10] Rossi, R., Beaupre, B., and Grossman, K. 2001. "5,243 Illinois teachers failed key exams" in *Failing Teachers: A Sun-Times Investigation*. Chicago Sun-Times. September 6. Available: *http://www.suntimes.com/special_sections/failing_teacher/*

[11] Lankford, H., Loeb, S., and Wyckoff, J. *Teacher Sorting and the Plight of Urban Schools: A Descriptive Analysis*. Educational Evaluation and Policy Analysis Spring. (2002): Vol. 24, No. 1, 37-62.

[12] The five attributes included in the TQI: the percentage of teachers with BA degrees from more-competitive colleges; the percentage of teachers with less than 4 years of teaching experience; the percentage of teachers with emergency or provisional credentials; the percentage of teachers who failed the Basic Skills test on the first attempt; and the average ACT composite score of teachers.

[13] DeAngelis, K.J., Presley, J.B., and White, B.R. (2005). *The Distribution of Teacher Quality in Illinois*. Illinois Education Research Council. Policy Research Report: IERC 2005-1. See also: Presley, J.B., White, B.R., and Gong, Y. (2005). *Examining the Distribution and Impact of Teacher Quality in Illinois*. Illinois Education Research Council. Policy Research Report: IERC 2005-2. Available: *http://ierc.siue.edu*.

[14] For a comprehensive review of the available literature on indicators of teacher quality, see Rice, J.K. 2003. "Teacher Quality: Understanding the Effectiveness of Teacher Attributes." Economic Policy Institute.

[15] See, for example, Greenwald, R., Hedges, L., & Laine, R. (1996). *The Effect of School Resources on Student Achievement*. Review of Educational Research, 66, pp.361-396.

[16] Ferguson and Ladd, *How and Why Money Matters: An Analysis of Alabama Schools*, in Holding Schools Accountable: Performance Based Reform in Education, Brookings Institution: Washington, DC, 1996.

[17] Wayne, A.J., and Youngs, P., 2003. *Teacher Characteristics and Student Achievement Gains: A Review*. Review of Educational Research, Vol.3, No. 1, pp. 89-122; Whitehurst, Grover *Research on Teacher Preparation and Professional Development*, White House Conference on Preparing Tomorrow's Teachers, March 5, 2002.

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[19] Darling-Hammond and Youngs, *Defining "Highly Qualified Teachers": What Does "Scientifically-Based Research" Actually Tell Us*, Educational Researcher, 2002.

[20] Goldhaber and Brewer, *Evaluating the Effect of Teacher Degree Level on Educational Performance*, in Developments in School Finance, 1996; Monk and King, *Multilevel teacher Resource Effects on Pupil Performance in Secondary Mathematics and Science*, in Ronald G. Ehrenberg (ed.), Choices and Consequence. Ithaca, NY: ILR Press, 1994.

[21] Murnane, Richard J. *The Impact of School Resources on the Learning of Inner City Children.* Balinger Publishing Company. 1975

[22] Hanushek, E.A., Kain, J.F. & Rivkin, S.G. (2005). Teachers, Schools, and Academic Achievement. Econometrica, Vol. 73, No. 2, 417-458.

[23] Boyd, D., Grossman, P., Lankford, H., Loeb, S., Wyckoff, J. 2005. How Changes in Entry Requirements Alter the Teacher Workforce and Affect Student Achievement. Teachers Pathway Project.

[24] Jennifer Presley, Bradford R. White, & Yuqin Gong. *Examining the Distribution and Impact of Teacher Quality in Illinois*. Illinois Education Research Council. Policy Research Report: IERC 2005-2, p. 1. Available: http: //ierc.siue.edu.

[25] Jennifer Presley and Yuqin Gong. 2006. The Demographics and Academics of College Readiness in Illinois, Illinois Education Research Council, 2005. http://ierc.siue.edu

[26] Sanders and Rivers, *Cumulative and Residual Effects of Teachers on Future Students Academic Achievement*, 1996, p. 9.

[27] Sanders and Rivers, 1996.

[28] Jordan, Mendro and Weerasinghe, *Teacher Effects on Longitudinal Student Achievement*, Dallas, TX, 1997, p. 3.

[29] Rivers, June. *The Impact of Teacher Effect on Student Math Competency Achievement*, University of Tennessee, Knoxville, TN, 1999.

[30] Sanders and Rivers, 1996. p. 9.

[31] Sanders and Rivers, 1996.

[32] Jordan, Mendro and Weerasinghe. 1997.

[33] ESEA Section 1111(b)(8) (C). The analogous provision for school districts can be found at ESEA Section 1112(c)(1)(L)

Notes (continued)

[34] See the October 21, 2005 letter from the Secretary of Education that outlines requirements for states. Available: ***http://www.ed.gov/policy/elsec/guid/secletter/051021.html***

[35] These requirements are described in the letter from the Secretary of Education to the Chief State School Officers, March 21, 2006. Available: ***http://www.ed.gov/programs/teacherqual/cssoltr.doc***. See, also, letter to the Chief State School Officers, May 12, 2006. Available: ***http://www.ed.gov/programs/teacherqual/hqtltr/index.html***

[36] Jessica Levin and Meredith Quinn, Missed Opportunities: How We Keep High-Quality Teachers Out of Urban Classrooms, The New Teacher Project, 2003.

[37] ***The Funding Gap 2005: Low-Income and Minority Students Shortchanged by Most States***. The Education Trust, 2005.

Appendix

	STATE REPORTED		FEDERALLY REPORTED	
	Percentage of Secondary Classes in Core Academic Subjects Taught by Teachers Who Are Not Highly Qualified, 2005*		Percentage of Secondary Classes in Core Academic Subjects Taught by Out-of-Field Teachers, 2000**	
State	High-Poverty Schools	Low-Poverty Schools	High-Poverty Schools	Low-Poverty Schools
Alabama	33	16	33	11
Alaska	55	72	54	22
Arizona	9	7	53	32
Arkansas	3	10	43	27
California	39	19	34	30
Colorado	11	5	48	21
Connecticut	3	1	43	28
Delaware	N/A	N/A	N/A	N/A
District of Columbia	31	51	N/A	N/A
Florida	12	7	47	20
Georgia	3	1	43	36
Hawaii	36	32	43	N/A
Idaho	3	1	62	18
Illinois	8	0	52	22
Indiana	N/A	N/A	N/A	23
Iowa	9	6	N/A	22
Kansas	22	8	25	28
Kentucky	7	4	53	N/A
Louisiana	20	8	56	55
Maine	9	6	N/A	25
Maryland	46	17	N/A	20
Massachusetts	14	6	N/A	19
Michigan	N/A	N/A	49	28
Minnesota	5	2	10	8
Mississippi	19	6	40	N/A
Missouri	6	1	51	21
Montana	1	1	40	15
Nebraska	8	3	27	20
Nevada	47	26	N/A	36
New Hampshire	11	1	N/A	17
New Jersey	9	3	N/A	22
New Mexico	25	24	47	43
New York	20	3	16	24
North Carolina	11	12	34	13
North Dakota	34	34	31	29
Ohio	23	5	44	29
Oklahoma	1	1	47	43
Oregon	12	6	50	22
Pennsylvania	11	1	36	18
Rhode Island	27	23	N/A	17
South Carolina	43	20	17	18
South Dakota	11	8	43	17
Tennessee	29	19	42	39
Texas	8	6	48	38
Utah	40	25	58	22
Vermont	12	8	N/A	30
Virginia	7	3	42	34
Washington	3	1	48	23
West Virginia	8	6	33	22
Wisconsin	1	0	N/A	15
Wyoming	17	11	N/A	36

NOTE: Not Available (N/A)

Definitions:

For Data on Highly Qualified Teachers

- **Secondary Classes** are defined as all classes in grades 9-12. Grades 6, 7 and 8 are classified as elementary or secondary by the states.
- **High-Poverty Schools** are defined as schools in the top quartile of poverty in the state.
- **Low-Poverty Schools** are defined as schools in the bottom quartile of poverty in the state.

* Source: State Consolidated Performance Reports for School Year 2004-2005, submitted to the U.S. Department of Education on March 6, 2006.

For Data on Classes Taught by Out-of-Field Teachers:

- **Secondary Classes** are defined as all departmentalized classes in grades 7-12.
- **High-Poverty Schools** are defined as schools in which 50 percent or more of the student body is eligible for the federal free or reduced-price lunch program.
- **Low-Poverty Schools** are defined as schools in which 15 percent or less of the student body is eligible for the federal free or reduced-price lunch program.

**Source: U.S. Department of Education, 1999-2000 Schools and Staffing Survey, analysis by Richard Ingersoll, University of Pennsylvania. Reported in All Talk, No Action: Putting an End to Out-of-Field Teaching, Technical Appendix, Craig D. Jerald, The Education Trust, August 2002.

‡ Out-of-field teachers are those without a major in the subject taught.

About the Education Trust

The Education Trust, Inc. was created to promote high academic achievement for all students, at all levels – pre-kindergarten through college. While we know that all schools and colleges could better serve their students, our work focuses on the schools and colleges most often left behind in plans to improve education: those serving African-American, Latino, Native American and low-income students.

The Education Trust works side-by-side with policymakers, parents, education professionals, community and business leaders – in cities and towns across the country – who are trying to transform their schools and colleges into institutions that genuinely serve all students. We also bring lessons learned in local communities back to Washington to help inform national policy debates.

We are grateful to the The Joyce Foundation for funding this project.

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Based in Chicago with assets of over $800 million, the Joyce Foundation invests approximately $8 million annually in efforts to improve the quality of education for Midwest children, especially by promoting early childhood education and improving the quality of teaching in low-performing schools.

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