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What Happens to a Dream Deferred?

The Continuing Quest for Equal Educational Opportunity

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As a consequence of structural inequalities in access to knowledge and resources, students from racial and ethnic "minority" groups in the United States continue to face persistent and profound barriers to educational opportunity. This chapter documents these inequalities, identifies some of their sources, describes their consequences for the nature and quality of education provided to different groups of students in the United States, and suggests policy changes needed to correct continuing inequities. The chapter argues that documentation of and serious policy attention to these ongoing, systematic inequalities are critical for improving the quality and outcomes of education for all students. Without acknowledgment that students experience very different educational realities, policies will continue to be based on the presumption that it is students, not their schools or classroom circumstances, that are the sources of unequal educational attainment.

We begin with a brief discussion of the history and current state of segregation and exclusion confronting historically designated "minority" groups within the U.S. public education system. It is this isolation that creates the conditions for systematically unequal access to learning opportunities. In the second section we describe the role

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played by funding inequities in perpetuating unequal access to resources and knowledge. In the third section we explore questions of access to educational resources, including qualified teachers, courses, curriculum materials, and equipment. The fourth section addresses the ways in which tracking serves to exacerbate existing discrepancies by further rationing curricular opportunities. In the final section we put forward a number of proposals concerning school finance equalization, professional teaching policies, curriculum and testing reforms, and governmental roles in improving access to knowledge and educational resources for all students in the United States.

The Structure of Inequality in U.S. Education

Institutionally sanctioned discrimination in access to educational resources is older than the American nation itself. In his history of 18th-century colonial education, Lawrence Cremin (1970) writes:

> For all of its openness, provincial America, like all societies, distributed its educational resources unevenly, and to some groups, particularly those Indians and Afro-Americans who were enslaved and even those who were not, it was for all intents and purposes closed. . . . For the slaves, there were few books, few libraries, [and] few schools . . . the doors of wisdom were not only not open, they were shut tight and designed to remain that way. . . . [B]y the end of the colonial period, there was a well-developed ideology of race inferiority to justify that situation and ensure that it would stand firm against all the heady rhetoric of the Revolution. (pp. 411–412)

Indeed, the legacy of discrimination did persist: "While [19th-century] publicists glorified the unifying influence of common learning under the common roof of the common school, black Americans were rarely part of that design" (Tyack, 1974, p. 110). From the time southern states made it illegal to teach an enslaved person to read, throughout the 19th century and into the 20th, African Americans faced de facto and de jure exclusion from public schools throughout the nation, as did Native Americans and, frequently, Mexican Americans (Tyack, pp. 109–125; Kluger, 1976; Meier, Stewart, & England, 1989; Schofield, 1991).

Twentieth-century statistics reveal the long-term effects of this pattern. African Americans and Hispanic Americans have, on the whole, completed significantly fewer years of school than Whites. In 1940 only 7% of African Americans over 25 had graduated from high school, as compared to 24% of Americans generally (U.S. Bureau of the Census, 1992). By 1998, 87% of White American adults had completed 12 or more years of school, compared 76% of African Americans and 56% of Hispanics (NCES, 2000, p. 17). Similar patterns are true for Native Americans, although comparable data are less frequently available.

While overall educational attainment for people of color in the United States increased between 1960 and 1990, this trend is reversing as more states have imposed graduation exams, and resources to city schools have continued to decline. By 1998, 88% of African Americans and 63% of Hispanics between the ages of 25 and 29 had completed high school with a diploma or an equivalency (NCES, 2000, p. 17), beginning to close the gap with white Americans. However, while dropout rates for 16-24 year old

Black male students declined steadily between 1975 and 1990, they have been increasing since, growing from 11.9% in 1990 to 15.5% in 1998 (NCES, 2000, p. 127), while dropout rates for Hispanic males in this age group have remained above 30%.

The advent of high-stakes testing reforms requiring students to achieve specific test score standards in order to advance in grade or graduate from school has occurred while educational experiences for "minority" students continue to be substantially separate and unequal. In contrast to European and Asian nations that fund schools centrally and equally, the wealthiest ten percent of school districts in the U.S. spend nearly ten times more than the poorest ten percent, and spending ratios of 3 to 1 are common within states. Poor and minority students are concentrated in the less well funded schools, most of them located in central cities and funded at levels substantially below those of neighboring suburban districts. Recent analyses of data prepared for school finance cases in Alabama, California, New Jersey, New York, Louisiana, and Texas have found that on every tangible measure -- from qualified teachers to curriculum offerings -- schools serving greater numbers of students of color had significantly fewer resources than schools serving mostly white students.

This inequality in resource allocations is supported by the increasing re-segregation of schools over the decades of the 1980s and '90s. In 1998-99, almost a half century after *Brown v. Board of Education,* 70% of the nation's black students attended predominantly minority schools, up significantly from the low point of 63% in 1980. The proportion of students of color in intensely segregated schools also increased. More than a third of African American and Latino students (36.5% and 36.6% respectively) attended schools with a minority enrollment of 90-100%. Furthermore, racially segregated

schools (for all groups except whites) are almost always schools with high concentrations of poverty. The average black or Latino student attends a school with more than twice as many poor classmates than the average white student (Orfield, 2001).

African American and Hispanic American students continue to be concentrated in central city public schools, many of which have become majority "minority" over the past decade while their funding as fallen further behind that of their suburbs. As of 1997, students of color comprised more than 55% of those served by school districts of more than 15,000 students (National Center for Education Statistics, 2000, p. 99). As we describe below, central city schools are typically funded at levels substantially below those of neighboring suburban districts. The continuing segregation of neighborhoods and communities intersects with funding formulas and school administration practices that create substantial differences in the educational resources made available in different communities. Together, these conditions produce ongoing inequalities in educational opportunity by race and ethnicity.

Not only do funding systems and other policies create a situation in which urban districts receive fewer resources than their suburban neighbors, but schools with high concentrations of "minority" students receive fewer resources than other schools within these districts. And tracking systems exacerbate these inequalities by segregating many "minority" students within schools, allocating still fewer educational opportunities to them at the classroom level. How these layers of inequality are constructed is described below.

The Legacy of Funding Inequality

In 1857 a group of African American leaders testified before a state investigating committee about the striking discrepancies between the finances allocated to White and to Black students. While the New York Board of Education spent $16 per White child for sites and school buildings, the comparable figure per Black child was one cent; while Black students occupied school buildings described as “dark and cheerless” in neighborhoods “full of vice and filth,” White students had access to schools that were “splendid, almost palatial edifices, with manifold comforts, conveniences, and elegancies” (Tyack, 1974,p. 119).

Over a century later, after the Supreme Court had already declared “separate but equal” education to be a violation of the 14th Amendment, James Bryant Conant’s *Slums and Suburbs* (1961), Francis Keppel’s *The Necessary Revolution in American Education* (1966), and Richard Kluger’s *Simple Justice* documented continuing disparities in educational opportunity. These disparities existed—and continue to exist—between predominantly White and minority schools even within the same district. In 1967 the Washington, D.C., District Court found that Black and poor children were denied equal educational opportunity not only because of de facto segregation in Washington’s schools, but because of unequal spending as well. The court held that:

If Whites and Negroes, rich or poor, are to be consigned to separate schools, pursuant to whatever policy, the minimum the Constitution will require and guarantee is that for their objectively measurable aspects these schools be run on the basis of real equality, at least unless any inequalities are adequately justified. (*Hobson v. Hansen,* 1967)

The court subsequently ordered a program of massive reallocation of school resources, ranging from textbooks to teachers and facilities construction. In 1990 the Los Angeles City School District was sued on similar grounds (*Rodriguez et al. v. Los Angeles Unified School District*, 1992). Students there in predominantly minority schools, which are overcrowded and less well funded than other schools, were found to be disproportionately assigned to inexperienced and unprepared teachers hired on emergency credentials. In 2001, students in California's highest minority schools were still five times more likely to have uncertified teachers than those in largely white schools (Shields et al., 2001). This unequal assignment of teachers creates ongoing differentials in expenditures and access to curriculum opportunities, including the knowledge well-prepared teachers rely on in offering high-quality instruction.

Jonathan Kozol's *Savage Inequalities* describes the striking differences between public schools in urban settings—schools whose population is between 95 and 99% non-White —and their suburban counterparts. While Chicago public schools spent just over $5,000 per student in 1989, nearby Niles Township High School spent $9,371 per student. While central city Camden, New Jersey, schools spent $3,500 that year, affluent suburban Princeton spent $7,725 per student. Schools in New York City spent $7,300 in 1990, while those in nearby suburbs like Manhasset and Great Neck spent over $15,000 per student for a population with many fewer special needs (Kozol, 1991, pp. 236–237).

Savage Inequalities is replete with familiar yet poignant stories. The disparities represented by the description of East St. Louis Senior High School, whose biology lab had no laboratory tables or usable dissecting kits (p. 28), while children in neighboring

suburban schools enjoyed features like a 27-acre campus (p. 65), an athletic program featuring golf, fencing, ice hockey, and lacrosse (p.157), and a computer hookup to Dow Jones to study stock transactions (p. 158) can still be seen across the country. These kinds of disparities have not lessened in the last decade. The plaintiffs' brief in the recently filed *Williams v. California* lawsuit in California includes this description of a school serving low-income students of color in San Francisco:

> At Luther Burbank, students cannot take textbooks home for homework in any core subject because their teachers have enough textbooks for use in class only…. Some math, science, and other core classes do not have even enough textbooks for all the students in a single class to use during the school day, so some students must share the same one book during class time…. For homework, students must take home photocopied pages, with no accompanying text for guidance or reference, when and if their teachers have enough paper to use to make homework copies…. The social studies textbook Luther Burbank students use is so old that it does not reflect the breakup of the former Soviet Union. Luther Burbank is infested with vermin and roaches and students routinely see mice in their classrooms. One dead rodent has remained, decomposing, in a corner in the gymnasium since the beginning of the school year. The school library is rarely open, has no librarian, and has not recently been updated. Luther Burbank classrooms do not have computers. Computer instruction and research skills are not, therefore, part of Luther Burbank students' regular instruction in their core courses. The school no longer offers any art classes for budgetary reasons. Two of the three bathrooms at Luther Burbank are locked all day, every day. The third

> bathroom is locked during lunch and other periods during the school day, so there are times during school when no bathroom at all is available for students to use. Students have urinated or defecated on themselves at school because they could not get into an unlocked bathroom…. When the bathrooms are not locked, they often lack toilet paper, soap, and paper towels, and the toilets frequently are clogged and overflowing…. Ceiling tiles are missing and cracked in the school gym, and school children are afraid to play basketball and other games in the gym because they worry that more ceiling tiles will fall on them during their games…. The school heating system does not work well. In winter, children often wear coats, hats, and gloves during class to keep warm. Eleven of the 35 teachers at Luther Burbank have not yet obtained regular, nonemergency credentials, and 17 of the 35 teachers only began teaching at Luther Burbank this school year (Williams v. State of California, Superior Court of the State of CA for the County of San Francisco, 2001, Complaint, 58-66).

That this kind of school setting is the reality for hundreds of thousands of children in the wealthiest nation on earth would be a surprise to many U.S. citizens. Yet, as we describe later in this chapter, measurable and compounded inequalities leave most "minority" children with fewer and lower-quality books, materials, computers, labs, and other accoutrements of education, as well as less-qualified and -experienced teachers, fewer counselors, and social service providers working under greater stress with larger loads. It all adds up.

Such discrepancies in resource allocation are a function of how public education in the United States is funded. In most cases, education costs are supported by a system

of general taxes—primarily local property taxes, along with state grants-in-aid (Guthrie, Garms, & Pierce, 1988). Because these funds are typically raised and spent locally, districts with higher property values have greater resources with which to fund their schools, even when poorer districts tax themselves at proportionally higher rates. In Texas, for instance, the 100 wealthiest districts taxed their local property at an average rate of $.47 per $100 of assessed worth in 1989; at that level of effort, they were able to spend over $7,000 per student. Meanwhile, the 100 poorest districts, taxing themselves at a rate of over $.70 per $100, were able to raise only enough to spend some $3,000 per student (Kozol, 1991, p. 225).

Differences of the same kind exist among states, with per-pupil expenditures ranging from over $10,000 in New Jersey in 1996-97 to only $4,000 in Utah (NCES, 2000, p. 188). And while states generally make some effort to provide fiscal aid that has a generally modest equalizing effect on spending among districts, the federal government thus far plays no such role with respect to differentials among states in wealth and ability to pay for education.

These disparities translate into real differences in the services provided in schools: Higher-spending districts have smaller classes, higher-paid and more experienced teachers, and greater instructional resources, as well as better facilities, more up-to-date equipment, and a wider range of course offerings (ETS, 1991). Districts serving large proportions of poor children have fewer resources (NCES, 1998). Thus, those students least likely to encounter a wide array of educational resources at home are also least likely to encounter them at school (ETS, 1991; Berne, 1992; Betts, Rueben, & Danenberg, 2000; New York Study Group, 1993).

The Legality of Unequal School Funding

Although concern about unequal school funding was expressed as early as the turn of the century (Cubberly, 1906; Updegraff & King, 1922), it was not until the mid-1960s that the legality of traditional inequities of school finance was subjected to judicial review. In 1965 Arthur Wise published an article challenging the constitutionality of school finance schemes that produce radically disparate per-pupil expenditures within states (Wise, 1965). Arguing that such unequal spending leads to unequal educational opportunities, he suggested that this might constitute a denial by the state of equal protection under the law (see also Wise, 1972).

A number of lawsuits were filed on these grounds, and in 1973, in *Robinson v. Cahill*, the New Jersey Supreme Court declared the state's school financing system to be in violation of the New Jersey Constitution's education clause, which called for a "thorough and efficient system of free public schools" for all children between the ages of 5 and 18 (Wise & Gendler, 1989, p. 14). That same year, in *San Antonio Independent School District v. Rodriguez* (1973), however, the U.S. Supreme Court rejected the argument that education constitutes a fundamental right under the federal Constitution, thus stemming further federal court challenges of educational funding inequities.

Although hopes for a sweeping indictment of school funding traditions on federal grounds were dashed by the *San Antonio* decision, state-level challenges continued in several dozen state courts during the 1970s (Taylor & Piche, 1991). In 1976, in *Serrano v. Priest*, California's Supreme Court ended nearly a decade of debate by ruling that the

state's system of school finance violated both the federal Constitution's 14th Amendment and California's own equal protection clause (Wise & Gendler, 1989; Guthrie et al., 1988). Other victories were achieved in West Virginia and Connecticut. However, most of the challenges were unsuccessful. Taylor and Piche note the differences in how state courts have approached similar problems:

In each case, the state court was confronted with significant fiscal disparities, but the opinions reflect that they each engaged in their own unique legal reasoning, applying different standards, and ultimately drawing different conclusions. The indisputable impact then of the "Federalist" approach, forged by the Supreme Court in *Rodriguez,* is that children in the poor districts of states like Connecticut and West Virginia are guaranteed some measure of equity, while those who live in the property-poor and urban districts of states like New York and Maryland are condemned to inferior educations. (p. 67)

Disparities in funding ratios of 3 to 1 between high- and low-spending districts were and are common within states in which challenges have been both successful and unsuccessful. These disparities create differences among students' educational opportunities as a function of race and socioeconomic status as well as geography. As Taylor and Piche (1991) demonstrate:

Inequitable systems of school finance inflict disproportionate harm on minority and economically disadvantaged students. On an inter-state basis, such students are concentrated in states, primarily in the South, that have the lowest capacities to finance

public education. On an intra-state basis, many of the states with the widest disparities in educational expenditures are large industrial states. In these states, many minorities and economically disadvantaged students are located in property-poor urban districts which fare the worst in educational expenditures. In addition, in several states economically disadvantaged students, white and black, are concentrated in rural districts which suffer from fiscal inequity. (pp. xi–xii)

Furthermore, this connection between inadequate funding and the race and social status of students exacerbates the difficulties of creating either integrated or adequately funded schools. The vicious cycle was described early on in the fight for school funding reform:

School inequality between suburbia and central city crucially reinforces racial isolation in housing; and the resulting racial segregation of the schools constantly inhibits progress toward funding a therapeutic answer for the elimination of school inequality. If we are to exorcise the evils of separateness and inequality, we must view them together, for each dimension of the problem renders the other more difficult to solve—racially separate schools inhibit elimination of school inequality, and unequal schools retard eradication of school segregation. (Silard & Goldstein, 1974, p. 324)

Courts that have found their state's school finance scheme to be unconstitutional have done so on one of three grounds: the federal Constitution's 14th Amendment, the state constitution's equal opportunity clause, or the state constitution's education article

(McUsic, 1991, p. 307). A series of state challenges in the 1970s was followed by a decade of little activity, during which time there remained substantial variation in the share of school funding provided by states, with less activism aimed at equalization in states in which judicial pressure had been absent (Wong, 1989). The issue was rejoined in the late 1980s, when successful finance suits were brought in New Jersey, Texas, Montana, Kentucky, and Tennessee (ETS, 1991) and has continued into the 1990s with law suits in Alabama, New York, California, and elsewhere arguing a new "adequacy" theory. These suits seek to demonstrate how access to concrete learning opportunities is impaired by differential access to money, and how these learning opportunities translate into academic achievement for students.

As standards are used to articulate what students need to learn to function in today's society and what schools need to do to support these levels of learning, lawsuits like one recently won in Alabama may be linked to definitions of the quality of education that is "adequate" to meet the state's expectations for student achievement. Such cases are requiring remedies that link levels of funding to minimum standards of learning, teaching, and resources. For example, the trial judge in the New York case (which is now on appeal) stated in deciding for the plaintiffs:

> This court has held that a sound basic education mandated by the Education Article consists of the foundational skills that students need to become productive citizens capable of civic engagement and sustaining competitive employment. In order to ensure that public schools offer a sound basic education the State must take steps to ensure at least the following resources, which, as described in the body of this opinion are for the most part currently not given to New York city's

> public school students: 1) Sufficient numbers of qualified teachers, principals, and other personnel; 2) Appropriate class sizes; 3) Adequate and accessible school buildings…; 4) Sufficient and up to date books, supplies, libraries, educational technology, and laboratories; 5) Suitable curricula, including an expanded platform of programs to help at risk students…; 6) Adequate resources for students with extraordinary needs; and 7) A safe orderly environment (Campaign for Fiscal Equity et al. v. State of New York, 187 Misc. 2d 1; 719 N.Y.S.2d 475; January 9, 2001).

Although the legal intricacies by which the courts have made their decisions are beyond the scope of this chapter, some of the conceptual grounds on which opponents of such decisions rest their arguments are not. In particular, opponents of school finance reform often argue (a) that concerns about local control outweigh concerns about equalizing funding across districts, and (b) that differences in per-pupil expenditures are irrelevant to issues of equity, since financial input does not affect the quality of education a district offers. For example, in overturning the CFE decision above, an appellate panel concluded that New York City's lower levels of funding had no proven bearing on student achievement and that, in any event, students could get by as low-level workers on an 8th or 9th grade education. The state, the court said, has no constitutional responsibility to ensure they can reach the new graduation standards laid down by the State Board of Regents. It remains to be seen whether the State Court of Appeals will agree with this view that, while children are accountable to the state for specific levels of achievement, the state is not accountable to children to provide the means to reach these levels.

Proponents of the argument that "money doesn't make a difference" suggest that low-cost attitudinal and administrative changes contribute more than financial resources to educational quality within districts, and that no definitive correlation has been shown between money spent and educational quality. Defenders of finance reform argue that although money *can* be misspent, and although significant changes can be made without maximum resources, the question must be considered within the larger framework of the possibilities that are created and constrained at differing levels of resources. Within that framework, money makes a substantial difference (Minow, 1991; Murnane, 1991).

In response to the local control argument, defenders of school finance reform have pointed out that local control of schools has already been subjected to such erosion that, as the Texas Supreme Court wrote in its 1988 *Edgewood v. Kirby* decision,

the only element of local control that remains undiminished is the power of wealthy districts to fund education at virtually any level they choose, as contrasted with property-poor districts who enjoy no such local control. . . . Most of the incidents in the education process are determined and controlled by state statute and/or State Board of Education rule, including such matters as curriculum, course content, textbooks, hours of instruction, pupil-teacher ratios, training of teachers, administrators and board members, teacher testing, and review of personnel decisions and policies. (quoted in Wise & Gendler, 1989, p. 16)

Although local control in the form of parental and community involvement in the schools remains an important factor in education, it does not provide justification for

radically inequitable allocation of financial resources. Indeed, a more equitable distribution of resources might be a precondition for genuine local control (Yudof, 1991).

How Money Makes a Difference

The relationship between educational funding and educational achievement was placed in question in 1966, when James Coleman and a team of researchers issued *Equality of Educational Opportunity* (Coleman et al., 1966), which later came to be known as the Coleman report. Although the report argued that sources of inequality that it identified should be remedied, its statement that "schools bring little influence to bear on a child's achievement that is independent of his background and general social context" (quoted in Ferguson, 1991, p. 468) became widely viewed as a claim that school funding does not affect school achievement. As later analyses pointed out, it is in part the high correlation between students' backgrounds and their schools' resources that makes it difficult in macroanalytic studies to identify an independent effect of schooling on achievement (see, e.g., MacPhail-Wilcox & King, 1986).

Nonetheless, while the Coleman report did not say so, the received view became the belief that additional resources play no role in producing better-educated students. Other studies have sought to confirm this view (e.g., Hanushek, 1990; Jencks et al., 1972), while newspapers have reveled in reporting the counterintuitive conclusion that "money doesn't buy better education. . . . The evidence can scarcely be clearer" (*Wall Street Journal*, June 27, 1989, cited in Kozol, 1991, p. 133).

More recent studies, however, have provided empirical justification for the view that money *does* make a difference. Analyzing a set of data on Texas school districts even larger than that available to Coleman and his team of researchers, Ronald Ferguson (1991) found that the single most important measurable cause of increased student learning was teacher expertise, measured by teacher performance on a statewide recertification exam, teacher experience, and master's degrees. He also found that class size, at a teacher-student ratio of 1:18, is also a statistically significant determinant of student outcomes.

Both of these findings have been confirmed elsewhere. As described in the next section, a large number of studies have found positive effects of teacher expertise on student achievement. In addition, smaller class sizes (below a threshold that is often in the low 20s or below) can make a substantial difference in achievement, especially in the early grades and for low-income students (Glass, Cahen, Smith, & Filby, 1982; Walberg, 1982; Educational Research Service, 1980).

Ferguson demonstrated that when regional cost differentials are accounted for, school district operating expenditures exert a significant positive effect on student achievement. The strength of effects on achievement increases as funding moves closest to direct instruction of students. While all are significant, proportionally equivalent investments in teachers' salaries produce higher marginal gains in student performance than investments in general instructional expenditures, and investments in instructional expenditures produce higher marginal gains in achievement than proportional increases in general operating expenditures. Money makes a difference, and the difference increases as it is spent on instructionally crucial resources.

Ferguson (1991) notes that this finding "strongly supports the conventional wisdom that higher-quality schooling produces better reading skills among public school students, and that when targeted and managed wisely, increased funding can improve the quality of public education" (p. 488). Furthermore, "what the evidence here suggests most strongly is that teacher quality matters and should be a major focus of efforts to upgrade the quality of schooling. Skilled teachers are the most critical of all schooling inputs" (p. 490). The effects of teacher quality were so strong, and the variations in teacher expertise so great that, after controlling for socioeconomic status, the large disparities in achievement between black and white students were almost entirely accounted for by differences in the qualifications of their teachers.

Ferguson and Helen Ladd (1996) repeated this analysis in Alabama with a data set that included rougher proxies for teacher knowledge (master's degrees and ACT scores instead of teacher licensing examination scores), and still found sizable influences of teacher qualifications and smaller class sizes on student achievement gains in mathematics and reading when the data were analyzed at both the district and school levels. They found that 31% of the predicted difference in district mathematics scores in the top and bottom quartiles was explained by teacher qualifications and class sizes, while 29.5% was explained by poverty, race, and parent education.

A similar study (Strauss & Sawyer, 1986) found that student test performance in North Carolina districts was strongly associated with teachers' average scores on the most commonly used teacher licensing examination, the National Teacher Examinations. (The NTE Core Battery, in use in North Carolina at that time, including components measuring basic skills, general knowledge, and professional teaching knowledge).

Taking into account per-capita income, student race, district capital assets, student plans to attend college, and pupil/teacher ratios, teachers' test scores had a strikingly large effect on students' failure rates on the state competency examinations: a 1% increase in teacher quality (as measured by NTE scores) was associated with a 3 to 5% decline in the percentage of students failing the exam. This effect was much larger than the effect of student race. The authors' conclusion was similar to Ferguson's:

> Of the inputs which are potentially policy-controllable (teacher quality, teacher numbers via the pupil-teacher ratio and capital stock), our analysis indicates quite clearly that improving the quality of teachers in the classroom will do more for students who are most educationally at risk, those prone to fail, than reducing the class size or improving the capital stock by any reasonable margin which would be available to policy makers (p. 47).

As I describe below, the evidence is increasingly clear that equal educational opportunity must include access to quality teachers and teaching.

Access to Good Teaching

In "Closing the Divide," Robert Dreeben (1987) describes the results of his study of reading instruction and outcomes for 300 Black and White first graders across seven schools in the Chicago area. He found that differences in reading outcomes among

students were almost entirely explained, not by socioeconomic status or race, but by the quality of instruction the students received:

Our evidence shows that the level of learning responds strongly to the quality of instruction: having and using enough time, covering a substantial amount of rich curricular material, and matching instruction appropriately to the ability levels of groups. . . . When black and white children of comparable ability experience the same instruction, they do about equally well, and this is true when the instruction is excellent in quality and when it is inadequate. (p. 34)

However, the study also found that the quality of instruction received by African American students was, on average, much lower than that received by White students, thus creating a racial gap in aggregate achievement by the end of first grade. In fact, the highest ability group in Dreeben's sample was in a school in a low-income African American neighborhood. However, these students learned less during first grade than their lower-aptitude White counterparts. Why? Because their teacher was unable to provide the kind of appropriate and challenging instruction this highly talented group deserved.

Another study of African American high school youth randomly placed in public housing in the Chicago suburbs rather than in the city found similar results (Kaufman & Rosenbaum, 1992). Compared with their comparable city-placed peers, who were of equivalent income and initial academic attainment, the students who were enabled to attend largely White and better-funded suburban schools had better educational outcomes

across many dimensions: They were substantially more likely to have the opportunity to take challenging courses, receive additional academic help, graduate on time, attend college, and secure good jobs.

These examples are drawn from carefully controlled studies that confirm what many other studies have suggested: Much of the difference in school achievement found between African American students and others is due to the effects of substantially different school opportunities, in particular greatly disparate access to high-quality teachers and teaching (see, e.g., Barr & Dreeben, 1983; Dreeben & Gamoran, 1986; Dreeben & Barr, 1987; College Board, 1985; Oakes, 1990).

The Unequal Distribution of Teachers

Minority and low-income students in urban settings are most likely to find themselves in classrooms staffed by inadequately prepared, inexperienced, and ill-qualified teachers because funding inequities, distributions of local power, and labor market conditions conspire to produce teacher shortages of which they bear the brunt. In almost every field, schools with the largest numbers of low-income and minority students are much more likely than other schools to report that they have difficulty filling vacancies (NCES, 1997, Table 8.11). These schools are also much more likely than others to fill vacancies with unqualified teachers, substitutes, or teachers from other fields, or to expand class sizes or cancel course offerings when they cannot find teachers.

These "shortages," though, are largely a problem of distribution rather than of absolute numbers. Wealthy districts that pay high salaries and offer pleasant working

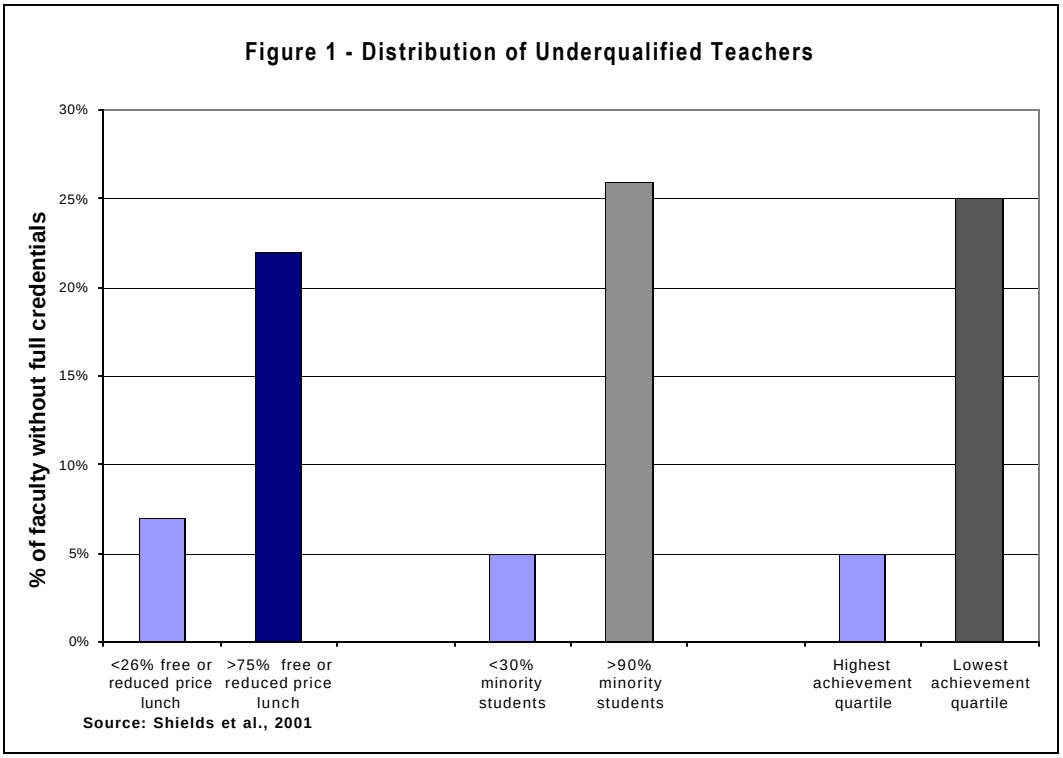
conditions rarely experience shortages in any field. Districts that serve low-income and "minority" students tend to pay teachers less and offer larger class sizes and pupil loads, fewer materials, and less desirable teaching conditions, including less professional autonomy (Darling-Hammond, 1997; NCES, 1999). They also often have cumbersome and inefficient hiring systems that make the selection process particularly slow and grueling for candidates. For obvious reasons, they have more difficulty recruiting and retaining teachers.

As a consequence of these conditions, teachers working in schools serving larger numbers of low-income and minority students generally have substantially lower levels of education and are more often unprepared for their teaching assignments than those in economically advantaged schools (Oakes, 1990; NCES, 1999). In California, where these differentials are among the most striking, schools serving the greatest proportions of low-income and minority students are four to five times more likely to hire teachers without full certification. Unqualified teachers are also concentrated in the lowest-achieving schools (Shields et al., 2001). In a national study of mathematics and science teaching, Oakes found that students in the highest-minority schools have only a 50% chance of being taught by math or science teachers who are certified and hold a degree in the subject area(s) they teach. She concludes:

Our evidence lends considerable support to the argument that low-income, minority, and inner-city students have fewer opportunities. . . . They have considerably less access to science and mathematics knowledge at school, fewer material resources, less-engaging learning activities in their classrooms, and less-qualified teachers. . . . The differences we

have observed are likely to reflect more general patterns of educational inequality. (pp. x–xi)

Just as Dreeben (1987) found in his study of early reading teaching, Oakes (1990a) also discovered that "High-ability students at low-socioeconomic status, high-minority schools may actually have fewer opportunities than low-ability students who attend more advantaged schools" (p. vii). The pattern of systematic underexposure to good teaching tends to put all children in high-minority schools at risk.



Teacher shortages subvert the quality of education in a number of ways. They make it hard for districts to be selective about the quality of teachers they hire, and they often result in the hiring of teachers who do not have content background for the fields

and have not completed (or sometimes even begun) their pedagogical training. Thus, districts serving the greatest concentrations of poor children, minority children, and children of immigrants are also those in which incoming teachers are least likely to have learned about up-to-date teaching methods or about what to do if they are having difficulties. In addition, when faced with shortages, districts must often hire substitutes, assign teachers outside their fields of qualification, expand class sizes, or cancel course offerings. No matter what strategies are adopted, the quality of instruction suffers.

According to the most recent national data, at least 100,000 teachers in 1999-2000 were underqualified for their teaching assignments, and most of them were assigned to the most disadvantaged central city or rural schools, where working conditions are least attractive and turnover rates are highest.[2] Since many of the more expert and experienced teachers transfer to more desirable schools and districts when they are able, new teachers are typically given the most difficult teaching assignments in schools that offer the fewest supports (Wise, Darling-Hammond, & Berry, 1987; Murnane et al., 1991). Because of these challenges, attrition rates for new teachers, especially in cities, average between 30 and 40% over the first five years of teaching (Grissmer & Kirby, 1987; Ingersoll, 2002).

This high attrition rate adds problems of staff instability to the already difficult circumstances in which central city youth attend school. Where shortages are acute and enduring, many children are taught by a parade of short-term substitute teachers, inexperienced teachers without support, and underqualified teachers who know neither their subject matter nor effective teaching methods. This sets up the school failure that

[2] Schools and Staffing Surveys, 1999-2000, Teacher Survey data. Tabulations conducted by Richard Ingersoll and John Luczak for the National Commission on Teaching and America'

society predicts for low-income and minority children—a failure that it helps to create for them by its failure to deal effectively with the issues of teacher supply and quality.

What Matters in Teaching?

Over the last 20 years, educational research has exploded the myths that any teaching is as effective as any other, and that unequally trained and experienced teachers are equally advantageous to students. In a study documenting the positive influence of teaching experience on teaching effectiveness, Murnane and Phillips (1981) note:

> The question of whether teachers become more productive as they gain teaching experience has been of interest to policymakers for many years. One reason is that schools serving children from low-income families have typically been staffed with less experienced teachers than schools serving middle-class children. This has led to court tests of whether the uneven distribution of teaching experience constitutes discrimination against low-income children. (pp. 453–454)

Although the correlation between teacher experience and effectiveness is not unvarying over the course of a career, studies consistently find that new teachers—those with fewer than three years of experience—tend to be much less effective than more experienced teachers (Betts, Rueben, & Danenberg, 2000; McNeil, 1974; Murnane & Phillips, 1981; Rottenberg & Berliner, 1990). Especially in the unsupported environment most encounter, beginning teachers experience a wide range of problems in learning to teach; problems with classroom management, motivating students, being aware of and

dealing appropriately with individual learning needs and differences, and developing a diverse repertoire of instructional strategies are among the most commonly noted (Veenman, 1984; Johnston & Ryan, 1983; Rottenberg & Berliner, 1990).

Having confirmed that teacher experience does make a difference, researchers are now identifying what expert veterans do in the classroom that distinguishes their teaching from that of novices. Among other things, expert teachers are much more sensitive to students' needs and individual differences; they are more skilled at engaging and motivating students; and they can call upon a wider repertoire of instructional strategies for addressing student needs (see, e.g., Berliner, 1986; Shulman, 1987; Grossman, 1990). Much of this research also demonstrates the importance of teacher education for the acquisition of knowledge and skills that improve the caliber of instruction and the success of students (Darling-Hammond, 2000; Wilson, Floden, & Ferrini-Mundy, 2001). Studies have found significant relationships between student achievement and measures of teacher education and certification at the levels of the individual teacher (e.g. Goldhaber & Brewer, 2000; Hawk, Coble, & Swanson, 1985; Monk, 1994); the school (Betts, Rueben, & Danenberg, 2000; Fetler, 1999); the school district (Ferguson, 1991; Strauss & Sawyer, 1986); and the state (Darling-Hammond, 2000).

This is particularly important in light of the fact that policy makers have nearly always answered the problem of teacher shortages by lowering standards so that people who have had little or no preparation for teaching can be hired. These teachers are disproportionately assigned to teach the least enfranchised students. Although this practice is often excused by the assumption that virtually anyone can figure out how to teach, a number of research reviews have concluded that fully prepared and certified

teachers are more highly rated and more successful with students than teachers without preparation (Ashton & Crocker, 1986, 1987; Darling-Hammond, 1992; Evertson, Hawley, & Zlotnik, 1985; Druva & Anderson, 1983). Thus, policies that resolve shortages in poor districts by supporting the hiring of unprepared teachers serve only to exacerbate the inequalities experienced by low-income and minority children.

A number of studies have found that teachers who enter without full preparation are less able to plan and redirect instruction to meet students' needs (and less aware of the need to do so), less skilled in implementing instruction, less able to anticipate students' knowledge and potential difficulties, and less likely to see it as their job to do so, often blaming students if their teaching is not successful (Bledsoe, Cox, & Burnham, 1967; Rottenberg & Berliner, 1990; Grossman, 1990). Furthermore, teachers who enter teaching with little or no training leave at very high rates. In California, just over 40% of emergency permit teachers leave the profession within a year,[3] and two-thirds never receive a credential. National data from the Recent College Graduates Survey indicates that about two-thirds of unprepared entrants leave teaching within their first year (Grey et al., 1993). Other national data indicate that about 60-65% of entrants through short-term alternative certification routes have left within three years (Darling-Hammond, 2000a). A recent NCES report notes that 29% of new teachers who had not had student teaching left teaching within five years as compared to only 15% of those who had had student teaching (Henke, Chen, & Geis, 2000).

[3] CCTC reports 1-year attrition rates for emergency credentialed teachers of 35% for elementary recruits and 48% for secondary recruits (CCTC Emergency Permit Persistence Data, 1996-97, compiled by Certification and Waiver Division, 1/9/98 on first time Multiple and Single Subject Long Term Emergency Permits.). Darling-Hammond, Educating Teachers for California's Future. SF: The Irvine Foundation, 1999.

In the context of today's higher standards and the growing diversity of students in schools, the lack of adequate teacher preparation for so many teachers in urban and poor rural schools is troubling. Teachers need not only the skills to impart content knowledge in accessible ways, they also need to be able to reach the growing number of students whose first language is not English and the large number of students with special learning needs. The National Center for Education Statistics estimates that, in 1993-94, only 30 percent of teachers instructing limited English proficient (LEP) students had any training to do so, and fewer than 3 percent of teachers with LEP students had earned a degree teaching English as a Second Language or in bilingual education. Fewer than 50% of LEP students in middle and high schools receive any kind of ESL or bilingual education support (Ruiz-de-Velasco & Fix, 2000). Meeting the needs of this growing segment of the student population – and many others with particular learning needs – requires much more knowledge about teaching and learning at a time when many teachers whose teaching assignments require the greatest expertise have the least.

Furthermore, more than ever before in our nation's history, education is not only the ticket to economic success but to basic survival. Whereas a high school dropout in 1970 had two chances out of three of getting a job, by 1993, a recent school dropout who was black had only a one in four chance of being employed, and the odds for his white counterpart were about 50 percent (NCES, 1995, p. 88). Those who do not succeed in school are becoming part of a growing underclass, cut off from productive engagement in society. Because the economy can no longer absorb many unskilled workers at decent wages, lack of education is increasingly linked to crime and welfare dependency.

Women who have not finished high school are much more likely than others to be on welfare, while men are much more likely to be in prison. In 1993, there were more African American citizens on probation, in jail, in prison, or on parole (1,985,000) than there were in college (1,412,000) (U.S. Department of Commerce, table numbers 281 and 354, pp. 181 and 221). More than half the adult prison population has literacy skills below those required by the labor market (Barton & Coley, 1996), and nearly 40 percent of adjudicated juvenile delinquents have treatable learning disabilities that were went undiagnosed and untreated in the schools (Gemignani, 1994).

Meanwhile, schools have changed slowly. Most are still organized to prepare only about 20% of their students for "thinking work" -- those students who are tracked very early into gifted and talented, "advanced," or honors courses. These opportunities are least available to African American, Latino, and Native American students.

Access to Courses, Curriculum Materials, and Equipment

In addition to being taught by less qualified teachers than their suburban counterparts, urban students face dramatic differences in courses, curriculum materials, and equipment. For example, Kozol (1991) noted that, while Goudy Elementary School, which serves a predominantly African American student population in Chicago, uses “15-year-old textbooks in which Richard Nixon is still president” and has “no science labs, no art or music teachers . . . [and] two working bathrooms for some 700 children,” the neighboring town of New Trier (more than 98% White) provides its high school students with

"superior labs . . . up-to-date technology . . . seven gyms [and] an Olympic pool" (pp. 63-65).

From a more wide-ranging statistical vantage point, Oakes (1990a) found in a study of access to mathematics and science-related educational resources that:

Students in low-income, high-minority schools have less access than students in other schools to computers and to the staff who coordinate their use in instruction, to science laboratories, and to other common science-related facilities and equipment. (p. ix)

Oakes and Sanders (2002) point out that in science, learning materials and workspaces that permit "hands-on" science activities are increasingly necessary for student achievement in inquiry-based science education and that opportunities for laboratory inquiry lead to higher achievement and more equitable achievement among students of different socioeconomic backgrounds (Von Secker & Lissitz, 1999). Inadequate facilities and equipment and lack of money to purchase supplies create larger gaps among advantaged and disadvantaged students because these shortages lead to students in disadvantaged schools having fewer opportunities for scientific inquiry (Lee and Burkham, 1996).

Disparities also exist in access to other kinds of materials, including textbooks, supplies, and computers. Analyzing data from a California school survey, Oakes and Sanders (2002) found that schools serving a large population of low-income or "minority" students had less access to every category of instructional resources than did schools serving a population where few low-income or minority students. For example,

while 88 % of teachers working at schools serving fewer minority students (<30%), indicated that textbooks were always available, only 68% of teachers working at schools serving more minority students (>90%) indicated that they always had access to textbooks. Similarly, 83% of teachers working at schools serving a small percentage of low-income students indicated that they always had access to textbooks versus only 57% of teachers who worked at schools serving a large population of low-income students.

Although the Clinton Administration's E-rate program made important strides in closing the gap between rich and poor schools in access to technology – a gap that exacerbates the gap in access to technology across affluent and low-income households – there are still noticeable disparities in students' access to computers and the internet. In 2000, while 98 percent of schools had some kind of internet access, schools with high concentrations of students in poverty had fewer classrooms connected to the internet (60% as opposed to 82% in higher income schools) and higher ratios of students to computers (9:1 in contrast with the 6:1 ratio in more affluent schools). (NCES, 2001).

In predominantly minority schools, 23% of classrooms had no computers available (as compared to between 11 and 16% in predominantly white schools), and in high-poverty schools the proportion of classrooms with no computer access was 18% (as compared to 13% in low-poverty schools) (Smerdon et al., 2000, p. 50). Furthermore, research has found that in predominantly minority schools and classrooms, microcomputers have been used much more frequently for drill and practice and much less frequently to teach students to program, access data, and solve problems using the computer as a tool, rather than as a master (Sutton, 1991; Smerdon et al., 2000).

Even more important are deep-seated inequalities in access to curriculum. High-minority schools have traditionally been much less likely to offer advanced and college preparatory courses in mathematics and science than schools that serve affluent and largely White populations of students (Oakes, 1990). In many parts of the country, these kinds of conditions have not changed. Schools with the fewest resources in terms of teaching expertise typically also have fewer resources of all other kinds as well. A recent Public Policy Institute study discovered that large disparities in teachers' experience, general education (degree level), and preparation for teaching (as measured by certification status) across California schools are associated with equally large disparities in access to curriculum as measured through the percentage of high school courses that satisfy entrance requirements at the University of California (the "a-f" courses) and Advanced Placement courses. Both of these are strongly related to students' socioeconomic status (Betts, Rueben, & Dannenberg, 2000). (See Table 1.) Low-income schools are also more likely to be large and overcrowded, sometimes operating on multi-track, year-round schedules, all of which pose disadvantages both for student learning and for attracting and retaining well-qualified teachers.

Table 1
Disparities in Curriculum and Teaching Resources, by School SES

Characteristics of Teaching Force and Curriculum in Schools	Lowest SES Schools (bottom quintile)	Highest SES Schools (top quintile)
% with 0-2 years experience (K-6)	23.8	17.2
% with 10 or more years experience (K-6)	43.3	53.3
% with bachelor's degree or less (K-6)	32.6	8.8
% with master's degree or more (K-6)	21.7	27.0
% not fully certified (K-6)	21.7	2.0
% "a-f" classes (9-12)	51.8	63.2
% AP classes	2.0	3.2

Source: Betts, Rueben, and Danenberg (2000), Table B1.

When high-minority, low-income schools offer any advanced or college preparatory courses, they typically offer them to only a very tiny fraction of students. Thus, at the high school level, African Americans, Hispanics, and American Indians have traditionally been underrepresented in academic programs and overrepresented in vocational education programs, where they receive fewer courses in areas such as English, mathematics, and science (College Board, 1985).

As Oakes (1992) explains:

The extraordinarily complex connections between tracking and social stratification play out in two ways. First, schools with predominantly low-income and minority student populations tend to be "bottom heavy." That is, they offer smaller academic tracks and larger remedial and vocational programs than do schools serving whiter, more affluent student bodies. . . . The second link between tracking and students' race and social class is forged in racially mixed schools through the disproportionate assignment of African-American and Latino students to low-track classes. (p. 13)

Long-standing gaps in access to and participation in academic coursework have continued. In 1998, for example, 45% of white high school graduates had taken advanced courses in mathematics, while the proportions for black and Hispanic graduates were 30% and 26%, respectively (NCES, 2001a). And while 31% of white high school graduates had taken advanced courses in English, the proportions for black, Hispanic, and Native American graduates were 27%, 22%, and 17% respectively (NCES, 2001b, p. 61).

Black, Hispanic, and Native American students were also 50% to 90% more likely to have taken English courses that were categorized as "low academic level."

Unequal access to high-level courses and challenging curriculum explains much of the difference in achievement between minority students and White students. For example, analyses of data from the High School and Beyond surveys demonstrate that, for students of all racial and ethnic groups, course taking is strongly related to achievement; among students with similar course-taking records, achievement test score differences by race or ethnicity narrow substantially (College Board, 1985, p. 38; Jones, 1984; Jones, Burton, & Davenport, 1984; Moore & Smith, 1985; Pelavin & Kane, 1990).

Tracking and the Rationing of Curriculum

The same forces that produce the flow of good teachers and rich educational resources to advantaged schools, and the ebb of opportunities from disadvantaged schools and students, are at work within schools wherever tracking persists. Tracking – that is, the practice of placing students into course streams that differentiate the kind and amount of content to which they will have access [4] – has endured in the face of evidence that it does not substantially benefit high achievers and tends to put low achievers at a disadvantage (Oakes, 1985, 1986; Hoffer, 1992; Kulik & Kulik, 1982; Slavin, 1990), in part because good teaching is a scarce resource, and thus must be allocated. Scarce resources tend to

[4] Tracking can be distinguished from other forms of grouping in several ways: Tracking affects the possibilities of students for access to content as it differentiates content within courses and establishes a long-term course "stream" that follows from a given track assignment (e.g. honors, college preparatory, general, vocational, remedial or special education, and in some states, English as a Second Language (ESL) sheltered). Other forms of grouping for instruction may occur to take account of student interests or current achievement levels without predicting or precluding their long-range access to content.

get allocated to the students whose parents, advocates, or representatives have the most political clout. This results—not entirely but disproportionately—in the most highly qualified teachers teaching the most enriched curricula to the most advantaged students.

Evidence suggests that teachers themselves are tracked, with those judged to be the most competent, experienced, or with the highest status assigned to the top ranks (Finley, 1984; Talbert, 1990). In one study of secondary school curriculum, for example, 42% of teachers of remedial, vocational, and general mathematics had been teaching for five years or less, compared with 19% of those in the pre-algebra and algebra sections (McDonnell, Burstein, Ormseth, Catterall, & Moody, 1990, cited in Wheelock, 1992). Expert, experienced teachers who are in great demand are rewarded with opportunities to teach the students who already know a lot. New teachers, unprepared teachers, and those teaching outside their field of preparation are often assigned to the students and the classes that others do not care to teach, which leaves them practicing on the students who would benefit most from the skills of the expert, experienced teachers.

Another major reason for the persistence of this practice is the kind of preparation teachers receive generally. Managing a heterogeneous classroom requires preparation that relatively few teachers receive and skills that relatively few of them acquire (Darling-Hammond, 1990b; Wheelock, 1992). It requires refined diagnostic ability, a broad repertoire of teaching strategies, and the ability to match strategies to varied learning styles and prior levels of knowledge. It requires skill in using inquiry and cooperative learning strategies, as well as skills in classroom management even more considerable than those required in a homogeneous classroom. Because relatively few teachers are prepared to manage heterogeneous classrooms effectively, tracking persists.

Tracking in elementary and middle school is much more extensive in U.S. schools than in most other countries. Even those countries that differentiate high schools typically providing a common core curriculum prior to high school. In the U.S., tracking often starts in elementary school with the designation of instructional groups and programs, such as "gifted and talented" or "compensatory" classes based on test scores and recommendations. These distinctions generally become highly formalized by junior high school. The result of this practice is that challenging curricula are rationed to a very small proportion of students, and far fewer U.S. students ever encounter the kinds of curriculum typically experienced by students in other countries (McKnight et al., 1987; Usiskin, 1987; Useem, 1990; Wheelock, 1992). Although advanced coursetaking has increased, in 1998, it was still the case that 62% of U.S. high school students had not taken advanced mathematics courses of the kind taken by most students in the highest-achieving countries (NCES, 2001b, p. 156).

Students placed in lower tracks are typically exposed to a more limited, rote-oriented curriculum, and ultimately achieve less than students of similar aptitude who are placed in academic programs or untracked classes (Gamoran, 1990; Gamoran & Mare, 1989; Oakes, 1992). Teacher interaction with students in lower-track classes has been found to be less motivating and less supportive, as well as less demanding of higher-order reasoning and responses (Good & Brophy, 1987). Presentations are often less clear and less focused on higher-order cognitive goals (Oakes, 1985). These interactions are also less academically oriented and more likely to focus on behavioral criticisms, especially for minority students (Eckstrom & Villegas, 1991).

These curricular differences are widespread, and they explain much of the disparity between the achievement of White and minority students and between those of higher and lower income levels (Oakes, 1985; Lee & Bryk, 1988). Studies over more than two decades have found that when students of similar background and initial achievement level are exposed differentially to either more or less challenging curriculum material, those given the richer curriculum opportunities outperform those placed in less challenging classes (Alexander & McDill, 1976; Oakes, 1985; Gamoran & Berends, 1987). Most studies have estimated effects statistically based on naturalistic occurrences of different tracking policies. However, one study that randomly assigned seventh-grade "at-risk" students to remedial, average, and honors mathematics classes found that, at the end of the year, the at-risk students who took the honors class offering a pre-algebra curriculum outperformed all other students of similar background (Peterson, 1989, cited in Levin, 1992).

Tracking exacerbates differential access to knowledge. As Oakes (1986) notes, assignments of poor and minority students to lower tracks are predictable:

> One finding about placements is undisputed. . . . Disproportionate percentages of poor and minority youngsters (principally black and Hispanic) are placed in tracks for low-ability or non-college-bound students; further, minority students are consistently underrepresented in programs for the gifted and talented.

Though test scores and prior educational opportunities may provide one reason for these differential placements, race and socioeconomic status play a distinct role.

Oakes and Lipton (1998, p. 298) report on their findings in racially mixed school systems that African American and Latino students are much less likely than white or Asian students *with the same test scores* to be placed in high-ability classes. In one West Coast district they studied, white and Asian students with average scores on standardized tests were more than twice as likely to be placed in accelerated classes as Latino students with the same scores. And while 93 percent of high-scoring whites were in accelerated classes, only 56 percent of high-scoring Latinos with comparable scores were in these classes. Gamoran (1992) also found that race and socioeconomic status determine assignments to high school honors courses even after test scores are controlled. This is true in part because of prior placement of students in upper tracks in earlier grades, in part because of counselors' views that they should advise students in ways that are "realistic" about their futures, and in part because of the greater effectiveness of parent interventions in tracking decisions for higher-SES students. For similar reasons, race and socioeconomic status also affect students' placements in vocational and academic programs and in more or less challenging courses within them (Oakes, Selvin, Karoly, & Guiton, 1992; Useem, 1990). The seeds of this tracking are planted in "ability grouping" in elementary school, and students' placements are well established long before high school begins (Moore & Davenport, 1988).

From "gifted and talented: programs at the elementary level through advanced courses in secondary schools, teachers who are generally the most skilled offer rich, challenging curricula to select groups of students, on the theory that only a few students can benefit from such curricula. Yet the distinguishing feature of such programs, particularly at the elementary level, is not their difficulty, but their quality. Students in

these programs are given opportunities to integrate ideas across fields of study. They have opportunities to think, write, create, and develop projects. They are challenged to explore. Though virtually all students would benefit from being similarly challenged, the opportunity for this sort of schooling remains acutely restricted.

Statistical patterns are brought alive by descriptions of sorting such as this one offered by Kozol (1991) of a school in New York City:

The school is integrated in the strict sense that the middle- and upper-middle class white children here do occupy a building that contains some Asian and Hispanic and black children; but there is little integration in the classrooms. . . . (p. 93)

He describes how minority children are disproportionately assigned to special education classes that occupy small, cramped corners and split classrooms, while classes of the "gifted and talented," almost exclusively White with a few Asian students, occupy the most splendid spaces, filled with books and computers, where they learn, in the children's words, "logical thinking," "problem-solving," "respect for someone else's logic," and "reasoning." Students are recommended for these classes by their teachers and parents as well as by their test scores. Kozol wrote in his notes: "Six girls, four boys. Nine white, one Chinese. I am glad they have this class. But what about the others? Aren't there ten black children in the school who could enjoy this also?" (p. 97).

Testing and Tracking

These differential allocations of resources are maintained and justified in substantial measure by the continued use of standardized testing for allocating curriculum opportunities. Over many decades, standardized tests have been used to define both teaching goals and students' opportunities to learn. As a tool for tracking students into different courses, levels, and kinds of instructional programs, testing has been a primary means for limiting or expanding students' life choices and their avenues for demonstrating competence. Increasingly, these uses of tests are recognized as having the unintended consequence of limiting students' access to further learning opportunities (Darling-Hammond, 1991; Oakes, 1985; Glaser, 1990).

For over 100 years, standardized testing has been a tool used to exert control over the schooling process and to make decisions about educational entitlements for students. Testing proved a convenient instrument of social control for those late 19th-century superintendents who sought to create the "one best system" of education (Tyack, 1974). It also proved enormously useful as a means of determining how to slot students for either more or less rigorous (and costly) curricula when public funding of education and compulsory attendance vastly increased access to schools in the early 20th century.

Given the massive increase in students, the limits of public budgets, and the relatively meager training of teachers, strategies were sought to codify curriculum and to group students for differential instruction. IQ tests were widely employed as a measure of educational input (with intelligence viewed as the "raw material" for schooling) to sort pupils so they could be efficiently educated according to their future roles in society (Cubberly, 1919; Cremin, 1961). The tests were frequently used to exclude students from schooling opportunities altogether (Glaser, 1981).

Though many proponents argued that the use of these tests as a tool for tracking students would enhance social justice, the rationales for tracking—like those for using scores to set immigration quotas into the United States—were often frankly motivated by racial and ethnic politics. Just as Goddard "proved" with his testing experiments in 1912 that 83% of Jews, 80% of Hungarians, 79% of Italians, and 87% of Russians were feeble-minded (Kamin, 1974), so did Terman "prove" in the early 1900s that "Indians, Mexicans, and negroes . . . should be segregated in special classes. . . . They cannot master abstractions, but they can often be made efficient workers" (Terman, quoted in Oakes, 1985, p. 36).

Terman found many performance inequalities among groups on his IQ test, adapted from Binet's work in France. Most, but not all, seemed to confirm what he, and presumably every "intelligent" person, already knew: that various groups were inherently unequal in their mental capacities. However, when girls scored higher than boys on his 1916 version of the Stanford-Binet, he revised the test to correct for this apparent flaw by selecting items to create parity among genders in the scores (Mercer, 1989). Other inequalities—between urban and rural students, higher- and lower-SES students, native English speakers and immigrants, Whites and Blacks—did not occasion such revisions, since their validity seemed patently obvious to the test makers.

The role of testing in reinforcing and extending social inequalities in educational opportunities has by now been extensively researched (Gould, 1981; Mercer, 1989; Oakes, 1985; Kamin, 1974) and widely acknowledged. For low-income and minority students, testing has mostly been a tool for denying access to challenging curriculum rather than improving the quality of education they receive (Watson, 1996). Use of tests

for placements and promotions ultimately reduces the amount of learning achieved by students placed in lower tracks or held back in grade (Darling-Hammond, 1991). Minority students are disproportionately subject to both of these outcomes of testing.

Neither outcome ultimately improves achievement. Students who are retained in grade fall consistently behind on both achievement and social-emotional measures when compared with students of equivalent achievement levels who are promoted (Holmes & Matthews, 1984; Shephard & Smith, 1986). Furthermore, the practice of retaining students is a major contributor to increased drop-out rates (Mann, 1987; Wehlage, Rutter, Smith, Lesko, & Fernandez, 1990). One of the more recent large-scale grade retention policies reconfirmed these repetitive findings. In Chicago, where a policy requiring test passage at grades 3, 6, and 8 led to the retention of more than 20,000 students in 1997 and 1998, an evaluation by Consortium on Chicago School Research concluded that:

> Retained students did not do better than previously socially promoted students. The progress among retained third graders was most troubling. Over the two years between the end of second grade and the end of the second time through third grade, the average ITBS reading scores of these students increased only 1.2 GEs (grade equivalents) compared to 1.5 GEs for students with similar test scores who had been promoted prior to the policy. Also troubling is that one-year dropout rates among eighth graders with low skills are higher under this policy…. In short, Chicago has not solved the problem of poor performance among those who do not meet the minimum test cutoffs and are retained. Both the history of prior attempts to redress poor performance with retention and previous research would clearly have predicted this finding. Few studies of retention have found positive impacts, and most suggest that retained students do not better than socially promoted students. (Roderick, Bryk, Jacob, Easton, & Allensworth, 1999, pp. 55-56).

The negative consequences of these policies have been exacerbated by sanctions attached to schools' average test scores. Because these scores are sensitive to changes in the population of students taking the test and such changes can be induced by

manipulating admissions, dropouts, and pupil classifications, schools have been found to label large numbers of low-scoring students for special education placements so that their scores won't "count" in school reports, retain students in grade so that their relative standing will look better on "grade-equivalent" scores, exclude low-scoring students from admission to "open enrollment" schools, and encourage such students to leave schools or drop out (Allington and McGill-Franzen, 1992; Darling-Hammond, 1991; Figlio, 2002; Haney, 2000; Smith & Shepard, 1987; Smith et al., 1986). In all of these cases, low-income students and students of color are most likely to be harmed by the consequences of such policies. Smith and colleagues explained the widespread engineering of student populations that he found in his study of New York City's implementation of test-based accountability as a basis for school level sanctions:

> (S)tudent selection provides the greatest leverage in the short-term accountability game....The easiest way to improve one's chances of winning is (1) to add some highly likely students and (2) to drop some unlikely students, while simply hanging on to those in the middle. School admissions is a central thread in the accountability fabric (Smith et al., 1986, pp. 30-31).

Finally, many studies have found that students placed in the lowest tracks or in remedial programs—disproportionately low-income and minority students—are most apt to experience instruction geared only to multiple-choice tests, working at a low cognitive level on test-oriented tasks that are profoundly disconnected from the skills they need to learn. Rarely are they given the opportunity to talk about what they know, to read real books to write, or to construct and solve problems in mathematics, science, or other subjects (Oakes, 1985; Cooper & Sherk, 1989; Davis, 1986). In short, they have been

denied the opportunity to develop the capacities they will need for the future, in large part because commonly used tests are so firmly pointed at educational goals of the past.

Enriching an Impoverished Curriculum

Cooper & Sherk (1989) describe how worksheet-based instruction focused on the discrete "skill" bits featured on multiple-choice tests impedes students' progress toward literacy:

> When hundreds of these worksheets, each of which presents a small, low-level skill related to reading, have been completed, children are said to have completed the "mastery" skills program. Often, these children still cannot read very well, if one defines reading as the ability to discern connected prose for comprehension.
>
> [Furthermore], worksheets are devised in such a way, teachers are told, that the material teaches itself. As a result, the amount of oral communication between pupil and teacher and between pupil and pupil is drastically reduced. . . . [Yet] if children are to learn language, a part of which is reading, they must interact and communicate. They must have some opportunity to hear words being spoken, to pose questions, to conjecture, and to hypothesize. . . . (p. 318)

Their discussion of what teachers should be able to do to support children's literacy development maps onto more general principles of effective instruction. Teachers must be able to construct active learning opportunities involving student collaboration and many modes of oral and written language use; help students access prior knowledge

that will frame for them the material to be learned; structure learning tasks so that students have a basis for interpreting the novel experiences they encounter; and stimulate and engage students' higher-order thought processes, including their capacities to hypothesize, predict, evaluate, integrate, and synthesize ideas (Cooper & Sherk, 1989; see also Resnick, 1987; Braddock & McPartland, 1993; Garcia, 1993).

In recent years the school reform movement has engendered widespread efforts to transform the ways in which students' work and learning are organized and assessed in schools. These alternatives are frequently called performance-based or "authentic" assessments because they engage students in "real world" tasks rather than multiple-choice tests, and evaluate them according to criteria that are important for actual performance in that field (Wiggins, 1989). Such assessments include oral presentations or exhibitions, along with collections of students' written products and their solutions to problems, experiments, debates, constructions and models, videotapes of performances and other learning occasions, and results of scientific and other inquiries (Archbald & Newman, 1988).

Much of the rationale for these initiatives is based on growing evidence that traditional norm-referenced, multiple-choice tests fail to measure complex cognitive and performance abilities. Furthermore, when used for decision making, such tests encourage instruction that tends to emphasize decontextualized, rote-oriented tasks imposing low cognitive demands rather than meaningful learning. Thus efforts to raise standards of learning and performance must rest in part on efforts to transform assessment practices. A number of studies have found increases in performance on both traditional standardized tests and performance measures for students in classrooms that offer a

problem-oriented and performance-based curriculum that regularly features performance assessment. For example, in a study of more than 2,000 students within 23 restructured schools, most of them in urban areas, Newmann, Marks, and Gamoran (1995) found much higher levels of achievement on complex performance tasks for students who experienced what these researchers termed "authentic pedagogy" – instruction focused on active learning in real-world contexts calling for higher-order thinking, consideration of alternatives, extended writing, and an audience for student work. A recent analysis of NELS data found that students in restructured schools where "authentic instruction" was widespread experienced greater achievement gains on conventional tests (Lee, Smith, & Croninger, 1995).

When accompanied by skilled teaching that is appropriate to the curriculum goals, these practices have been found to reduce inequalities in student performance generally associated with socioeconomic status (see e.g. Lee & Smith, 1995; Lee, Smith, and Croninger, 1995; Newmann and Wehlage, 1995). The findings of these large-scale studies are further illuminated by case study research on extraordinarily successful schools, such as Central Park East Secondary School, International High School, the Urban Academy, and others serve low-income, minority, and recent immigrant students who would normally fail in central city schools. Using personalized approaches coupled with performance assessments that set high standards and enable continuous improvement, these schools – and newer schools launched on the same design – have achieved graduation and college-going rates of over 90% and much higher levels of academic achievement than schools serving similar populations of students. (Darling-Hammond, Ancess, & Ort, 2001).

If performance-based assessments that are currently being developed point at more challenging learning goals for all students, they may ameliorate some of the current test-induced sources of inequality (Glaser, 1990). However, this will be true only to the extent that teachers are able to teach in the ways demanded by these assessments—that is, in ways that support the development of higher-order thinking and performance skills and in ways that diagnose and build upon individual learners' strengths and needs. Equalization of educational opportunities must rest as much on improving the caliber of teaching encountered by students of color as it does on changing the testing instruments or other technologies of schooling to which they are subject.

Policy for Equality: Toward Equalization of Educational Opportunity

The common assumption about educational inequality is that it resides primarily in those students who come to school with inadequate capacities to benefit from what education the school has to offer. In line with the sorting philosophy described above, students must prove themselves "worthy" to receive a rich, challenging, and thoughtful curriculum. If they do not, the fault is thought to be in their own capacities as learners, not in the schools' capacities to teach them. Too few policy makers, educators, and members of the public at large presume that students are entitled to such a curriculum as a matter of course. In fact, some state defendants have countered school finance cases arguing for equalization of school expenditures with assertions that equalization is not required unless it can be proven that equal expenditures will produce equal outcomes.

The fact that U.S. schools are structured such that students routinely receive dramatically unequal learning opportunities based on their race and social status is simply not widely recognized. If the academic outcomes for minority and low-income children are to change, aggressive action must be taken to change the caliber and quantity of learning opportunities they encounter. These efforts must include equalization of financial resources; changes in curriculum and testing policies and practices; and improvements in the supply of highly qualified teachers to all students.

Resource Equalization

Progress in equalizing resources to students will require attention to inequalities at all levels—among states, districts, schools within districts, and students differentially placed in classrooms, courses, and tracks that offer substantially disparate opportunities to learn. As a consequence of systematic inequalities at each of these levels, minority and low-income students are not only frequently "at risk" from poverty or community factors, they are placed further at risk by the schools they attend.

Special programs such as compensatory or bilingual education will never be effective at remedying underachievement so long as these services are layered on a system that educates minority and low-income children so poorly to begin with. The presumption that "the schools are fine, it's the children who need help" is flawed. The schools serving large concentrations of low-income students of color are generally not fine, and many of their problems originate with district and state policies and practices that place the schools at risk as well.

The inherently unequal effect of current policies should be considered as attention focuses on the special circumstances of the students put at greatest disadvantage by those policies. Current initiatives to create special labels and programs for "at-risk" children and youth are unlikely to succeed if they do not attend to the structural conditions of schools that place children at risk, not only from their home or community circumstances but from their school experiences as well. Pressures are great to respond to special circumstances with special categorical programs, and the tradition of succumbing to those pressures in an add-on fashion is well established, in education as in other areas of national life. But special programs, with all their accoutrements of new rules and procedures, separate budgets, and fragmented, pull-out programs, will be insufficient so long as the status quo remains unchanged in more significant ways.

As the 1992 interim report of an independent commission on Chapter 1 observes: "Given the inequitable distribution of state and local resources, the current notion that Chapter 1 provides supplemental aid to disadvantaged children added to a level playing field is a fiction" (Commission on Chapter 1, 1992, p. 4). The commission proposes that each state be held accountable for assuring comparability in "vital services" among all its districts as well as in all schools within each district. Among these vital services, perhaps the most important is highly qualified teachers, not just for specific Chapter 1 services but for all classrooms.

The new wave of school finance lawsuits that are challenging both within state and within district resource allocation disparities are also promising. These suits are increasingly able to demonstrate how access to concrete learning opportunities is impaired by differential access to money, and how these learning opportunities translate

into academic achievement for students. As standards are used to articulate clearer conceptions of what students need to learn to function in today's society and what schools need to do to support these levels of learning, lawsuits like one recently won in Alabama may be linked to definitions of the quality of education that is "adequate" to meet the state's expectations for student achievement. Such cases suggest remedies that link levels of funding to minimum standards of learning and teaching. As suits brought on the adequacy theory establish that learning experiences depend on resources and influence outcomes, they establish a principle of "opportunity to learn" that could allow states to define a curriculum entitlement that becomes the basis for both funding and review of school practices.

Opportunity to Learn Standards. The idea of opportunity to learn standards was first developed by the National Council on Education Standards and Testing (NCEST), which proposed that states collect evidence on the extent to which schools and districts provide opportunity to learn the curricula implied by content and performance standards before using tests for school graduation or other decisions (NCEST 1992, F17-F18).

Opportunity-to-learn standards would establish, for example, that if a state's curriculum frameworks and assessments outlined standards for science learning that require laboratory work and computers, certain kinds of coursework, and particular knowledge for teaching, resources must be allocated and policies must be fashioned to provide for these entitlements. Such a strategy would leverage both school improvement and school equity reform, providing a basis for state legislation or litigation where opportunities to learn were not adequately funded.

Such standards would define a floor of core resources, coupled with incentives for schools to work toward professional standards of practice that support high-quality learning opportunities. Enacted through a combination of funding commitments, educational indicators, and school review practices, such standards could provide a basis for information about the nature of the teaching and learning opportunities made available to students in different districts and schools across the state; state legislation and, if necessary, litigation that supports greater equity in funding and in the distribution of qualified teachers; and incentives for states and school districts to create policies that ensure adequate and equitable resources, curriculum opportunities, and teaching to children in all schools.

The goal of these activities should be to ensure that, at least at the state level where constitutional responsibility for education resides, all students have access—both across and within districts—to equal financial resources, adjusted for student poverty and cost-of-living differentials. Ferguson's (1991) recommendation that equalization focus on district capacity to hire high-quality teachers is an important one with empirical support. In addition to the weight of evidence indicating the central importance of qualified teachers to student learning, here is real-world experience with the positive effects of such policies on teacher quality and distribution. When Connecticut raised and equalized beginning teacher salaries under its 1986 Education Enhancement Act, shortages of teachers (including those that had plagued urban areas) evaporated. By 1989 many teaching fields showed surpluses. Improvements in teacher education, licensing, and mentoring, along with investments in professional development led to sharply increasing achievement in Connecticut throughout the 1990s: In this high-minority state, during a

period of growing immigration and language diversity – student achievement scores increased to the point where the state ranks at or near #1 in reading, writing, mathematics, and science on the National Assessments of Educational Progress (Baron, 1999; Wilson, Darling-Hammond, & Berry, 2001). Connecticut's approach is a useful beginning point for other policies aimed at ensuring access to good teaching.

Curriculum and Assessment Reform

When the school reform movement was launched in the early 1980s, many studies pointed out that the curriculum offered to most students in U.S. schools is geared toward lower-order "rote" skills (Boyer, 1983; Goodlad, 1984; Sizer, 1984), and that it is far less challenging than that encountered by the majority of students in many other countries (McKnight et al., 1987). As in times of past national concern—for example, the post-Sputnik years—major curriculum reform projects have been launched by the federal government as well as by many states.

These efforts to create a "thinking curriculum" for all students are important to individual futures and to our national welfare. They are unlikely to pay off, however, unless other critical changes are made as well. Among these are changes in the ways U.S. schools track students in order to differentiate curriculum, and the ways in which teachers are prepared and supported. Although mounting evidence indicates the problems with watered-down, low-track classes, these inadequate learning experiences will be difficult to reform until there is an adequate supply of well-trained teachers. Such teachers must be prepared both to teach the more advanced curriculum that U.S. schools now fail to

offer most students and to assume the challenging task of teaching many kinds of students with diverse needs, interests, aptitudes, and learning styles in integrated classroom settings.

Other important changes concern the types and uses of achievement tests in U.S. schools. As a 1990 study of the implementation of California's new mathematics curriculum framework points out, when a curriculum reform aimed at problem solving and the development of higher-order thinking skills encounters an already-mandated rote-oriented basic skills testing program, the tests win out (Darling-Hammond, 1990a). As one teacher put it:

Teaching for understanding is what we are supposed to be doing . . . [but] the bottom line here is that all they really want to know is how are these kids doing on the tests. . . . They want me to teach in a way that they can't test, except that I'm held accountable to the test. It's a Catch 22. . . . (S. Wilson, 1990, p. 318)

Initiatives to develop more complex and authentic modes of assessment may begin to offset this problem. But the bigger issue for enhancing learning opportunities is how tests are used. Many current proposals for performance-based assessment view these new kinds of tests as serving the same screening and tracking purposes as more traditional tests, assuming that more "authentic" assessments would both motivate and sort students more effectively. Others see a primary goal of assessment reform as transforming the purposes and uses of testing as well as its form and content. They argue for shifting the use of assessment from a sorting device to a tool for identifying student

strengths and needs so that teachers can adapt instruction more successfully (Glaser, 1981, 1990).

Assessment initiatives that hope to embed authentic assessment in the ongoing processes of teaching and curriculum development share the view offered by Glaser (1990) that schools must move from a selective mode to an adaptive mode. They must shift from an approach "characterized by minimal variation in the conditions for learning" in which "a narrow range of instructional options and a limited number of paths to success are available" (p. 16), to one in which "conceptions of learning and modes of teaching are adjusted to individuals—their backgrounds, talents, interests, and the nature of their past performances and experiences" (p. 17). Fundamental agreement with this view leads to a rejection of the traditional use of testing, even performance-based testing, as an externally controlled tool for the allocation of educational opportunities. If teachers are to engage in the pursuit of :individually configured excellence" (Gardner, 1991) for all students, they must be able to employ multiple pathways to learning. As students are offered wider opportunities for learning and the assessment of their achievement becomes an integral part of learning and teaching, assessments must provide multidimensional views of performance that inform ever more effective instruction.

The outcomes of the current wave of curriculum and assessment reforms will depend in large measure on the extent to which assessment developers and users use assessments in ways that serve teaching and learning rather than sorting and selecting; pursue broader reforms to improve and equalize access to educational resources and opportunities; and support the professional development of teachers along with the organizational development of schools, so that assessment is embedded in teaching and

learning, and is used to inform more skillful and adaptive teaching that enables more successful learning for all students.

Investing in Good Teaching for All Students

A key corollary to this analysis of inequality is that improved opportunities for students of color will rest in part on policies that professionalize teaching by increasing the knowledge base for teaching, and on the mastery of this knowledge by all teachers permitted to practice. This means providing *all* teachers with a stronger understanding of how children learn and develop, how a variety of curricular and instructional strategies can address their needs, and how changes in school and classroom organization can support their growth and achievement.

There are two reasons for this assertion. First, the professionalization of an occupation raises the floor below which no entrants will be admitted to practice. It eliminates practices of substandard or irregular licensure that allow untrained entrants to practice disproportionately on underserved and poorly protected citizens. Second, professionalization increases the overall knowledge base for the occupation, thus improving the quality of services for all clients, especially those most in need of high-quality teaching (Darling-Hammond, 1990c).

The students who have, in general, the poorest opportunities to learn—those attending the central city schools that are compelled by the current incentive structure to hire disproportionate numbers of substitute teachers, uncertified teachers, and inexperienced teachers, and that lack resources for mitigating the uneven distribution of

good teaching—are the students who will benefit most from measures that raise the standards of practice for all teachers. They will also benefit from targeted policies that provide quality preparation programs and financial aid for highly qualified prospective teachers who will teach in central cities and poor rural areas.

Investments in better-prepared teachers are also needed to support current education reforms that envision greater teacher responsibility in educational decisions at all levels. Restructured schools require changes in the nature of teaching work and knowledge, including a more active, integrated, and intellectually challenging curriculum, and a broader range of roles for teachers in developing curriculum and assessments of student performance; coaching and mentoring other teachers; and working more closely with families and community agencies. Because restructured schools are also redesigning classroom organization so that "push-in" rather than "pull-out" methods are more likely to be used for children with special needs, and interdisciplinary approaches to a "thinking curriculum" are more common, teachers will need to know more about both subjects and students than they have in the past. Finally, school-based management and shared decision-making initiatives rely for their success on the capacity of education practitioners to make knowledgeable judgments about curriculum and assessment, school organization, and program evaluation. Teachers will need to be prepared to make such decisions responsibly. Teacher preparation and licensing should reflect the demands of teachers' evolving roles. In addition, providing equity in the distribution of teacher quality requires changing policies and long-standing incentive structures in education so that schools serving low-income and "minority" students are

not disadvantaged in recruiting and retaining good teachers by lower salaries and poorer working conditions.

Building and sustaining a well-prepared teaching force will require local, state, and federal initiatives. To recruit an adequate supply of teachers, states and localities will need to upgrade teachers' salaries to levels competitive with those of college graduates in other occupations, who currently earn 25–50% more, depending on the field. This should occur as part of a general restructuring effort that places more resources as well as decision-making authority at the school level, and allocates a greater share of education dollars to classrooms than to the large bureaucracies that oversee them (see, e.g., Darling-Hammond, 1990b).

States must also strengthen teacher education and certification. In almost all colleges and universities, teacher education is more poorly funded than other schools or departments (Ebmeier, Twombly, & Teeter, 1990). It has long been used as a revenue producer for programs that train engineers, accountants, lawyers, and future doctors. Rather than bemoaning the quality of teacher training, policy makers must invest in its improvement.

Accreditation and licensing are two major quality-control mechanisms for any profession. In the field of teaching, these mechanisms have historically been weak. Although all of the other established professions require graduation from an accredited school as one condition of the license to practice, most states do not require departments or schools of education to be accredited, nor do they require candidates for licensure to have graduated from such schools. The National Council for Accreditation of Teacher Education (NCATE) accredits only approximately 600 of more than 1,300 institutions

that prepare teachers. Meanwhile, "the generally minimal state-prescribed criteria remain subject to local and state political influences, economic conditions within the state, and historical conditions which make change difficult" (Dennison, 1992).

The historic lack of rigorous standard setting in teaching is changing, however. A growing number of states are improving teacher education programs by encouraging their accreditation under the new, more rigorous standards that are being implemented by NCATE. The foundation of the new accreditation system is the body of growing knowledge about teaching and learning, including understandings about how to teach diverse learners well. A National Board for Professional Teaching Standards has set high and rigorous standards for accomplished teachers, and many states are rewarding teachers for meeting them. California awards large additional bonuses to teachers who will teach in low-performing schools, which are overwhelmingly those that serve low-income and "minority" students.

Improvement of teacher education depends as well on major changes in the content and governance of teacher licensing. Virtually no one believes that most current state licensing requirements provide meaningful standards of teacher knowledge and competence: not the public, not the profession, not even the policy makers who are themselves responsible for setting the requirements. Their willingness to avoid their own regulations by creating emergency, temporary, and alternative routes to certification is the most obvious indictment of the system they have established. Meaningful standards must be established and then met by all entrants to the profession. Shortages must be met by offering enhanced incentives to teach rather than by lowering standards, especially for those who teach children in central cities and poor rural schools. While accreditation will

improve the quality of teacher education, professional licensing, coupled with targeted financial supports for recruitment, is needed to ensure that every child will have access to a well-prepared teacher.

The federal government must play a leadership role in providing an adequate supply of well-qualified teachers just as it has in providing an adequate supply of well-qualified physicians. When shortages of physicians were a major national problem more than 30 years ago, Congress passed the 1963 Health Professions Education Assistance Act to support and improve the caliber of medical training, create and strengthen teaching hospitals, provide scholarships and loans to medical students, and create incentives for physicians to train in shortage specialties and to locate in underserved areas. In an important departure from the tradition of supplying the least well-qualified teachers to the most needy children, the No Child Left Behind Act (the reauthorization of ESEA) requires that all children in Title I schools be taught by fully certified teachers with strong content knowledge by 2005. However, this important goal will not be achieved without support for equalizing resources for these schools. As in medicine, federal initiatives in education should seek to:

1. *Recruit new teachers,* especially in shortage fields and in shortage locations, through service scholarships and forgivable loans for high-quality teacher education.
2. *Strengthen and improve teachers' preparation* through improvement incentive grants to schools of education and supports for certification reform.
3. *Improve teacher retention and effectiveness* by improving clinical training and support during the beginning teaching stage, when 30–50% of new teachers drop out.

This would include funding internship programs for new teachers in which they receive structured coaching and mentoring, preferably in urban schools supported to provide state-of-the-art practice.

If the interaction between teachers and students is the most important aspect of effective schooling, then reducing inequality in learning has to rely to a large extent on policies that provide equal access to competent, well-supported teachers. The public education system ought to be able to guarantee that every child who is required by public law to go to school is taught by someone who is prepared, knowledgeable, competent, and caring. That is real accountability. As Grant (1989) puts it: "Teachers who perform high-quality work in urban schools know that, despite reform efforts and endless debates, it is meaningful curricula and dedicated and knowledgeable teachers that make the difference in the education of urban students" (p. 770). When it comes to equalizing opportunities for students to learn, that is the bottom line.

References

Alexander, K. L., & McDill, E. L. (1976). Selection and allocation within schools: Some causes and consequences of curriculum placement. *American Sociological Review, 41,* 963–980.

Allington, Richard L. and Anne McGill-Franzen (1992). Unintended Effects of Educational Reform in New York, Educational Policy, 6 (4): 397-414.

Archbald, D. A., & Newman, F. M. (1988). *Beyond standardized testing: Assessing authentic academic achievement in the secondary school.* Reston, VA: National Association of Secondary School Principals.

Ashton, P., & Crocker, L. (1986). Does teacher certification make a difference? *Florida Journal of Teacher Education, 38*(3), 73–83.

Ashton, P., & Crocker, L. (1987). Systematic study of planned variations: The essential focus of teacher education reform. *Journal of Teacher Education, 38*(3), 2–8.

Barr, R., & Dreeben, R. (1983). *How schools work.* Chicago: University of Chicago Press

Barton, Paul E. & Coley, R. J. (1996). Captive Students: Education and Training in America's Prisons. Princeton, N.J.: Educational Testing Service.

Berliner, D. C. (1986). In pursuit of the expert pedagogue. *Educational Researcher, 15*(7), 5–13.

Baron, J. B. (1999). Exploring High and Improving Reading Achievement in Connecticut. Washington: National Educational Goals Panel.

Berne, R. (1992). Educational input and outcome inequities in New York State. In *The road to outcome equity.* Albany: New York State Education Department.

Betts, J.R., Rueben, K.S., Danenberg, A. (2000). *Equal resources, equal outcomes? The distribution of school resources and student achievement in California*. San Francisco: Public Policy Institute of California.

Bledsoe, J. C., Cox, J. V., & Burnham, R. (1967). *Comparison between selected characteristics and performance or provisionally and professionally certified beginning teachers in Georgia.* Washington, DC: U.S. Department of Health, Education, and Welfare.

Boyer, E. (1983). *High school.* New York: Harper & Row.

Braddock, J., & McPartland, J. M. (1993). Education of early adolescents. In L. Darling-Hammond (Ed.), *Review of research in education* (Vol. 19, pp. 135–170). Washington, DC: American Educational Research Association.

Coleman, J. S., Campbell, E. Q., Hobson, C. J., McPartland, J., Mood, A. M., Weinfeld, F. D., & York, R. L. (1966). *Equality of educational opportunity.* Washington, DC: Government Printing Office.

College Board. (1985). *Equality and excellence: The educational status of Black Americans.* New York: College Entrance Examination Board.

Commission on Chapter 1. (1992). *High performance schools: No exceptions, no excuses.* Washington, DC: Author.

Conant, J. B. (1961). *Slums and suburbs.* New York: McGraw-Hill.

Cooper, E., & Sherk, J. (1989). Addressing urban school reform: Issues and alliances. *The Journal of Negro Education*, *58*(3), 315–331.

Cremin, L. (1961). *The transformation of the school: Progressivism in American education, 1876–1957.* New York: Vintage Books.

Cremin, L. (1970). *American education: The colonial experience 1607–1783.* New York: Harper & Row.

Cubberly, E. P. (1906). *School funds and their apportionment.* New York: Teachers College Press.

Cubberly, E. P. (1919). *Public education in the United States: A study and interpretation of American educational history.* Boston: Houghton Mifflin.

Darling-Hammond, L. (1990a). Instructional policy into practice: "The power of the bottom over the top." *Educational Evaluation and Policy Analysis, 12*(3), 233–242.

Darling-Hammond, L. (1990b). Teacher professionalism: Why and how. In A. Lieberman (Ed.), *Schools as collaborative cultures: Creating the future now* (pp. 25–50). Philadelphia: Falmer Press.

Darling-Hammond, L. (1990c). Teacher quality and equality. In J. Goodlad & P. Keating (Eds.), *Access to knowledge: An agenda for our nation's schools* (pp. 237–258). New York: College Entrance Examination Board.

Darling-Hammond, L. (1991). The implications of testing policy for quality and equality. *Phi Delta Kappan, 73*(3), 220–225.

Darling-Hammond, L. (1992). Teaching and knowledge: Policy issues posed by alternate certification for teachers. *Peabody Journal of Education, 67*(3), 123–154.

Darling-Hammond, L. (1997). *Doing what matters most: Investing in Quality Teaching.* NY: National Commission on Teaching and America's Future.

Darling-Hammond, L. (2000a) Solving the dilemmas of teacher, supply, demand, and quality. New York: National Commission on Teaching and America's Future.

Darling-Hammond, L. (2000b). Teacher quality and student achievement: A review of state policy evidence. *Educational Policy Analysis Archives, 8* (1). http://epaa.asu.edu/epaa/v8n1.

Darling-Hammond, L., Ancess, J., & Ort, S. (in press, 2002). Reinventing high school: An evaluation of the Coalition Campus Schools Project. *American Educational Research Journal.*

Dennison, G. M. (1992). National standards in teacher preparation: A commitment to quality. In *The Chronicle of Higher Education, 39* (15), A40.

Dreeben, R. (1987). Closing the divide: What teachers and administrators can do to help Black students reach their reading potential. *American Educator, 11*(4), 28–35.

Dreeben, R., & Barr, R. (1987, April). *Class composition and the design of instruction.* Paper presented at the annual meeting of the American Education Research Association, Washington, DC.

Dreeben, R., & Gamoran, A. (1986). Race, instruction, and learning. *American Sociological Review, 51*(5), 660–669.

Druva, C. A., & Anderson, R. D. (1983). Science teacher characteristics by teacher behavior and by student outcome: A meta-analysis of research. *Journal of Research in Science Teaching, 20*(5), 467–479.

Ebmeier, H., Twombly, S., & Teeter, D. (1990). The comparability and adequacy of financial support for schools of education. *Journal of Teacher Education, 42*(3), 226–235.

Eckstrom, R., & Villegas, A. M. (1991). Ability grouping in middle grade mathematics: Process and consequences. *Research in Middle Level Education, 15*(1), 1–20.

Edgewood Independent School District v. Kirby, 777 S.W. 2d 391 (Texas 1989).

Educational Research Service. (1980). *Class size: A summary of research.* Reston, VA: Author.

Educational Testing Service. (1991). *The state of inequality.* Princeton, NJ: Author.

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

Ferguson, R. F. (1991). Paying for public education: New evidence on how and why money matters. *Harvard Journal on Legislation, 28*(2), 465–498.

Ferguson, R.F. & Ladd, H.F. (1996). How and why money matters: An analysis of Alabama schools. In Helen Ladd (ed.), *Holding schools accountable*, pp. 265-298. Washington, D.C.: Brookings Institution.

Fetler, M. (1999, March 24). High school staff characteristics and mathematics test results. *Education Policy Analysis Archives, 7*. http://epaa.asu.edu.

Figlio, D.N. & Getzler, L.S. (2002, April). Accountability, ability, and disability: Gaming the system? National Bureau of Economic Research.

Finley, M. K. (1984). Teachers and tracking in a comprehensive high school. *Sociology of Education, 57,* 233–243.

Gamoran, A. (1990, April). *The consequences of track-related instructional differences for student achievement.* Paper presented at the annual meeting of the American Educational Research Association, Boston.

Gamoran, A. (1992). Access to excellence: Assignment to honors English classes in the transition from middle to high school. *Educational Evaluation and Policy Analysis, 14*(3), 185–204.

Gamoran, A., & Berends, M. (1987). The effects of stratification in secondary schools: Synthesis of survey and ethnographic research. *Review of Educational Research, 57,* 415–436.

Gamoran, A., & Mare, R. (1989). Secondary school tracking and educational inequality: Compensation, reinforcement or neutrality? *American Journal of Sociology, 94,* 1146–1183.

Garcia, E. (1993). Language, culture, and education. In L. Darling-Hammond (Ed.), *Review of research in education* (Vol. 19, pp. 51–98). Washington, DC: American Educational Research Association.

Gardner, H. (1991). *The unschooled mind.* New York: Basic Books.

Gemignani, Robert J. (1994, October). Juvenile Correctional Education: A Time for Change. Update on Research. Juvenile Justice Bulletin. (U.S. Department of Justice, Office of Juvenile Justice and Delinquency Prevention).

Glaser, R. (1981). The future of testing: A research agenda for cognitive psychology and psychometrics. *American Psychologist, 39*(9), 923–936.

Glaser, R. (1990). *Testing and assessment: O tempora! O mores!* Pittsburgh: University of Pittsburgh, Learning Research and Development Center.

Glass, G. V., Cahen, L. S., Smith, M. L., & Filby, N. N. (1982). *School class size: Research and policy.* Beverly Hills, CA: Sage.

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

Good, T. L., & Brophy, J. (1987). *Looking in classrooms.* New York: Harper & Row.

Goodlad, J. (1984). *A place called school: Prospects for the future.* New York: McGraw-Hill.

Gould, S. J. (1981). *The mismeasure of man.* New York: Norton.

Grant, C. A. (1989). Urban teachers: Their new colleagues and curriculum. *Phi Delta Kappan, 70*(10), 764–770.

Grey, L., Cahahlan, M., Hein, S., Litman, C., Severynse, J., Warren S., Wisan, G., & Stowe, P. (1993). New teachers in the job market. 1991 update. Washington, D.C.: U.S. Department of Education, Office of Educational Research and Improvement.

Grissmer, D. W., & Kirby, S. N. (1987). *Teacher attrition: The uphill climb to staff the nation's schools.* Santa Monica, CA: Rand Corporation.

Grossman, P. L. (1990). *The making of a teacher: Teacher knowledge and teacher education.* New York: Teachers College Press.

Guthrie, J. W., Garms, W. I., & Pierce, L. C. (1988). *School finance and education policy: Enhancing educational efficiency, equality and choice* (2nd ed.). Englewood Cliffs, NJ: Prentice Hall.

Haney, W. (2000). The myth of the Texas miracle in education. Education Policy Analysis Archives, 8 (41): http://epaa.asu.edu/epaa/v8n41/

Hanushek, E. A. (1990, March). *The impact of differential expenditures on school performance.* Issue analyses, American Legislative Exchange Council, Washington, DC.

Hanushek, E. A. (1991). When school finance "reform" may not be good policy. *Harvard Journal on Legislation, 28*(2), 423–456.

Hawk, P., Coble, C. R., & Swanson, M. (1985). Certification: It does matter. Journal of Teacher Education, 36 (3): 13-15.

Henke, R.R., Chen, X., & Geis, S. (2000). *Progress through the teacher pipeline: 1992-93 college graduates and elementary/secondary school teaching as of 1997.* Washington, DC: National Center for Education Statistics, U.S. Department of Education.

Hobson v. Hanson, 269 F. Supp. 401, 496 (D.D.C. 1967).

Hoffer, T. B. (1992). Middle school ability grouping and student achievement in science and mathematics. *Educational Evaluation and Policy Analysis, 14*(3), 205–227.

Holmes, C. T., & Matthews, K. M. (1984). The effects of nonpromotion on elementary and junior high school pupils: A meta-analysis. *Review of Educational Research, 54,* 225–236.

Ingersoll, R. (2002, June). The teacher shortage: A case of wrong diagnosis and wrong prescription. NASSP Bulletin, 86: 16-31.

Jencks, C., Smith, M., Acland, H., Bane, M. J., Cohen, D., Gintis, H., Heyns, B., & Michelson, S. (1972). *Inequality: A reassessment of the effect of family and schooling in America.* New York: Basic Books.

Johnston, J. M., & Ryan, K. (1983). Research on the beginning teacher. In K. R. Howie & W. E. Gardner (Eds.), *The education of teachers: A look ahead* (pp. 136–162). New York: Longman.

Jones, L. V. (1984). White-black achievement differences: The narrowing gap. *American Psychologist, 39,* 1207–1213.

Jones, L. V., Burton, N. W., & Davenport, E. C. (1984). Monitoring the achievement of black students. *Journal for Research in Mathematics Education, 15,* 154–164.

Kamin, L. (1974). *The science and politics of IQ.* New York: Wiley.

Kaufman, J. E., & Rosenbaum, J. E. (1992). Education and employment of low-income Black youth in White suburbs. *Educational Evaluation and Policy Analysis, 14*(3), 229–240.

Keppel, F. (1966). *The necessary revolution in American education.* New York: Harper & Row.

Kozol, J. (1991). *Savage inequalities.* New York: Crown.

Kluger, R. (1976). *Simple justice.* New York: Alfred A. Knopf.

Kulik, C. C., & Kulik, J. A. (1982). Effects of ability grouping on secondary school students: A meta-analysis of evaluation findings. *American Education Research Journal, 19,* 415–428.

Lee, V., & Bryk, A. (1988). Curriculum tracking as mediating the social distribution of high school achievement. *Sociology of Education, 61,* 78–94.

Lee, V. E. & Smith, J. (1995). Effects of high school restructuring and size on gains in achievement and engagement for early secondary school students. Sociology of Education, 68 (4): 241-270.

Lee, V.E., Smith, J., & Croninger, R. (1995). Another look at high school restructuring. Issues in Restructuring Schools, No. 9. Madison, WI: University of Wisconsin, Center on Organization and Restructuring of Schools.

Levin, H. M. (1992). The necessary and sufficient conditions for achieving educational equity. In R. Berne (Ed.), *New York equity study.* Unpublished Report of the Equity Study Group, New York State Education Department, Albany.

LuPone, L. J. (1961). A comparison of provisionally certified and permanently certified elementary school teachers in selected school districts in New York State. *Journal of Educational Research, 55,* 53–63.

MacPhail-Wilcox, B., & King, R. A. (1986). Resource allocation studies: Implications for school improvement and school finance research. *Journal of Education Finance, 11,* 416–432.

Mann, D. (1987). Can we help dropouts? Thinking about the undoable. In G. Natriello (Ed.), *School dropouts: Patterns and policies* (pp. 3–19). New York: Teachers College Press.

McDonnell, L. M., Burstein, L., Ormseth, T., Catterall, J., & Moody, D. (1990). *Discovering what schools really teach: Designing improved coursework indicators.* Washington, DC: U.S. Department of Education.

McKnight, C. C., Crosswhite, J. A., Dossey, J. A., Kifer, E., Swafford, S. O., Travers, K. J., & Cooney, T. J. (1987). *The underachieving curriculum: Assessing U.S. school mathematics from an international perspective.* Champaign, IL: Stipes Publishing.

McNeil, J. D. (1974). Who gets better results with young children—Experienced teachers or novices? *Elementary School Journal, 74,* 447–451.

McUsic, M. (1991). The use of education clauses in school finance reform litigation. *Harvard Journal on Legislation, 28*(2), 307–340.

Meier, K. J., Stewart, J., Jr., & England, R. E. (1989). *Race, class, and education: The politics of second-generation discrimination.* Madison: University of Wisconsin Press.

Mercer, J. R. (1989). Alternative paradigms for assessment in a pluralistic society. In J. A. Banks & C.A.M. Banks (Eds.), *Multicultural education* (pp. 289–303). Boston: Allyn and Bacon.

Minow, M. (1991). School finance: Does money matter? *Harvard Journal on Legislation, 28*(2), 395–400.

Monk, D. H. (1994). Subject matter preparation of secondary mathematics and science teachers and student achievement. Economics of Education Review, 13 (2): 125-145.

Moore, D., & Davenport, S. (1988). *The new improved sorting machine.* Madison, WI: National Center on Effective Secondary Schools.

Moore, E. G., & Smith, A. W. (1985). Mathematics aptitude: Effects of coursework, household language, and ethnic differences. *Urban Education, 20,* 273–294.

Murnane, R. J. (1991). Interpreting the evidence on "Does money matter?" *Harvard Journal on Legislation, 28*(2), 457–464.

Murnane, R. J., & Phillips, B. R. (1981). Learning by doing, vintage, and selection: Three pieces of the puzzle relating teaching experience and teaching performance. *Economics of Education Review, 1*(4), 453–465.

Murnane, R. J., Singer, J. D., Willett, J. B., Kemple, J. J., & Olsen, R. J. (1991). *Who will teach? Policies that matter.* Cambridge, MA: Harvard University Press.

National Center for Education Statistics. (1992). *The condition of education.* Washington, DC: U.S. Department of Education.

National Center for Education Statistics (1995). The condition of education, 1995. Washington, DC: U.S. Department of Education.

National Center for Education Statistics (1997). *America's teachers: Profile of a profession.* Washington, DC: U.S. Department of Education.

National Center for Education Statistics. (1998). *Inequalities in public school district revenues.* Washington, DC: U.S. Department of Education.

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

National Center for Education Statistics. (2000). *Digest of educational statistics, 1999.*. Washington, DC: U.S. Department of Education.

National Center for Education Statistics (2001a). *The condition of education 2000 in brief*. Washington, DC: U.S. Department of Education.

National Center for Education Statistics (2001b). *The condition of education 2001*. Washington, DC: U.S. Department of Education.

National Center for Education Statistics (2001c). *Internet access in U.S. public schools and classrooms: 1994-2000.* Washington, DC: U.S. Department of Education.

National Council on Education Standards and Testing (NCEST). (1992). Raising standards for American education. Washington, D.C.: Government Printing Office.

Newmann, F.M. and Wehlage, G.G. (1995). Successful school restructuring. Madison, WI: University of Wisconsin, Center on Organization and Restructuring of Schools.

Newmann, F.M., Marks, H.M., & Gamoran, A. (1995). Authentic pedagogy: Standards that boost study performance. *Issues in Restructuring Schools, No. 8*. Madison, WI: Center on Organization and Restructuring of Schools.

New York Study Group on Outcome Equity. (1993). *The road to outcome equity: Final report of the study group on outcome equity.* (R. Berne, Ed.). Albany: New York State Education Department.

Oakes, J. (1985). *Keeping track*. New Haven: Yale University Press.

Oakes, J. (1990). *Multiplying inequalities: The effects of race, social class, and tracking on opportunities to learn mathematics and science.* Santa Monica, CA: The RAND Corporation.

Oakes, J. (1992). Can tracking research inform practice? Technical, normative, and political considerations. *Educational Researcher, 21*(4), 12–21.

Oakes, J., & Lipton, M. (1990). Tracking and ability grouping: A structural barrier to access and achievement. In J. I. Goodlad & P. Keating (Eds.), *Access to knowledge: An agenda for our nation's schools* (pp. 187–204). New York: College Entrance Examination Board.

Oakes, J., Selvin, M., Karoly, L., & Guiton, G. (1992). Educational matchmaking: Academic and vocational tracking in comprehensive high schools. Santa Monica, CA: The RAND Corporation.

Oakes, J. & Lipton, M. (1998). *Teaching to change the world.* NY: McGraw Hill.

Oakes, J. & Saunders, M. (2002). *Access to Textbooks, Instructional Materials, Equipment, and Technology: Inadequacy and Inequality in California's Public Schools.* Los Angeles: University of California at Los Angeles.

Orfield, G. F. (2001). *Schools More Separate: Consequences of a Decade of Resegregation*. Cambridge, MA: The Harvard Civil Rights Project. Downloaded from http://www.law.harvard.edu/civilrights.

Pelavin, S. H., & Kane, M. (1990). *Changing the odds: Factors increasing access to college.* New York: College Entrance Examination Board.

Resnick, L. B. (1987). *Education and learning to think.* Washington, DC: National Academy Press.

Robinson v. Cahill, 303 A. 2d 273, 294 (1971).

Roderick, M., Bryk, A.S., Jacob, B.A., Easton, J.Q. & Allensworth, E. (1999). *Ending Social Promotion: Results from the first two years.* Chicago: Consortium on Chicago School Research.

Rodriguez et al. v. Los Angeles Unified School District, Superior Court of the County of Los Angeles #C611358 (Consent decree filed Aug. 12, 1992).

Rottenberg, C. J., & Berliner, D. C. (1990, April). *Expert and novice teachers' conceptions of common classroom activities.* Paper presented at the annual meeting of the American Educational Research Association, Boston.

Ruiz-D-Velasco, J. & Fix, M. (2000). *Overlooked and underserved: Immigrant students in U.S. secondary schools*. Washington, DC: The Urban Institute.

Serrano v. Priest, 487 P. 2d 1241 (1971).

Shepard, L., & Smith, M. L. (1986). Synthesis of research on school readiness and kindergarten retention. *Educational Leadership, 44*(3), 78–86.

Shields, P.M., Humphrey, D.C., Wechsler, M.E., Riel, L.M., Tiffany-Morales, J., Woodworth, K., Youg, V.M. & Price,T. (2001). *The status of the teaching profession 2001*. Santa Cruz, CA: The Center for the Future of Teaching and Learning.

Shulman, L. S. (1987). Knowledge and teaching: Foundations of the new reform. *Harvard Educational Review, 57*(1), 1–22.

Silard, J., & Goldstein, B. (1974, July). Toward abolition of local funding in public education. *Journal of Law and Education, 3,* 324.

Sizer, T. (1984). *Horace's compromise: The dilemma of the American high school.* Boston: Houghton Mifflin.

Slavin, R. E. (1990). Achievement effects of ability grouping in secondary schools: A best evidence synthesis. *Review of Educational Research, 60*(3), 471–500.

Smerdon, B., Cronen, S., Lanahan, L., Anderson, J., Iannoti, N., Angeles, J. (2000, Winter). Teachers' tools for the 21st century: A report on teachers' use of technology. *Education Statistics Quarterly, 2* (4): 48-52.

Smith, F., et al. (1986). High School Admission and the Improvement of Schooling. NY: New York City Board of Education.

Smith, M.L. and Shepard, L. (1987). "What Doesn't Work: Explaining Policies of Retention in the Early Grades. Phi Delta Kappan, 69(2): 123-124.

Strauss, Robert P. and Elizabeth A. Sawyer (1986). Some new evidence on teacher and student competencies." Economics of Education Review, 5(1): 41-48.

Sutton, R. E. (1991). Equity and computers in the schools: A decade of research. *Review of Educational Research, 61*(4), 475–503.

Talbert, J. E. (1990). *Teacher tracking: Exacerbating inequalities in the high school.* Stanford, CA: Center for Research on the Context of Secondary Teaching, Stanford University.

Taylor, W. L., & Piche, D. M. (1991). *A report on shortchanging children: The impact of fiscal inequity on the education of students at risk.* Prepared for the Committee on Education and Labor, U.S. House of Representatives. Washington, DC: Government Printing Office.

Tyack, D. B. (1974). *The one best system.* Cambridge, MA: Harvard University Press.

U.S. Bureau of the Census. (1992). *Statistical abstract of the United States: 1992* (112th ed.). Washington, DC: U.S. Department of Commerce.

U.S. Department of Commerce (1996). *Statistical abstract of the United States: 1996*. 116th edition. Washington, DC: Bureau of the Census.

Updegraff, H., & King, L. A. (1922). *Survey of the fiscal policies of the state of Pennsylvania in the field of education.* Philadelphia: University of Pennsylvania.

Useem, E. L. (1990). You're good, but you're not good enough: Tracking students out of advanced mathematics. *American Educator, 14*(3), 24–27, 43–46.

Usiskin, Z. (1987). Why elementary algebra can, should, and must be an eighth grade course for average students. *Mathematics Teacher, 80,* 428–438.

Veenman, S. (1984). Perceived problems of beginning teachers. *Review of Educational Research, 54*(2), 143–178.

Walberg, H. (1982). What makes schooling effective. *Contemporary Education: A Journal of Review, 1,* 22–34.

Watson, B.C. (1996). Testing: Its origins, use, and misuse. NY: National Urban League.

Wehlage, G. G., Rutter, R. A., Smith, G. A., Lesko, N., & Fernandez, R. R. (1990). *Reducing the risk: Schools as communities of support.* New York: The Falmer Press.

Wheelock, A. (1992). *Crossing the tracks.* New York: The New Press.

Wiggins, G. (1989). Teaching to the (authentic) test. *Educational Leadership, 46*(7), 41–47.

Wilson, S. (1990). A conflict of interests: Constraints that affect teaching and change. *Educational Evaluation and Policy Analysis, 12*(3), 309–326.

Wilson, S., Darling-Hammond, L., & Berry, B. (2001). A case of successful teaching policy: Connecticut's long-term efforts to improve teaching and learning. Seattle: Center for the Study of Teaching and Policy, University of Washington.

Wilson, S.M., Floden, R.E., Ferrini-Mundy, J. (2001). *Teacher preparation research: Current knowledge, gaps, and recommendations.* Seattle, WA: Center for the Study of Teaching and Policy, University of Washington.

Wise, A. E. (1965). Is denial of equal educational opportunity constitutional? *Administrator's Notebook, 13,* 1–4.

Wise, A. E. (1972). *Rich schools, poor schools: The promise of equal educational opportunity.* Chicago: University of Chicago Press.

Wise, A. E., Darling-Hammond, L., & Berry, B. (1987). *Effective teacher selection: From recruitment to retention.* Santa Monica, CA: The RAND Corporation.

Wise, A. E., & Gendler, T. (1989). Rich schools, poor schools: The persistence of unequal education. *College Board Review, 151,* 12–17, 36–37.

Wong, K. K. (1989). Fiscal support for education in American states: The “parity-to-dominance” view examined. *American Journal of Education, 97*(4), 329–357.

Yudof, M. G. (1991). School finance reform in Texas: The Edgewood saga. *Harvard Journal on Legislation, 28*(2), 499–505.