Achieving High Educational Standards for All: Conference Summary

Timothy Ready, Christopher Edley, Jr., and Catherine E. Snow, Editors, National Research Council

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ACHIEVING HIGH EDUCATIONAL STANDARDS FOR ALL

CONFERENCE SUMMARY

Division of Behavioral and Social Sciences and Education

Timothy Ready, Christopher Edley, Jr., and Catherine E. Snow, Editors

National Research Council

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Contents

Preface

Achieving high educational standards for all students is a critical and, to date, unmet goal of the greatest importance for the continued development of human and social capital in the United States. When approached by the U.S. Department of Education with the request to convene a conference on this subject, the National Research Council (NRC) recognized it as a vital opportunity to bring scientific perspectives to bear on one of the most difficult national challenges. The conference brought together leading experts on such subjects as the demographics of the school-age population, issues in access and opportunity, learning research, teaching methods, reform efforts in high-poverty urban schools, and effective technical assistance. They were asked to apply their own research data, as well as the findings of NRC reports, to the question of racial and ethnic disparities in K-12 education, identifying key issues for policy and research. The audience included educators, researchers, and policy makers at the national, state, and local levels. The NRC's Division on Behavioral and Social Sciences and Education (DBASSE) was the convening body.

The Millennium Conference: Achieving High Educational Standards for All and two preconference workshops, the Technical Assistance Workshop on Building Instructional Capacity and the Role of the Law Workshop, examined the following questions:

- What progress has been made in advancing the education of mi-

nority and disadvantaged students since the historic *Brown v. Board of Education* decision nearly 50 years ago?

- What does research say about the reasons for successes and failures?
- What are some of the strategies and practices that hold the promise of producing continued improvements?

To address them, DBASSE drew on a significant literature related to the social and economic status of racial minorities in the United States, as well as a number of important NRC reports, described in Chapter 1, that have synthesized scientific research in education. This large body of previous work and the experts who were involved in this series of studies represent a rich resource on which we called in planning the conference, deciding on discussion priorities, and identifying paper writers and speakers. In particular, we used these intellectual resources to support one of the main goals of the conference: showing that there is strong scientific evidence to support the idea that all children can learn and, as a corollary, that schools can influence learning.

The Division of Behavioral and Social Sciences and Education and the editors are grateful to the conference sponsors at the U.S. Department of Education: the Office of Educational Research and Improvement, the Office for Civil Rights, the Office of the General Counsel, the Office of Bilingual Education and Minority Languages Affairs, the Office of Elementary and Secondary Education, the Office of Special Education and Rehabilitative Services, the Office of Vocational and Adult Education, and the Office of the Secretary. In addition, many Department of Education staff members contributed in important ways to bring the conference about: Norma V. Cantu, Rebecca Fitch, Richard Foster, Judith Johnson, Jeanette Lim, Kent McGuire, Scott Palmer, Pat O'Connell Ross, Mary Schifferli, and Judith Winston. In addition, for their efforts we thank Art Coleman, Louis Danielson, Laura Emmett, Ricardo Hernandez, Kimberly Jenkins, James H. Lockhart, Patricia McNeil, Charles Talbert, Bouy Te, and Rob Wexler.

We also thank the many people who participated in the workshops, which were valuable discussions in themselves as well as laying the groundwork for the conference. Agendas for the workshops are in the appendix. The Technical Assistance Workshop on Building Instructional Capacity was chaired by Cora Marrett and Catherine Snow. Presenters included Wende Allen, David K. Cohen, Barbara Foorman, Louis Gomez, Phyllis Hunter, C. Kent McGuire, Annemarie Palincsar, Sheila Sconiers, Sally Goetz Shuler, Robert Slavin, and Robert Tinker.

The Role of the Law Workshop was chaired by Jacob Adams and Jay Heubert. Presenters included Art Coleman, Lois Gray, Betsy Levin,

Lorraine McDonnell, Margaret J. McLaughlin, Jennifer O'Day, Scott Palmer, Michael Rebell, James Smith, William Taylor, William Trent, Julie Underwood, Ken Warlick, and Paul Weckstein.

The conference paper authors, discussion leaders, and other presenters established an intellectual content and a tone of the highest quality from beginning to end. We would like to thank them all: Christopher Edley, Jr., and Catherine E. Snow, the co-moderators, and the presenters, who were Jacob Adams, Barbara Bowman, John Bransford, Diane Briars, Ronald Ferguson, Barbara Foorman, Patricia Gándara, Eugene Garcia, Antoine Garibaldi, Edmund Gordon, Jay Heubert, Michael Klentschy, Diana Lam, Brian Lord, Samuel Lucas, L. Scott Miller, Gary Orfield, Craig Ramey, Michael Rebell, Lauren Resnick, Bertha Rubio, Carmen Varela Russo, Robert Slavin, Claude Steele, Samuel Stringfield, Marta Tienda, Judith Winston, and Min Zhou.

NRC staff who worked on the conference included Suzanne Donovan, Michael Feuer, Anne Marie Finn, Janet Garton, Karen Mitchell, Faith Mitchell, Timothy Ready, Nat Tipton, and Alexandra Wigdor.

This report has been reviewed in draft form by individuals chosen for their diverse perspectives and technical expertise, in accordance with procedures approved by the Report Review Committee of the National Research Council. The purpose of this independent review is to provide candid and critical comments that will assist the institution in making the published report as sound as possible and to ensure that the report meets institutional standards for objectivity, evidence, and responsiveness to the study charge. The review comments and draft manuscript remain confidential to protect the integrity of the deliberative process.

We thank the following individuals for their participation in the review of this report: David Grissmer, RAND, Arlington, VA; Meredith Phillips, School of Public Policy and Social Research, University of California, Los Angeles; Barbara Rogoff, Department of Psychology, University of California, Santa Cruz; and Russell Rumberger, Department of Education, University of California, Santa Barbara. In addition, Richard Elmore, Harvard University; Margaret Goertz, University of Pennsylvania; Robert Hauser, University of Wisconsin; Paul Minorini, Boys Hope Girls Hope; and Gary Natriello, Columbia University Teachers College provided helpful comments on the three conference papers included in this volume.

Although the reviewers listed above have provided many constructive comments and suggestions, they were not asked to endorse the final draft of the report before its release. The review of this report was overseen by Cora B. Marrett, Senior Vice President, Academic Affairs, University of Wisconsin. Appointed by the National Research Council, she was responsible for making certain that an independent examination of

this report was carried out in accordance with institutional procedures and that all review comments were carefully considered. Responsibility for the final content of this report rests entirely with the authoring committee and the institution.

Neil Smelser, Chair
Division of Behavioral and Social Sciences and Education

ACHIEVING HIGH EDUCATIONAL STANDARDS FOR ALL

Part I

Conference Summary

1

Introduction

The transition to the new millennium was an opportune time to reflect on a challenge as difficult and fundamentally important to America as any: ensuring that students from all backgrounds achieve to high educational standards. To this end, the National Research Council (NRC), with support from the U.S. Department of Education, convened leading educators and researchers for a Millennium Conference and two preconference workshops that focused on the theme "Achieving High Educational Standards for All."

The conference focused on groups of students that historically have been disadvantaged in terms of educational opportunities and outcomes—especially students from racial and ethnic minority groups. Some speakers discussed research and reform strategies that were applicable for students from all backgrounds, and others focused on research and reforms specifically relating to the education of minority students, low-income students, or both. Whether a speaker emphasized general research and reforms or more targeted strategies, all presentations focused on the implications of various policies and practices for the education of students from the segments of society that historically have been least well served by schools.

SEPARATE AND UNEQUAL: HISTORICAL ANTECEDENTS OF CONTEMPORARY DISPARITIES

One could pick any number of times and places to begin this very brief discussion of race, class, and education in America, but the charge to

conference participants was to discuss the education of minority and disadvantaged students from the time of *Brown v. Board of Education* to the present. Hence, we begin with the Supreme Court's decision in the landmark 1954 case and the economic and social milieu from which it arose. (This discussion draws primarily on the presentation of Ronald Ferguson and to a lesser extent on remarks by William Taylor, Jay Heubert, Michael Rebell and Gary Orfield.)

The Court ruled in *Brown v. Board of Education*, 347 U.S. 483 (1954) (USSC+), that schools segregated on the basis of race are inherently unequal. To understand contemporary disparities in the education of minority and disadvantaged students, it is helpful to consider some of the historical facts that informed the Court's ruling. Writing for the Court majority, Chief Justice Earl Warren stated:

> Today, education is perhaps the most important function of state and local governments. . . . It is the very foundation of good citizenship. Today it is a principal instrument in awakening the child to cultural values, in preparing him for later professional training, and in helping him to adjust normally to his environment. In these days, it is doubtful that any child may reasonably be expected to succeed in life if he is denied the opportunity of an education. Such opportunity, where the state has undertaken to provide it, is a right which must be made available to all on equal terms.
>
> We must consider public education in the light of its full development and its present place in American life. . . . Segregation of children in public schools solely on the basis of race deprives children of the minority group of equal educational opportunities, even though the physical facilities and other "tangible" factors may be equal.

These excerpts indicate that by 1954, the Supreme Court understood the pivotal importance of education not only for the well being of individuals, but also for the continued functioning of American society and democracy. The Court also recognized the injustice of denying equal educational opportunity to any segment of the population.

The Court found racially segregated schools to be inherently unequal, "even though physical facilities and other tangible factors may be equal." In particular, the Court cited the adverse psychological effects of policies and laws supporting segregation, as they were assumed to convey "the inferiority of the Negro group." Writing for the Court, Chief Justice Warren went on to note, "a sense of inferiority affects the motivation of a child to learn."

From a strictly logical, ahistorical perspective, one might wonder how the Supreme Court came to the conclusion that racially segregated schools inherently were unequal and why legally sanctioned segregation neces-

sarily conveyed a judgment of inferiority upon black students. However, it must be understood that the legally required segregation of Southern schools was but a part of the South's pervasive system of Jim Crow laws, traditions, and the ideology of white supremacy (National Research Council, 1989:58-60; Thernstrom and Thernstrom, 1997:25-52). (Note: Throughout Part I, references to publications and research findings that were mentioned or alluded to by conference and workshop presenters are included for the reader's convenience.) While segregation and other forms of racial discrimination were also common in Northern states (National Research Council, 1989:60), approximately two-thirds of black Americans lived in the South at the time of the *Brown v. Board of Education* decision, and at least three-quarters lived south of the Mason-Dixon line prior to World War II (National Research Council, 1989:60-61).

In *An American Dilemma*, the Nobel prize-winning economist and sociologist Gunnar Myrdal described school segregation in the context of the wider caste-like system of economic and social oppression that existed in the South from the end of Reconstruction in 1877 into the middle of the 20th century (Myrdal, 1944). Throughout most of this period, the "physical facilities and other tangible factors" related to the schooling of black students seldom were equal (National Research Council, 1989:59). Indeed, separate schools were maintained explicitly for the purpose of perpetuating the racial stratification that was the cornerstone of the Jim Crow system (Thernstrom and Thernstrom, 1997:36-52). It was not until the 1930s that the courts began to pay any attention to the word, "equal," in the "separate but equal" doctrine that was derived from the Supreme Court's 1896 *Plessy v. Ferguson* decision. In the two decades prior to the *Brown v. Board* decision, the physical resources made available to black and white schools became more equitable due to the courts' interventions (Thernstrom and Thernstrom, 1997:37). Nevertheless, the role that segregated schools played in maintaining the established system of racial inequality that had been documented by Myrdal and others remained clear. Thurgood Marshall, lead attorney for the plaintiffs in *Brown v. Board*, extensively cited Myrdal's work in his arguments against the "separate but equal" doctrine.

Although the deliberate segregation of schools by race has been illegal since 1954, Ronald Ferguson, Michael Rebell and Gary Orfield noted during the conference that the government did not take decisive steps to desegregate schools until 10 years later. Key to this was the passage of the 1964 Civil Rights Act and a series of strong court rulings between 1968 and 1973. Despite the progress in reducing the segregation of black students, little was ever accomplished in reducing the very substantial segregation of Hispanic students.

SYSTEMIC EDUCATION REFORM AND TARGETED EFFORTS TO ELIMINATE DISPARITIES

Nearly 50 years after the Supreme Court's *Brown v. Board of Education* decision, data presented in this volume make it clear that, although substantial progress has been made in improving the quality of education for minority students, enormous disparities remain. Compounding this problem is the fact that national surveys of academic performance show that many students from all backgrounds lack proficiency in various academic subjects (National Assessment Governing Board, 1997; National Center for Education Statistics 1997, 1999a, 1999b). Furthermore, international comparative studies show that the academic performance of U.S. students, rich and poor, minority and nonminority, trails that of students from many other countries (National Center for Education Statistics, 1999b). Collectively, these data show that U.S. schools still are far from enabling the achievement of high educational standards by all students. It is clear that to accomplish this will require not only that achievement gaps associated with race, ethnicity, and class be eliminated, but also that learning outcomes for students from all segments of society be improved.

Data presented at the conference also show that racial and ethnic disparities in education outcomes are only partly explained by differences in the average socioeconomic status of racial and ethnic groups. Students whose parents have less education and who come from low-income families tend to have lower academic achievement and complete fewer years of schooling than do students from wealthier families and who have parents who completed more schooling (U.S. Department of Education, 2001). Similarly, black, Hispanic, and American Indian students tend to have lower indicators of academic achievement and to complete fewer years of schooling than do non-Hispanic white and Asian students (U.S. Department of Education, 2001). Although black, Hispanic, and American Indian students, on average, come from families with lower incomes and levels of parental education than do others, these racial/ethnic differences in average socioeconomic status statistically account for only part of the racial/ethnic differences in education outcomes.

Edmund Gordon, the conference keynote speaker, challenged others at the conference to seriously examine the question of whether systemic reforms of curriculum and instruction intended to boost achievement for all students will be sufficient to address the more acute needs of more disadvantaged students. He suggested that while much could be accomplished by systemic educational reforms, substantial progress toward closing the achievement gap may require more targeted efforts addressing issues related to race/ethnicity and class not only in schools, but also in communities and in society.

Neither the conference nor this volume resolves the difficult question posed by Gordon, although many conference speakers argued that improving achievement for segments of the population that traditionally have been poorly served by schools will not be accomplished by simple, unidimensional approaches. Conference speakers discussed a variety of research findings and analyses of many different kinds of influences on education outcomes and many kinds of programs and policies intended to improve them. They offered no single answer to the question of how the nation will achieve the goal of high educational standards for all. This volume, then, does not reflect a consensus of conference participants; rather, it offers research findings, interpretations, and insights from a diverse and distinguished group of expert presenters that includes some of the country's most eminent education scholars.

OVERVIEW OF THIS VOLUME

The volume is divided into three parts:

- Part I Conference Summary
- Part II Perspectives of the Co-Moderators
- Part III Conference Papers

Part I

Part I is composed of six chapters and summarizes presentations made at the two preconference workshops and the conference. In its focus on racial and ethnic trends and the outcomes of efforts to close the gaps and eliminate racial inequality, Part I follows the lead of another recent NRC report, *America Becoming: Racial Trends and Their Consequences* (2001a)—albeit with a more specific focus on education. This summary, like the conference and workshop presentations it describes, also draws heavily on the large amount of education-related work done by the NRC. Box 1-1 briefly outlines these and other NRC reports.

Following this description of the objectives of the conference and the organization of this report, Chapter 2 presents a statistical portrait of demographic and education trends for racial and ethnic groups during the latter half of the 20th century. The chapter concludes with the observations by conference keynote speaker Edmund Gordon.

NRC committees have conducted several important studies synthesizing scientific research on learning. The breadth and depth of the findings of these reports far exceeds the scope of this volume. Their highlights were reported at the conference and appear in Chapter 3.

The presentations by John Bransford, Catherine Snow, and Barbara Bowman cited findings from the NRC committees that each chaired or cochaired on learning research (1998a; 1999a; 2000a), early reading (National Research Council, 1998b;1999b), and early childhood development (National Research Council, 2000b; 2000c), respectively. These topics were discussed with a particular emphasis on efforts to improve learning for groups of students that generally have not been well served by schools. For a more complete treatment of these topics, the reader is encouraged to consult these reports.

Also discussed in Chapter 3 is a presentation of research findings on the care and education of young children by Craig Ramey. The chapter concludes with a description of a conceptual framework on the topic of building instructional capacity in schools. David Cohen presented this framework, which he developed with Deborah Ball.

In its focus on the social dimensions of learning, Chapter 4 continues the dialogue that took place during the conference between scholars who emphasized in-school influences on learning with those who emphasized external influences. It draws on Gary Orfield's statistical portrait of segregated, high-poverty schools, Claude Steele's presentation on the social psychological implications of race, discussions by Steele and Patricia Gándara about the need for educational interventions and programs that are calibrated to the specific issues that need to be addressed, and presentations by Min Zhou, Marta Tienda, Eugene Garcia, and others on the needs of language minority and immigrant children.

In Chapter 5, the emphasis shifts to the examination of education policy related to minority and economically disadvantaged students, from the Supreme Court's 1954 decision in *Brown v. Board of Education*, to school finance litigation, the legal concept of "educational adequacy," the standards movement, and high-stakes testing. The chapter draws heavily on presentations by Ronald Ferguson, Gary Orfield, Michael Rebell, Jacob Adams, and Jay Heubert.

The theme of Chapter 6 is the application of research to practice. It highlights different models by which research findings have been integrated into educational practice. It begins with Samuel Stringfield's views on school reform as essentially an engineering problem. For Stringfield, successful school reform depends on developing reliable systems to implement instructional practices that have been research-tested and proven effective. Following Stringfield is a discussion of research-based technical assistance for educational reform and Robert Slavin's description of the design, implementation, and widespread dissemination of Success for All, a highly scripted whole-school reform model. Bertha Rubio, principal of Davey Crockett Elementary School in San Antonio, provided a case study of the implementation and outcomes of Success for All at her school.

The chapter concludes with a summary of the presentations by Lauren Resnick and Diana Lam, who described their work to implement systemic reforms intended to turn the entire school district of Providence, Rhode Island, into an organized network of learning communities. The reform model, developed by Lauren Resnick, emphasizes accountability and the building of an organized network of learning communities among students, teachers, and administrators.

Part II

Part II features the perspectives of the conference co-moderators, Christopher Edley and Catherine Snow. Edley assesses the adequacy of education research described at the conference for informing the work of policy makers. His commentary puts into context information presented at the conference in relation to the struggle for civil rights and to contemporary policy debates about education reform.

Catherine Snow, referring to comments made in a preconference workshop by the former assistant secretary of education, Kent McGuire, argues that it is the job of education researchers to "help people be smarter about educating children." Referring to material presented at the conference, she notes that there are several areas, including the care and education of young children, early reading, and early mathematics instruction, in which the research base is adequate to guide new instructional practices—practices that, if properly implemented, could reliably be expected to improve outcomes. A major challenge, she suggests, is to develop strategies and systems that will enable educators to implement these practices in real-world settings.

Part III

Part III consists of three papers authored or coauthored by conference presenters Marta Tienda, Ronald Ferguson, and Michael Rebell. The papers expand on the issues that they discussed during their conference presentations.

Topics Covered in Conference Presentations

According to the statement of task that was approved by the Executive Committee of the National Academies Governing Board to authorize this project, the conference presentations were to accomplish three goals:

1. Analyze the progress that has been achieved to date in improving the educational opportunities and achievement of minority and disadvantaged youth;

BOX 1-1
NRC Reports on Themes Relevant to the Conference Questions

A Common Destiny: Blacks and American Society (1990) This book summarizes and interprets a large body of data and research analyses concerning the position of blacks in American society since the eve of World War II. By studying and comparing black and white age cohorts, it charts 50 years of change and continuity in the status of blacks in the areas of education, housing, employment, political participation, and family life.

America Becoming: Racial Trends and Their Consequences (2001) These two volumes explore past and current trends among blacks, Hispanics, Asians, and American Indians in the context of a white majority. They present the most findings and analysis on compelling issues in the field of race relations, including race and ethnicity in the criminal justice system; demographic and social trends; trends in minority-owned businesses; wealth, welfare, and racial stratification; residential segregation; disparities in educational test scores; health and development; immigration; and the changing meaning of race and changing racial attitudes.

Preventing Reading Difficulties in Young Children (1998) The book examines the epidemiology of reading problems and discusses word identification, comprehension, and other processes in normal reading development. Against the background of normal progress, it examines factors that put children at risk of poor reading, exploring how literacy can be fostered from birth through kindergarten and the primary grades, including evaluation of philosophies, systems, and materials commonly used to teach reading. The scholarly research in this volume is the basis for the popular version for parents, teachers, and caregivers, *Starting Out Right: A Guide to Promoting Children's Reading Success* (1999).

How People Learn: Brain, Mind, Experience, and School (1999) This book explores new evidence from many branches of science that has significantly added to the understanding of what it means to know—from the neural processes that occur during learning to the influence of culture on what people see and absorb. The book examines these findings and their implications for what people teach, how they teach it, and how they assess what children learn. It uses exemplary teaching to illustrate how approaches based on what is now known result in deeper understanding—calling into question concepts and practices firmly entrenched in the current education system.

High Stakes: Testing for Tracking, Promotion, and Graduation (1999) The book focuses on how testing is used in schools to make decisions about tracking and placement, promotion and retention, and awarding or withholding high school diplomas. It discusses how to judge the appropriateness of a test; how to make tests reliable, valid, and fair; strategies and practices to promote proper test use; and how decision makers in education should—and should not—use test results. The book discusses common misuses of testing, their political and social context, what happens when test issues are taken to court, special student populations, and social promotion.

How People Learn: Bridging Research and Practice (1999) Taking as its point of departure the previous report, this book considers what research and development could help incorporate its insights into classroom practice. It proposes an agenda for a comprehensive program of "use-inspired" strategic research focused on improving

classroom learning and teaching. The two reports have been combined in a single volume, *How People Learn: Brain, Mind, Experience, and School—Expanded Edition* (2000).

Eager to Learn: Educating Our Preschoolers (2001) This book focuses on early education and care for children ages 2 to 5, with a review of key discoveries in how children learn. Well before formal schooling begins, children's early experiences lay the foundations for their later social behavior, emotional regulation, and literacy. Yet for a variety of reasons, far too little attention is given to the quality of these crucial years. This book considers what it would take to provide better early education and care for young children. It synthesizes new findings on how they learn and the impact of early learning, the interplay of biology and environment, variations in learning among individuals and children from different social and economic groups, and the importance of health, safety, nutrition and interpersonal warmth to early learning.

From Neurons to Neighborhoods: The Science of Early Childhood Development (2000) How to raise young children is one of today's most highly personalized and sharply politicized issues, and the debate has intensified as discoveries about development—in the womb and in the first months and years—have reached the popular media. Presenting new findings in neurobiology as well as in behavioral and social sciences, this book draws important conclusions about nature-versus-nurture, the impact of being born into a working family, the effect of politics on programs for children, and the costs and benefits of intervention. It issues a series of challenges to decision makers regarding the quality of child care, issues of racial and ethnic diversity, and the integration of children's cognitive and emotional development.

Other NRC reports on themes relevant to minority families and communities:

Measuring Poverty: A New Approach (1995)

Beyond the Blueprint: Directions for Research on Head Start's Families (1996)

The Use of IQ Tests in Special Education Decision Making and Planning: Summary of Two Workshops (1996)

Improving Schooling for Language-Minority Children: A Research Agenda (1997)

Racial and Ethnic Differences in the Health of Older Americans (1997)

Educating Language-Minority Children (1998)

From Generation to Generation: The Health and Well-Being of Children in Immigrant Families (1998)

Welfare, the Family, and Reproductive Behavior: Research Perspectives (1998)

Governance and Opportunity in Metropolitan America (1999)

Testing, Teaching, and Learning: A Guide for States and School Districts (1999)

Testing English-Language Learners in U.S. Schools: Report and Workshop Summary (2000)

NRC reports are available on line (read-only) and for sale at http://www.nap.edu/index.html

2. Provide educators and policy makers with information about effective classroom interventions; and

3. Build understanding about how to identify and access high-quality technical assistance.

As previously mentioned, conference presentations primarily addressed issues related to the educational progress of minority students, especially those who also are poor. Because the presentations did not substantially address questions related to the educational progress of low-income students who were not from racial or ethnic minority groups, this report does not specifically address issues related to the education of non-Hispanic white students who are economically disadvantaged. However, Chapter 2 of the conference summary (Part I) and the paper by Lloyd, Tienda, and Zajacova in Part III contain information differentiating educational issues pertaining to minorities, who make up a disproportionate share of students who are economically disadvantaged, from those of economically disadvantaged students who are not minorities.

Conference presentations describing effective classroom interventions are highlighted in Chapter 6 (Part I). Effective classroom practices, along with the research on which they are based, also are described in Chapter 2 (Part I). In addition, Catherine Snow's paper in Part II identifies classroom practices that research has found to be effective, as well as challenges related to their widespread dissemination and implementation. As she noted, much more work needs to be done before practices that have been shown to work well in isolated model programs can be scaled up and reliably implemented throughout the country.

There was little discussion at the conference about how educators can identify and access high-quality technical assistance. Although none of the presentations at the conference were of a "how-to" nature, a preconference workshop was devoted to a discussion of identifying high-quality technical assistance to build instructional capacity. Presentations from the workshop on technical assistance are summarized in Chapter 6. The conference did include much discussion of how research has informed and can inform education policies and practice, and readers of this volume can learn about research findings on good educational practice. Much of Chapter 6 in Part I describes how educators have successfully applied research findings to improve student learning.

2

Education and the Changing Nation

The urgency of the issues discussed during the conference is underscored by the profound demographic, social, and economic changes that took place during the last half of the 20th century, and that will continue well into the 21st.

Demographic and education data presented in the figures and tables in this and other chapters of the conference summary are derived from Census Bureau and Department of Education sources, as indicated. Demographic and educational trend data were presented at the millennium conference by Marta Tienda, in collaboration with Kim Lloyd and Anna Zajacova. In addition, Edmund Gordon, Gary Orfield, Ronald Ferguson, Patricia Gándara, Samuel Stringfield, Scott Miller, Samuel Lucas, and Antoine Garibaldi presented or referred to Census Bureau and Department of Education data.

DEMOGRAPHIC CHANGE

Racial and ethnic minority groups that, for the most part, have not been well served by the nation's schools are rapidly growing as a percentage of the population (Figure 2-1). In 1980, the first year that census data differentiating Hispanic and non-Hispanic whites became available, 24 percent of children under 18 were members of a racial or ethnic minority group (i.e., other than non-Hispanic whites). By 2000, minorities had increased to 35 percent of the population under 18 and by 2020, 45 percent of this population will be minorities. Nearly 9 out of every 10 minority

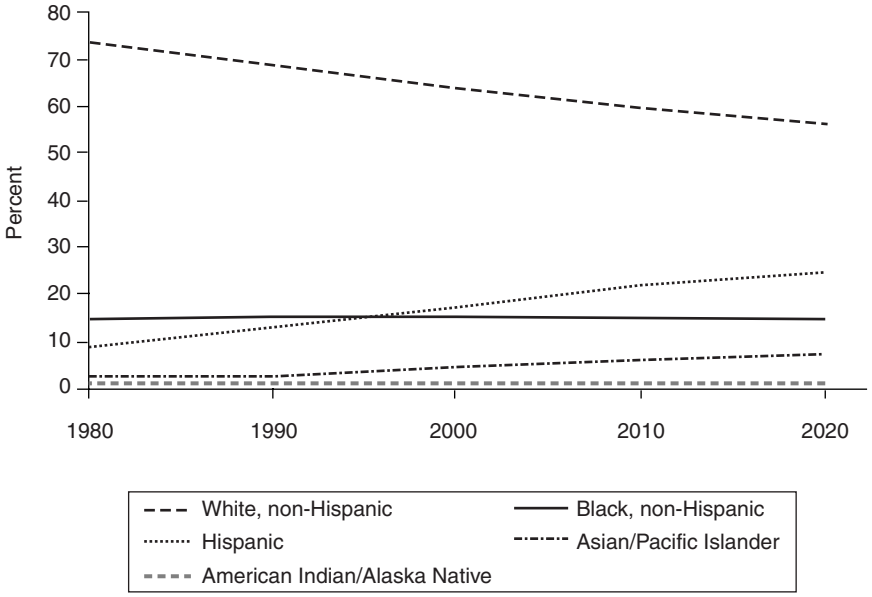

FIGURE 2-1 Percentage of U.S. children under age 18 by race and Hispanic origin, 1980-2000 and projected 2001-2020. SOURCE: Federal Interagency Forum on Child and Family Statistics (2001:4).

students in 2000 were from groups that had significantly lower than average levels of degree attainment and of academic achievement. As discussed below, Asians/Pacific Islanders are the only racial/ethnic minority group whose academic attainment and achievement are not substantially below national averages (Lloyd et al., in this volume: Figure 13). Minority students in six states, including California and Texas, two of the nation's most populous states, already make up half or more of all students in public schools (U.S. Department of Education, 2000b:60).

The most dramatic growth is taking place in the Hispanic population, which in 1980 constituted only 9 percent of the school-age population 18 and under. By 2000, Hispanics had increased to 16 percent, and by 2020 they are expected to reach 23 percent of the population 18 and under. The Asian population is also growing at a rapid rate, although from a much smaller base than Hispanics. In 1980, Asians constituted only 2 percent of the population 18 and under. By 2000, their percentage had grown to 4

percent, and by 2020 it is expected to reach 6 percent. Blacks and American Indians/Alaska Natives are both relatively constant as a percentage of the population. Between 1980 and 2020, blacks are expected to decrease from 15 to 14 percent of the school-age population, while American Indians/Alaska Natives are expected to remain at approximately 1 percent.

Immigration has contributed greatly to demographic growth among Hispanics and Asians (Lloyd et al., in this volume:Figure 2). In 2000, 28 percent of the Hispanic and 38 percent of the Asian school-age population were first-generation immigrants. An additional 44 percent of Hispanics and 43 percent of Asians were second-generation immigrants. The strong flow of immigrants from Latin America and Asia has greatly increased the linguistic and cultural diversity of American schools. In 1999, 23 percent of Hispanic school-age children and 12 percent of Asian children were reported to have difficulty speaking English. In addition, 71 percent of Hispanic and 51 percent of Asian children come from homes in which a language other than English is spoken (Federal Interagency Forum on Child and Family Statistics, 2001:70; also see Lloyd et al., in this volume: Figure 11).

Neither Hispanic nor Asian immigrants should be considered a monolithic group in terms of culture, occupational profile, or educational status. However, Asian immigrants who listed an occupation when admitted to the United States are far more likely to have held professional or managerial positions in their country of origin than were Hispanic immigrants. Of Asian immigrants who listed an occupation when legally admitted to the United States in 1998, 62 percent said that they held professional or managerial positions in their country of origin, compared with only 12 percent of immigrants from Latin America (U.S. Immigration and Naturalization Service, 1998).

The educational attainment of adult immigrants from Latin America and Asia at the time of entry is not known. Census information on the educational attainment of foreign-born adults reflects schooling that may have occurred in the country from which they emigrated or in the United States. However, consistent with the occupational differences mentioned above, the Census Bureau's 1998 Current Population Survey found that 83 percent of foreign-born Asian adults age 25 and over had at least a high school diploma, and 44 percent had a bachelor's degree. This compares with only 47 percent of adult immigrants from Latin America with a high school diploma and 11 percent with a bachelor's degree (Ethnic and Hispanic Statistics Branch, Population Division, U.S. Bureau of the Census, Current Population Survey, March, 1998 Internet release 9/12/2000). These disparities between foreign-born Hispanic and Asian adults are reflected in the average academic outcomes of Hispanic and Asian American students, as described below.

EDUCATION AND THE CHANGING NATION

Further magnifying the educational challenges posed by demographic changes is the rapidly growing importance of education to individuals' financial security (Figure 2-2). In 1979, a male college graduate earned only 29 percent more than a male high school graduate and 57 percent more than a male worker who did not complete high school. By 1999, the earnings advantage of male college graduates relative to male high school completers and noncompleters increased to 68 percent and 147 percent, respectively (Council of Economic Advisers, 2000:135-136).

High-wage manufacturing jobs and other types of well-paying employment that had been available to workers with little education in previous decades are becoming increasingly scarce. As a result, a high-quality education has become nearly indispensable for entry into careers that afford a reasonable likelihood of economic security. The educational system, then, is playing an increasingly prominent role as both gatekeeper

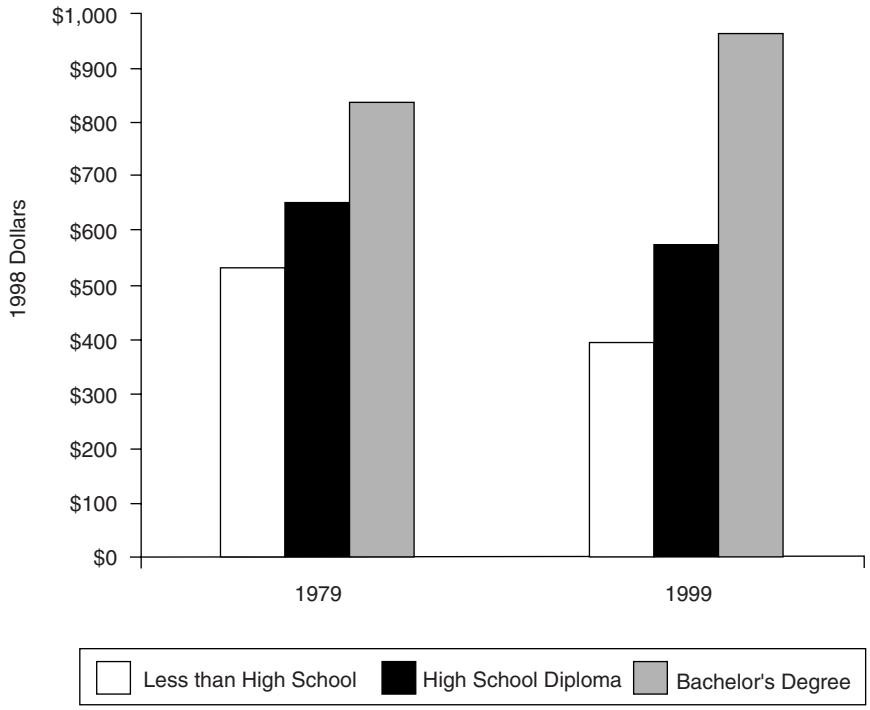

FIGURE 2-2 Weekly earnings of men who work full-time by educational attainment, 1979 and 1999. SOURCE: Council of Economic Advisers (2000:135).

and gateway to careers that offer a reasonable opportunity for economic security. In light of this, the persistent racial/ethnic and economic disparities in achievement pose a serious threat to the American ideal of equal opportunity for all. As put by Marta Tienda during the conference, "the ultimate injustice in a meritocratic society is foreclosing educational opportunities."

America's schools still are far from reaching the goal of enabling all students to achieve to high academic standards. In 1998, 15 percent of all 20- and 21-year-olds had not completed high school or received a general educational development (GED) high school equivalency credential (U.S. Department of Education, 2000b:128). As illustrated in Figure 2-3, 43 percent of high school seniors scored below "basic" on the 1996 science test of the National Assessment of Education Progress (NAEP), 23 percent scored below basic on the 1998 reading test, and 31 percent were below basic on the 1996 NAEP mathematics test (see also Lloyd et al., in this volume: Figure 13).

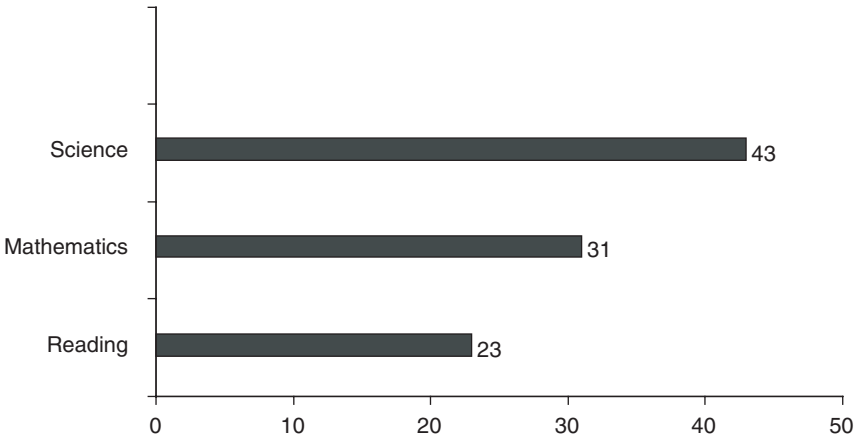

FIGURE 2-3 High school seniors with scores below basic on the NAEP science, mathematics, and reading exams. Note: "Basic" is defined as "partial mastery of prerequisite knowledge and skills that are fundamental for proficient work at each grade." SOURCES: National Center for Education Statistics: 1998 NAEP Reading Report Card for the Nation and the States; NAEP 1996 Mathematics Report Card for the Nation and the States. National Assessment Governing Board, 1996 Science Performance Standards: Achievement Results for the Nation and the States.

International Comparisons

Data from the Third International Mathematics and Science Study (TIMSS) (National Center for Education Statistics, 1999b) indicate that U.S. students' achievement lags considerably behind these lofty aspirations. They also demonstrate that the nation still is nowhere near to being "first in the world in mathematics and science achievement"—a goal articulated in the America 2000 campaign of the first Bush administration and reiterated in the Clinton administration's Goals 2000 (U.S. Department of Education, 1991, 1998). At least this was the case in 1995, according to TIMMS. Although the study found that the average mathematics and science skills of 4th graders in the United States were more advanced than those of 4th graders from most of the 48 countries that participated, by 8th grade the science skills of U.S. students were only a little above the international average and the mathematics scores were just average. Even more troubling, U.S. 12th graders ranked at or near the bottom in both science and mathematics when compared with other students completing secondary school in the 47 countries that participated in TIMSS. Also, the scores of the top 10-20 percent of U.S. high school students were among the lowest of the 16 countries that participated in a portion of TIMSS that tested knowledge of advanced mathematics and physics of the highest-achieving students from each of the participating 47 countries.

In 1999, the first follow-up or repeat study was conducted. The TIMSS-R was the first international study specifically designed to longitudinally track changes in achievement (U.S. Department of Education, 2000c). Similar to the original findings in 1995, TIMSS-R found that U.S. 8th graders continue to perform only at the international average in science and just below the international average in mathematics. Commenting on the findings from TIMSS-R, Rita Colwell, director of the National Science Foundation stated, "This confirms the disappointing showing of our eighth graders in international comparisons, and demonstrates that the decline in relative performance during the middle school years is a continuing and serious problem" (U.S. Department of Education, 2000c:vii).

Collectively, these data strongly support the proposition that all students in American schools are not achieving to high educational standards—the thematic focus of the conference. In fact, at least in the sciences and mathematics, TIMSS data indicate that not even the country's top performers are achieving to high educational standards, let alone those segments of the population that historically have been poorly served by the nation's schools.

NAEP Data

Substantial gains in educational attainment have been made in the last half-century, as reflected in the dramatic increase in the percentage of the young adult population that has completed high school and college. The percentage of both blacks and whites completing high school has risen dramatically since 1940, and the gap between blacks and whites has narrowed (Figure 2-4). (Data for Hispanics are available only since 1980. Achievement trends for Hispanics are complicated by heavy immigration, but the trend is less positive than for blacks and whites.) The percentages of blacks, whites, and Hispanics who have earned bachelor's degrees also have increased markedly. However, in sharp contrast to the data on high school completion, the gap in college enrollment (Lloyd et al., in this volume:Figure 17) and in bachelor's degree completion between whites on one hand and blacks and Hispanics on the other has deepened (Figure 2-5).

Reliable data on academic achievement trends have been available for a much shorter period of time than have data on degree attainment. The long-term trend assessments of the National Assessment of Educational Progress (NAEP) provide a good indicator of academic achievement patterns in various subjects for different segments of the population. The same assessments have been administered periodically to nationally representative samples of students since 1969 (U.S. Department of Educa-

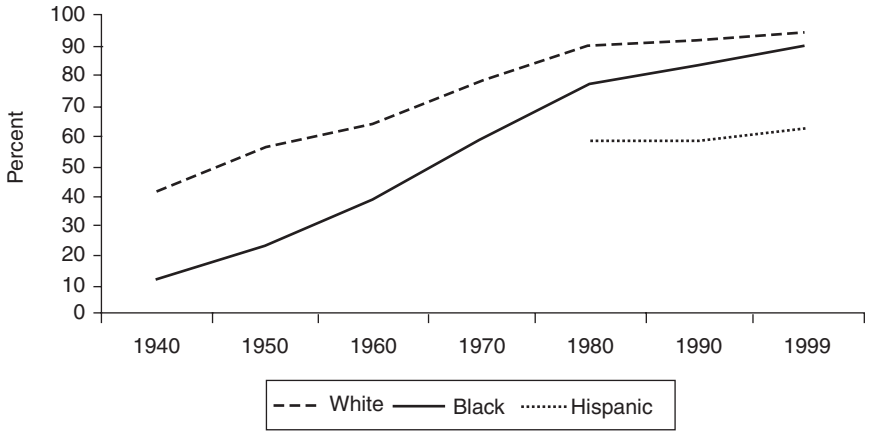

FIGURE 2-4 Persons 25-29 years old who completed high school as a percentage of all 25-29- year-olds, by race/ethnicity. SOURCE: U.S. Department of Education (2001).

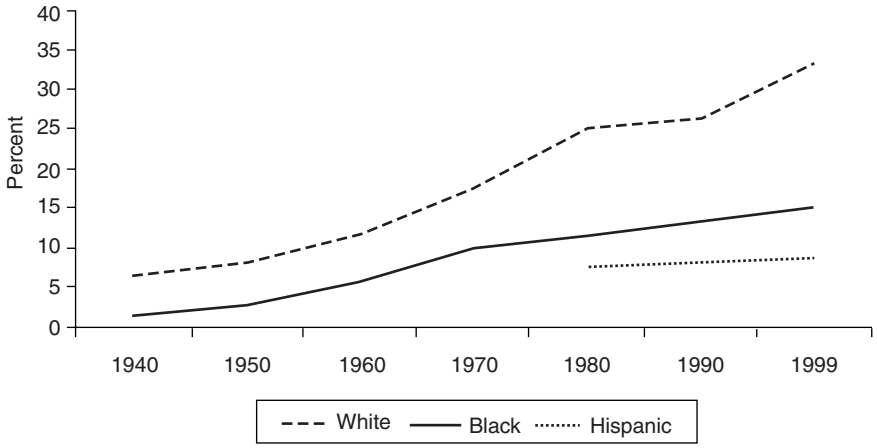

FIGURE 2-5 Persons 25-29 years old who completed 4 or more years of college as a percentage of all 25-29-year-olds, by race/ethnicity. SOURCE: U.S. Department of Education (2001).

tion, 2000a:ix). As noted by Samuel Stringfield at the conference, the average scores for U.S. students in various subjects at ages 9, 13, and 17 have shown remarkably little change throughout the 30-year history of NAEP. As a whole, NAEP long-term trend assessments support neither the claim that the quality of American schools has slipped nor the view that remarkable gains have been achieved. However, the constancy of scores for all NAEP examinees masks notable improvements that occurred in the scores of black and Hispanic students from the 1970s through the late 1980s (see Lloyd et al., in this volume:Figure 14). The fact that there has been little change in national NAEP scores despite the rising scores of blacks, Hispanics, and, to a lesser extent, whites, is explained by the demographic decline of traditionally higher-scoring white examinees and the growing percentage of minorities in the nationally representative NAEP samples.

For reasons that are not entirely understood, the gains that were being made by black and Hispanic students in the 1970s and 1980s stalled or were partially reversed in the 1990s. Ronald Ferguson (this volume) speculates that the gains that occurred can be attributed to efforts to improve students' basic skills. Ferguson also offers some intriguing hypotheses for the lack of progress in closing racial/ethnic achievement gaps during the 1990s (see Chapter 4 and the paper by Ferguson in this volume; Cook, 1998; Ferguson, 2000, 2001; Grissmer, 1998; Phillips, 2000). However, the lack of definitive explanations for racial/ethnic trends in NAEP scores

and trends in degree attainment points to the complexity of the forces that influence educational outcomes. Determining with any certainty the various factors that influence trends in academic achievement is indeed a formidable task. Identifying the causes of racial/ethnic achievement gaps is no less daunting.

Poverty, Income, and Education Outcomes

The juxtaposition of trends in degree attainment (Figures 2-4 and 2-5) with the dramatic reduction in poverty that occurred prior to the mid-1970s (Figure 2-6) shows that the profound economic and social changes of the mid-20th century correlate with increased degree attainment for all segments of the population. Census data show that more than 90 percent of black Americans and two-thirds of white Americans had incomes below the federal poverty level in 1940. Economic growth associated with

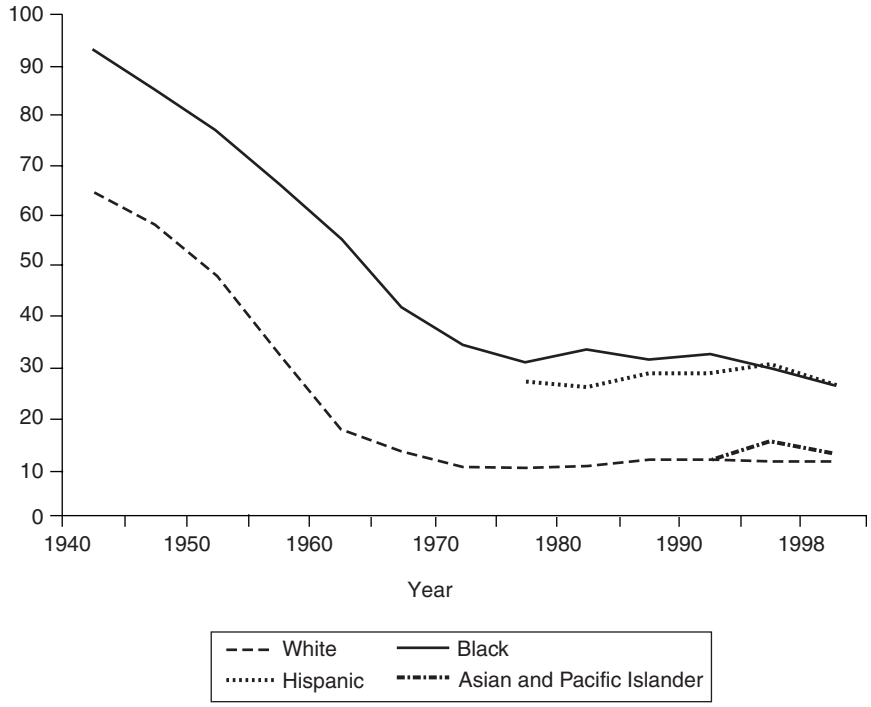

FIGURE 2-6 Poverty rates by race/ethnicity, 1940-1998. SOURCES: National Research Council (1989:278), and U.S. Department of Education (2000b:28).

World War II and the postwar economic boom caused earnings to rise and the poverty rate to plummet. By 1974, 30 percent of blacks were living in poverty, as were 9 percent of whites (National Research Council, 1989:277-279). Similarly, the percentage of black children living in poverty dropped dramatically, from 66 percent in 1960 to a still very high 42 percent in 1970. It remained approximately at that level until it resumed falling in the 1990s, reaching 31 percent in 2000 (U.S. Bureau of the Census, 2001:25). The percentage of white children living in poverty fell from 20 percent in 1960 to 11 percent in 1970 and still was about 9 percent in 2000 (U.S. Bureau of the Census, 2001:24). The percentage of Hispanic children in poverty fluctuated between 33 and 43 percent from 1975 until the late 1990s and fell to 27 percent in 2000 (U.S. Department of Education, 2000b:28; U.S. Bureau of the Census, 2001:26; see also Lloyd et al., in this volume:Figure 6). The percentage of Asian children in poverty fell from 23 percent in 1987 to 14 percent in 2000 (U.S. Bureau of the Census, 2001:26).

It is clear that, despite improvements over time, black and Hispanic students still are far more likely than whites and Asians to come from low-income families. In 1999, the median family income of blacks and Hispanics was only $31,778 and $31,663, respectively, compared with $54,121 for non-Hispanic whites and $56,316 for Asian/Pacific Islander families (U.S. Bureau of the Census, 2000:B-10). Since 1992, the median black family income has increased from 72 percent of that of white families—approximately where it had been for the previous 20 years—to 84 percent in 1999. In contrast, the median income of Hispanic families has fallen from approximately 70 percent of that of white families in the mid-1970s to 62 percent in 1999. As has been discussed, indicators of socioeconomic status such as family income and parental education are correlated with a variety of educational outcomes, irrespective of race/ethnicity. That is, students whose parents are more educated and have higher incomes tend to have better educational outcomes (Coleman et al., 1966; Miller, 1995:84-142; U.S. Department of Education, 2000b). Does, then, the covariance of these indicators of socioeconomic status with race/ethnicity completely account for the long-standing racial/ethnic disparities in educational attainment?

Despite the covariance of socioeconomic status with race/ethnicity (Figure 2-7), the achievement gap is not accounted for in its entirety by racial/ethnic differences in socioeconomic status—at least as it typically is measured (Figure 2-8). In 1994, the average score of white students whose parents did not complete high school on the NAEP reading exam was 274, while the average score of black students whose parents were college educated was 272. The poor academic achievement levels of black and Hispanic students who are not economically disadvantaged was dis-

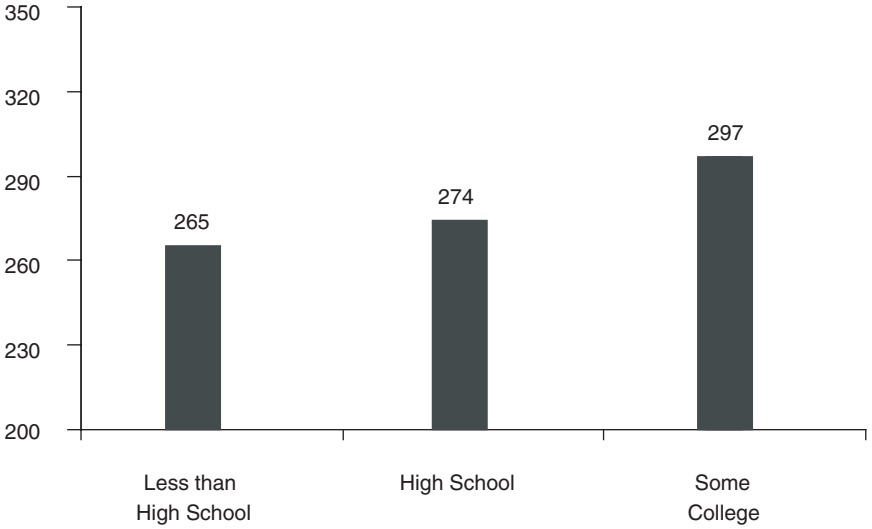

FIGURE 2-7 NAEP reading scale scores of 17-year-olds by parental education, 1994. SOURCE: National Task Force on Minority High Achievement (1999:9).

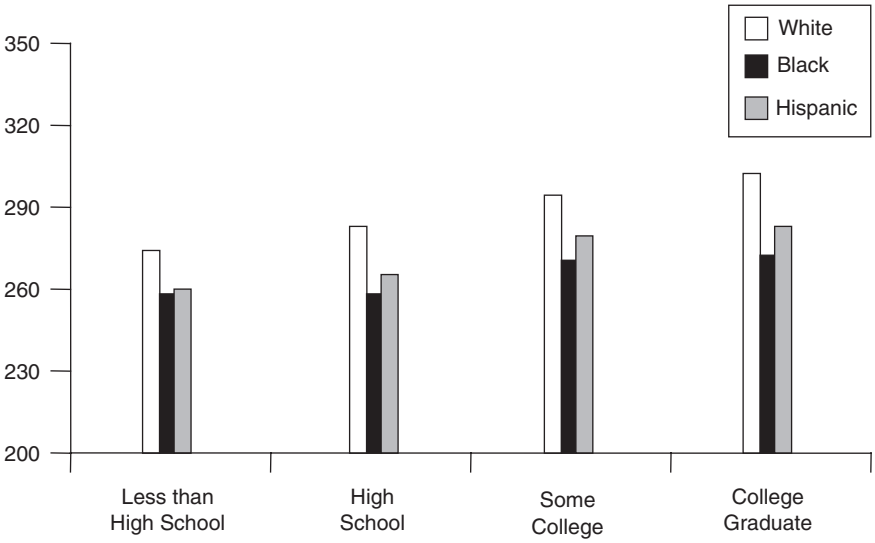

FIGURE 2-8 NAEP reading scale scores of 17-year-olds by race/ethnicity and parental education, 1994. SOURCE: National Task Force on Minority High Achievement (1999:9).

cussed by Scott Miller at the conference, as was the scarcity of black and Hispanic students with high-level academic performance. This was a major focus of a recent report of the College Board Task Force on Minority High Achievement (The College Board, 1999; Miller, 1995).

Citing the work of sociologists Pierre Bourdieu, James Coleman, and Theodore W. Schultz (Bourdieu, 1990; Swartz, 1997; Coleman, 1987; Schultz, 1960), conference speakers Edmund Gordon and Scott Miller (Miller, 1995: 142-200) have both argued that racial/ethnic differences in academic achievement may be better understood in relation to the availability of education-related resources than in terms of simplistic measures of socioeconomic status. Education-related resources are not necessarily material or economic in nature, although they may be. They also include academically relevant learning opportunities in the context of family and community, as well as instruction that draws on students' past personal experiences or, as Luis Moll puts it, taps their funds of knowledge (Moll et al., 1993). As Gordon argued at the conference, "There is absolutely no reason why…color should predict academic achievement or social class should predict academic achievement. Yet we accept these social divisions almost as given." In saying this, Gordon was not denying the fact that race and class have long been correlated with measures of academic achievement; rather, he was saying that people should not accept the inevitability that they must continue to be in the future.

Do race and class tend to be related to the availability of education-related resources? Do race and class somehow determine or influence what and how much students learn in the classroom? If so, how? The relationship of race and class—two macroscopic social categories—to the process of learning both inside schools and in the community is a theme repeatedly addressed by conference participants, one to which this volume frequently returns.

CHALLENGES THAT REMAIN

In the nearly half-century since *Brown v. Board of Education*, minorities have made substantial progress both in terms of degree attainment and academic achievement, as measured in the National Assessment of Education Progress. The data also make it clear, however, that substantial challenges remain before the ideal of achieving high educational standards for all is a reality.

Degree Completion

Increasing percentages of black, Hispanic and white young adults are completing high school (including both high school graduates and indi-

viduals who earn a general educational development [GED] certificate) and earning bachelor's degrees (Figures 2-4 and 2-5). The black-white gap in high school completion has closed dramatically, although the same cannot be said for the Hispanic-white gap. More troubling, the gap between whites and both blacks and Hispanics in bachelor's degree completion has been steadily widening (Figure 2-5). By 1998, the percentage of whites ages 25 to 29 who had completed a bachelor's degree was twice that of blacks of the same age, and three times that of Hispanics.

Trends in bachelor's degree completion among adults ages 25-34 present an even more disturbing picture. While the percentage of white young adults earning bachelor's degrees shows substantial growth over the years, there has been little increase in the percentages of blacks and Hispanics since the mid-1970s. Indeed, the racial/ethnic gap in college completion for high school graduates has widened dramatically since 1990 (Lloyd et al., in this volume:Figure 20). Growth has been especially slow for black men (U.S. Department of Education, 2001; Ready and Nickens, 1991)

These large and expanding racial/ethnic disparities in college completion rates are particularly troubling, given the growing importance of advanced education for Americans' economic security. Whether these disparities are attributable to differences in the quality of precollege academic preparation, racial/ethnic differences in income affecting the ability to pay for college, cultural differences, or some combination of the above, is not completely understood. This question is explored further in Chapter 4.

Academic Achievement

The racial/ethnic differences in degree attainment discussed above are mirrored in a variety of measures of academic achievement (The College Board, 1999; Miller, 1995; Jencks and Phillips, 1998), including the National Assessment of Education Progress. To better understand the challenges that lie ahead, it is helpful to examine the most recent data on racial/ethnic differences in:

- average scores in grades 4, 8, and 12,
- the percentage of examinees scoring below "basic" in grade 12, and
- the percentage of 12th grade examinees demonstrating advanced skills.

The fact that the average scores of black 17-year-olds on the National Assessment of Educational Progress (NAEP) reading exam are lower than

the average scores of white 13-year-olds illustrates the magnitude of the achievement gap (Figure 2-9). Scott Miller has described these and similar disparities on the SAT, the Graduate Record Exam (GRE), and the National Education Longitudinal Study (NELS) of 1988 (Miller, 1995:45-83). Similar patterns exist in other subject areas. Racial/ethnic disparities already are large by age 9. The fact that this achievement gap manifests itself at an early age suggests that efforts to close the gap should begin very early, if such efforts are to be proactive rather than compensatory in nature.

NAEP results also are reported in terms of the following achievement levels—advanced, proficient, basic, and below basic (National Center for Education Statistics, 1997, 1999a; National Assessment Governing Board, 1997). Major differences by race/ethnicity exist in the percentage of students scoring below basic and scoring at the proficient level or above

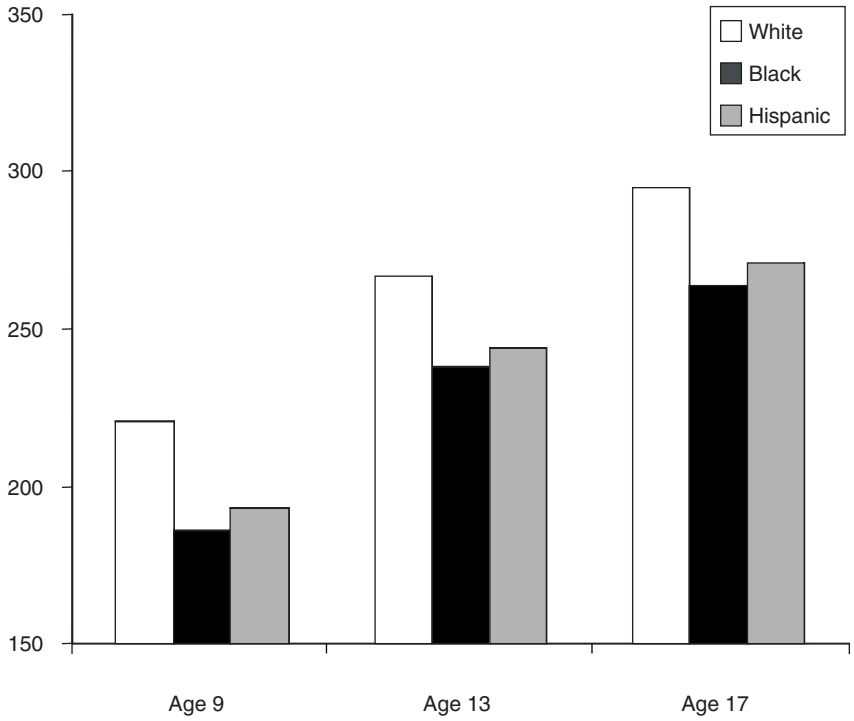

FIGURE 2-9 NAEP reading scale scores, by race/ethnicity, 1999. SOURCE: National Center for Education Statistics, NAEP 1999 Long-Term Trend Assessment.

(Lloyd et al., in this volume:Figure 13). The specific academic skills indicative of each of these achievement levels are set by the Nation Assessment Governing Board and are described in the above mentioned NAEP publications. Although the process by which the achievement standards are set has been debated (National Research Council, 1998d), examining the racial/ethnic distribution of examinees scoring below basic and at least at the proficient level is nonetheless instructive.

These data suggest that U.S. students of all backgrounds still are far from achieving at a level consistent with the ideal of high educational standards for all. Yet black and Hispanic students still are far more likely than whites to score at or below basic in reading and in other subject areas and far less likely to demonstrate proficient or advanced skill levels. Coming to grips with these findings requires that the following question be addressed: Will efforts to improve the quality of education for all students, even if successful, address the underrepresentation of minorities among high achievers, or the overrepresention of minorities among the lowest-achieving students?

From Building Basic Skills to Nurturing the Talented Tenth

In his keynote conference presentation, Edmund Gordon referred at some length to the late W.E. B. DuBois, whom he described as his close friend and mentor. DuBois is well known for his advocacy of efforts to develop advanced intellectual skills in what he called "the talented tenth" of students. DuBois considered such efforts essential to the development of a leadership vanguard for the black community (DuBois, 1997). Gordon noted, however, that shortly before DuBois left the United States to live in Ghana in 1958, he had come to believe that the advanced intellectual skills that he had thought were important only to the education of the talented tenth would become necessary for all students by the end of the 20th century.

Gordon sees the contemporary focus on closing the gaps and achieving high educational standards for all to be the current formulation of the view earlier adopted by DuBois. In Gordon's words, "that the highest development of the human intellect was not something that could be effectively limited to a talented few, but somehow had to be universalized." Gordon stated that this requires the development in all people of:

- critical literacy—not just the ability to decode, but also the ability to rapidly find meaning from printed material;
- critical numeracy—not simply the ability to count or to manipulate numbers, but also to understand numeric relationships; and
- mastery of knowledge and knowledge domains.

Not only must students be able to gain mastery over "chunks of knowledge," but they must also develop tacit understandings of the relationship among these chunks of knowledge and among domains of knowledge. Commenting on the relevance of this for participation in the modern economy, especially in rapidly growing fields such as the computer sciences, Gordon cited *The Sciences of the Artificial* (Simon, 1996). According to Herbert Simon, educators need to develop ways to more widely disseminate among students the capacity for analysis, for creating things that never existed before—to translate ideas, dreams, into something material, to bring order to chaos in the service of problem solving. "I like to think of these processes as sense making," Gordon said.

Gordon challenged the audience to consider whether factors internal to schools, such as the quality of curriculum and instruction, or factors external to the educational system, especially those related to the roles of race and class in America, were more responsible for causing the educational disparities that exist. Partially answering his own question, Gordon suggested that understanding school-based learning in the context of wider social influences is a more realistic approach to answering this question than to dichotomize determinants of learning as either internal or external to the school. The likelihood that they will develop a deep understanding of school-based lessons largely depends on the degree to which they perceive academic lessons as relevant or meaningful in the broader context of their lives (Swartz, 1997). A complex array of social structural and economic factors affect students' perceptions of their opportunities to use school-based learning to advance their economic and social well-being (Ogbu, 1978; Bourdieu, 1990). Also, the quality of curriculum and access to skilled instruction certainly affect the likelihood that they will develop a deep understanding of academic lessons, thereby gaining confidence that they can use school-based knowledge to advance their interests and well-being. The principles of learning discussed in Chapter 3 provide insight into this complex process.

3

How People Learn

An important objective of the conference was to review the contributions that research has made to education and to examine its potential for playing an even greater role in narrowing achievement gaps and helping all students reach high standards. An organizing premise was that research is one of the most important tools available to ensure that education policies and practices are thoughtful and effective. Yet the great potential of research to improve education has yet to be realized (National Research Council, 1999d:11; Shaw, 1997:8).

This principle was articulated by the many speakers at the conference and preconference workshops who underscored the importance of research-based reforms. Phyllis Hunter described her collaboration with researcher Barbara Foorman in implementing a research-based reading program in Houston and later throughout the State of Texas. Like several other speakers, she emphasized that the success of research-based reforms depends on developing a partnership among researchers, administrators, and teachers that is based on mutual respect. Like other speakers, she emphasized the importance of a two-way flow of information between the reformer or change agent and teachers. "Professional development is often based on fads, accountability pressure and is often coercive, so teachers just freeze up. . . . The lynch pin of any initiative to increase student achievement is a knowledgeable and caring teacher."

This chapter discusses the cognitive dimensions of learning and the immediate social contexts in which learning occurs. Much of the information presented is drawn from the presentations of Barbara Bowman,

Catherine Snow, and John Bransford, especially their discussions of the published findings of the National Research Council (NRC) committees that each chaired (National Research Council, 1998a, 1998b, 1999a, 1999b, 2000a, 2001b). The chapter also draws on the presentation of child development researcher Craig Ramey.

Specifically, the chapter presents research findings on human learning from the perspective of cognitive science; early childhood development and the characteristics of social environments that effectively promote it; and the teaching and learning of early reading skills. First presented are principles of learning as discussed by John Bransford. These general principles are derived from research in cognitive science and summarized in *How People Learn* (National Research Council, 1998a). These general principles of learning are applicable across the life span and inform material presented later in the chapter on early childhood development and education and on how children learn to read. The chapter concludes with a discussion of a theoretical model of school learning and instructional capacity developed by David Cohen et al. (2001) and presented by Cohen in a preconference workshop. This model provides a helpful conceptual and theoretical framework for uniting the cognitive and developmental perspectives on learning presented in this chapter with the social and cultural perspectives that are the focus of Chapter 4.

This review of research on learning and education, including its cognitive and social dimensions, necessarily is highly selective. Research discussed by conference presenters and reported here highlights findings on the above-mentioned topics of particular relevance to the conference themes. The reports of the NRC committees that Bransford, Bowman, and Snow chaired or cochaired are themselves selective summaries of major findings on learning, the development of young children, and early reading about which there is broad scientific consensus. For a fuller discussion of these topics, the reader is directed to the published committee reports and to other references cited in those reports and in this volume.

COGNITION AND LEARNING

The Science of Learning

According to John Bransford, learning research can be an important tool for educators who want to help many more students develop the kinds of advanced intellectual skills that W.E.B. DuBois long believed were the province of only "the talented tenth." Although research from the cognitive sciences on learning is not the sole answer for closing the achievement gap and bringing all students to high academic standards, it can be considered a good starting point.

Cognitive science originated in the late 1950s when the complexity of human behavior and its causes was becoming increasingly apparent. At that time, new experimental methodologies, theories, and conceptual tools were emerging that enabled scientists to transcend both the nonscientific formulations of philosophy and the empiricist limitations of the then-dominant behaviorist model. The new discipline of cognitive science facilitated for the first time the formulation and testing of scientific theories of mental functioning, including the processes of learning (National Research Council, 1998a:8).

New ideas about ways to facilitate learning—and about who is most capable of learning—can powerfully affect the quality of people's lives. At different points in history, scholars have worried that formal educational environments have been better at selecting talent than developing it.

National Research Council, 2000a:5

A focus on *learning with understanding* is the hallmark of much research in cognitive science (e.g., Piaget, 1978; Vygotsky, 1978). The research focus on learning with understanding that emerged in the latter half of the 20th century is fortuitous, given education's evolving role in preparing young people for full participation in the emerging technology- and information-intensive economy. Schooling in the early 20th century was mostly limited to the "three Rs"—reading, writing and 'rithmetic—and certain essential facts considered important for citizenship and functioning in an economy dominated by agriculture and manufacturing. By the end of the 20th century, the ability to think and read critically, to express oneself in a logical and persuasive manner, and to solve complex problems involving science and mathematics had become the new educational standard. As noted by Herbert Simon, the meaning of "knowing" had shifted during the course of the 20th century from being able to remember and recite information to having the skills needed to access and use it (National Research Council, 2000a; Simon, 1996).

Personalization and Learning for Understanding

Accessing and using information requires more than the ability to remember seemingly unrelated facts that teachers deem important for reasons unknown to the student. It requires that one be able to juxtapose—to put together in new ways—information from various sources to

address problems or issues at hand. In other words, it requires learning for understanding and that students be able to integrate school learning into the fabric of their own lives. Learning for understanding, in turn, means that students are personalizing the lessons they are taught in school.

Each student brings to school understandings and beliefs derived from his or her own idiosyncratic experiences that, in turn, are shaped by socioeconomic, racial/ethnic, gender, religious, and other social identities that come into play in various social contexts. A premise of learning science is that humans are goal-directed agents who actively seek information from the environment (National Research Council, 1998a:10). How students seek out and interpret information at school and whether they make the mastery of academic lessons an important personal goal is profoundly affected by how preexisting knowledge and interests from the home and community environments mesh with school-based meanings and identities. Information is transmitted to students at school both through formal instruction and through informal interaction with teachers and classmates. Lessons learned at school may be essentially consistent with lessons learned at home and in one's community. Alternatively, school lessons may be rather different from lessons learned at home and in the community, or perhaps even dissonant with the meaning system, interests, and identities of home, peers, or community.

Learning research suggests that there are new ways to introduce students to traditional subjects, such as mathematics, science, history, and literature, and that these new approaches make it possible for the majority of individuals to develop a deep understanding of important subject matter.

National Research Council, 2000a:5

Bransford noted that people are inherently motivated to solve problems and to maintain a sense of competence in activities that are important to them (National Research Council,1998a:48; White, 1959). Teachers who respect and make an effort to understand the interests of their students make it easier for those students to appreciate the relevance of lessons taught at school (Garcia, 1999). Similarly, teachers who respect and draw on the knowledge, beliefs, and interests of their students help them feel that school is a place where they belong. Bransford cited Robert Moses' Algebra Project as a good example of an instructional strategy that draws on these principles.

The Algebra Project curriculum links mastery of algebra to the civil rights struggle. The successes of the civil rights movement cleared obstacles out of the pathway from poverty to the middle class. A message of the Algebra Project is that to walk down that pathway, students must demand a quality education and then take full advantage of the learning opportunities it offers. Mastering algebra in the 8th or 9th grade is seen as the unavoidable gateway to a college preparatory curriculum. Part of the project's methodology is to help students make the connection between their personal experiences and the struggle for civil rights, and then to link what they have learned from visiting civil rights historical sites and related hands-on experiences to mathematical constructs. The project has been successful in helping some low-income minority students who otherwise might not understand the relevance of algebra to their lives (Moses and Cobb, 2001).

If teachers make the effort to connect their lessons with the preexisting knowledge base of their students, they increase the probability that the students will master the lessons. If this occurs, students are likely to feel that they are respected and competent actors in the social environment of the school. This reinforces their personalization of school lessons, their identification with learning objectives, and motivation to establish a sense of competency in relation to the curricula.

This strategy is consistent with an important tenet of learning science—that people construct new knowledge and understandings based on what they already know and believe (National Research Council, 1998a:10). The greater the social and cultural distance between the school environment and the home and community environments, the more difficult it is for students to draw on their preexisting funds of knowledge (Moll et al., 1993) as they work to understand school lessons.

Learner-Centered Teaching

Effective teachers have both the interest and the skills needed to link the lessons and culture of the school with those of the home—to tie school lessons with the preexisting knowledge base of the student. That is, they have the ability to make their classrooms and their teaching *learner centered* (National Research Council, 1998a:122). Engaging parents and other caregivers as partners in their children's education is one obvious strategy to do this.

Bransford used the term *constructivism* to refer to a tenet of learning theory that all learning necessarily involves the use of existing knowledge to construct new knowledge. The term also is used, however, to describe a pedagogical theory emphasizing active learning, discovery, and problem solving rather than direct instruction and lecturing. According to

Bransford, equating these two usages of constructivism is a common misunderstanding of learning theory.

Certainly, if a school provides instruction through active learning and discovery (e.g., doing a science experiment) students are constructing knowledge. However, as described by Bransford, the student who listens to a lecture also is constructing knowledge as he or she tries to make sense of what is being said by integrating the new information presented into his or her preexisting knowledge base. A student who attends to a teacher who is giving direct instruction is constructing meaning, no less than the student who is engaged in discovery learning (Adams and Englemann, 1996).

Transfer from school to everyday environments is the ultimate purpose of school-based learning.

National Research Council, 2000a:78

Efforts to teach children about the concept of mass and the density of matter can quickly illustrate why active learning sometimes is preferable to lecturing. However, there are situations in which teaching by telling may be more effective (National Research Council, 1998a:10, 11). In either case, teachers who provide *learner-centered* instruction will take into consideration the preconceptions that students bring to the learning situation to help them integrate new information with the old.

Knowledge-Centered Teaching

Bransford emphasized that providing instruction that is learner centered is not enough. To use a metaphor from *How People Learn*, "if good teaching is conceived as constructing a bridge between the subject matter and the student, teachers must keep a watchful eye on both ends of the bridge" (National Research Council, 1998a:124). That is, instructional environments should be knowledge centered as well as learner centered. Teachers who are learner centered work to understand what students know, care about, are able to do, and want to do. Knowing this, they are better able to establish and maintain the flow of discipline-based knowledge across "the bridge." But research has shown that thinking and problem solving require mastery of well-organized bodies of knowledge to support planning and strategic thinking (National Research Council, 1998a:9). Learner-centered and knowledge-centered teaching intersect when awareness of students' preconceptions are used as a starting point

to gain a deep understanding of subject matter and eventually to retrieve and apply relevant concepts in a variety of problem-solving situations. For the latter to occur, it is important that students' retrieval of information not be contingent on the context in which it was learned. Appropriately selecting and applying knowledge in a variety of problem-solving contexts require understanding the relationships among ideas within and between domains of knowledge.

In knowledge-centered learning environments, the content, organization, and sequencing of curricula are carefully constructed to facilitate students' development of a deep understanding of the subject matter. Knowledge-centered educators organize instruction in a manner that helps learners to understand the inherent structure of the knowledge domains and disciplines that are taught. Standards that have been proposed or established in such areas as mathematics, science, and reading help to define the knowledge and competencies that students should acquire and the instructional strategies that will help them develop a deep understanding of it (National Research Council, 1996, 1999b; American Association for the Advancement of Science, 1989; National Council of Teachers of Mathematics, 2000). To extend Bransford's metaphor, knowledge-centered instruction entices students to cross the bridge that leads from their familiar, comfortable intellectual environment to new domains of knowledge.

Assessment-Centered Teaching

In addition to being learner centered and knowledge centered, Bransford argues that learning environments also should be *assessment centered*. What students are learning should be assessed frequently to measure whether they understand the relationships among ideas presented, not just how well they have memorized facts. In other words, students should be frequently tested and their learning evaluated by other means to measure whether they are *learning for understanding*. Frequent assessment of progress toward mastery of explicit learning objectives provides valuable feedback to both teacher and student. These kinds of assessments (called formative assessments) provide the teacher with valuable real-time information to use in modifying instructional plans to better accomplish learning objectives.

Frequent formative assessments also provide students with valuable feedback that can help them to reflect on their learning strategies and to modify them if necessary. In other words, they help students to become *metacognitive*. Being metacognitive means that they can reflect on the soundness of their reasoning and make changes in thought processes as necessary. This is essential if they are to successfully adapt what they

have learned in school to address problems in everyday settings. According to *How People Learn*, this, after all, is the ultimate goal of schooling (National Research Council, 1998a:66).

Increasing the amount of information available to teachers about what is working would be a very helpful thing to do. Technology can start making this happen. Having well-aligned goals and frequent formative assessments are the most important things [that could be done to improve student learning].

* * *

Doing frequent formative assessments is the single most important thing I know for helping teachers see which kids are making the kind of progress you expect and which kids need extra help. Increasing the information that is available to teachers and parents to make decisions about what is working would be a very helpful thing.

John Bransford, Chair,
Committee on Developments in the Science of Learning

Community-Centered Teaching

Finally, learning environments also should be *community centered*. Ideally, students, teachers, and other interested parties have a common commitment to learning and high standards that causes the behavioral norms of school and community to reinforce each other. This ideal situation makes it easier for students to understand the importance of school learning in very concrete ways—to personalize it and integrate it into the fabric of their lives. That school-community ties always are important is clear, especially when one considers the small amount of time that students spend in school compared with community settings. Activities in homes, community centers, and after-school clubs can have important effects on students' academic achievement (National Research Council, 1998a:142). Schools that make deliberate plans to improve their ties to the community create more favorable learning environments for their students (Comer, 1980, 1989). Figure 3-1 depicts the overall concept.

Children's capacity for abstract thinking increases as they grow older and, although important throughout the life span, the relevance of learning for the satisfaction of immediate personal and emotional needs gradually decreases. Accordingly, knowledge-centered instructional strategies assume greater importance as students go through elementary and sec-

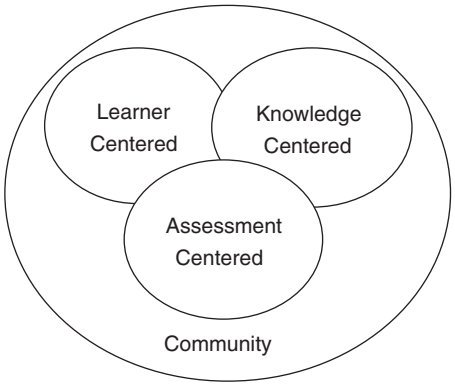

FIGURE 3-1 Perspectives on Learning Environments. SOURCE: Bransford et al., 1998.

ondary school. Personalization and learner-centered instruction are most essential during early childhood, when children's socioemotional developmental needs are the most salient (National Research Council, 2000a:79-113).

YOUNG CHILDREN: EAGER TO LEARN

In 1965, fewer than 20 percent of young children were enrolled in early childhood education. By 1997, 65 percent of 4-year-olds and 40 percent of 3-year-olds attended preschool. These figures strongly suggest that preschool enrollments are large, growing, and increasingly important in their potential contribution to academic achievement (National Research Council, 2001b:25). Whether at home or in preschool, the early learning experiences of young children have a profound effect on their later education.

For many years, the federal government has played an important role in helping young children get ready for school through its support of child health and nutrition programs and most especially through its sponsorship of Head Start. Since the 1990 launch of the first Bush administration's America 2000 initiative, having all children start school ready to learn has been at the top of the list of federal education priorities. This continued under the Clinton administration's Goals 2000 program. Yet much more can be done to improve the school readiness of many preschool children, as discussed by Barbara Bowman and Craig Ramey in *Eager to Learn: Educating Our Preschoolers* and in *From Neuron to Neighbor-*

hoods: The Science of Early Childhood Development (National Research Council, 2000c; 2001b). According to Bowman and Ramey, we know how to improve the development and school readiness of young children. The question is whether the resources and political will can be marshaled to do it.

Ready to Learn?

The U.S. Department of Education's Early Childhood Longitudinal Study, Kindergarten Class of 1998-99, presents data on the cognitive development and learning of a nationally representative sample of young children. As outlined in detail by Zill and West (2000) and discussed by Bowman, school readiness skills are far from evenly distributed across racial/ethnic and socioeconomic backgrounds. Bowman noted that many sources have documented that both individual and group differences in learning achievement already exist when children first enroll in school. Without intervention, these differences tend to persist into the later grades. Gaps in early academic skills statistically explain much of the achievement differential apparent years later in secondary school and beyond (Phillips et al., 1998b). Both Bowman and Ramey argued that much could and should be done during the preschool years to counteract this by working to ensure that students from all backgrounds enter school on an even footing.

Eager to Learn (National Research Council, 2001b) focused on three questions:

- What is it about young children that defines the parameters for thinking about early learning?
- What should children learn and how should they be taught?
- What public policies are needed to ensure that all children have the opportunity to learn what they need to be educationally successful?

Development and Learning

The *Eager to Learn* title refers to one of the committee's most important findings—that young children are naturally predisposed to learn. Cognitive, social-emotional, and physical development are complementary and mutually supportive. They occur naturally during the preschool years, given the active involvement of caring, knowledgeable adults. For this reason, Bowman reported, the study found the common semantic

distinction between child care and child learning (preschool) environments to be misleading and unfortunate (National Research Council, 2001b:6-7). She argued that learning, especially learning that is related to school readiness, should be an explicit emphasis of all early childhood settings. This is especially true for settings that serve young children who are most at risk of school failure.

The most effective teachers of preschool children are adults who know and care about them, who recognize the developmental milestones that each child has passed, and who use that knowledge to guide children through new learning and to the next developmental milestones for which they are ready. That is, effective preschool teachers know how to assist each child to master those tasks that are within his or her *zone of proximal development* (National Research Council, 2001b: 42-43; Vygotsky, 1978; Rogoff, 1990).

> ***[A]dequate care involves cognitive and perceptual stimulation and growth, just as adequate education for young children must occur in a safe and emotionally rich environment.***
>
> *National Research Council, 2001b:33*

Given a safe and emotionally rich environment in which to grow and develop, Bowman stated all children have a similar capacity to learn—although what they learn depends on what the environment has to offer. Not all environments, however, are equally good at helping children learn. When there are too few resources, or when children experience overwhelming doses of hunger, disease, danger, abuse, or neglect, learning is compromised. Poverty is one of the major results of deficient environments. A large proportion of children—more than one-third of all black and Hispanic children—come from economically disadvantaged backgrounds, and many of these families are stressed by poverty.

Child Development and School Readiness

According to Bowman, just because children come from low-income families, it should not be assumed that their environment necessarily deprives them of the capacity to learn. Most low-income and minority children flourish despite hardships and can learn well—but often not in school. This is because school achievement requires a particular kind of learning. In school, children are taught to read, write, do arithmetic, sit in chairs at desks, not talk very much, line up, make friends, and do what

the teacher says. Some children learn early things that help prepare them for school, while other children learn different things that may not be helpful in school. For example, children who gain experience at home or in preschool with counting, distributing, and reflecting about quantity are likely to be successful with arithmetic. Other children, such as those who are very active physically, may be at a disadvantage in school. One child's parent may feel uncomfortable in school and stay away, while another child's parent may feel more comfortable in school and may get involved. Thus, the preschool experiences of some children help them become better prepared for school than others. Children who are not well prepared when they start school often fail. Preschools that are successful in their efforts to reach out and involve parents may be better positioned to understand and use children's existing funds of knowledge (Moll et al., 1993) as a foundation for building their academic skills.

Children at risk for school failure come from all kinds of families but disproportionately have low incomes and minority status. Their poor academic performance begins early, and the achievement gaps widen as they progress through the school years. While skin color has nothing to do with how people learn, Bowman noted, people continue to talk about race because historically it has been the basis for discrimination and poverty, and the color issue continues to be one of the hardest ones for Americans to come to grips with.

Respect and Acceptance

A prejudicial environment is created at school when a child's typical language and behavior, which are acceptable at home, are considered unacceptable or inadequate at school. This situation tends to erode children's self-confidence and undermines self-esteem—two attributes that are essential for learning. Commenting on the behavioral and learning implications of this, Bowman stated, "Just as many of us would do if we had to build an igloo, live in a jungle, or go to sea, children just shut down, or learn not to care because they do not know the things they are supposed to know." This can happen at any time from preschool through high school, but the danger of it occurring is particularly acute during the preschool years. Preschools should work to ensure that culturally and linguistically diverse children are accorded the same respect and advantages as others. If they can accomplish this, preschools are more likely to play an important role in giving children the kind of solid foundation they need to excel in school.

Transactional Experiences Conducive to Learning and Development

Craig Ramey discussed at the conference a number of careful studies of high-quality preschool programs, including the Abecedarian Project, Project CARE, and the Infant Health and Development Program (Ramey and Ramey, 1998b). Distilling findings from more than 1,000 scientific studies, he discussed the following seven transactional experiences that children have with adult caregivers, including parents and preschool teachers. According to Ramey, all seven are important to children's learning, development, and school readiness. Research has shown that children who:

- are encouraged to explore,
- are mentored in basic skills,
- have their developmental advances celebrated,
- are guided in rehearsing and extending newly developed skills,
- are protected from inappropriate disapproval and punishment,
- are communicated with richly and responsibly, and
- whose behavior is lovingly guided and limited at times

are children who are more competent when they enter first grade (Ramey and Ramey, 1998b). The evidence from studies of the above-mentioned programs and from many others makes it clear that high-quality preschool programs that emphasize these kinds of interactions between adults and children produce significant cognitive and social developmental benefits—especially for those children who are most at risk. Although studies show that measurable cognitive and social program effects often fade and sometimes disappear as children progress through elementary and secondary school, some programs appear to produce long-lasting effects, including lower dropout rates and delinquency rates. The size and duration of program effects appear to be related to preschool program quality, age at entry, length of time in the program, and the quality of subsequent educational services (Ramey and Ramey, 1998b; Campbell and Ramey, 1994).

Caring and Well-Educated Teachers

Because of the need to ensure that young children, especially the most at risk, are learning the early literacy and numeracy skills that they will need to succeed in school, *Eager to Learn* recommends that all preschool teachers have at least a bachelor's degree (National Research Council, 2001b:13). As Bowman put it, "Adults help [children learn] by knowing when to scaffold a new skill and when to back off and let children do

things for themselves. In other words, the adult role is critical, and the more she or he knows about children, how they learn, and how to support their learning, the better children will learn."

For example, posting the alphabet on the wall and singing the alphabet song are not likely to enable children to learn how letters and sounds map to each other or how the sounds represented by letters are combined into words. These simple teaching devices are unlikely to help children to construct the various components of the reading process, from verbal language, vocabulary, phonemics, and phonetics to reading for meaning. Having a preschool teacher who is skilled in helping children—especially the most disadvantaged—learn these skills is essential if progress is to be made toward the goal of having all children start school ready to learn. Preschoolers need to be well on their way to learning these and other sophisticated tasks as they make the transition to first grade.

Bowman noted that there is a considerable gap between the kind of education and training that *Eager to Learn* concludes that teachers should have to do a competent job and what currently exists. This gap is partly due to the belief that preschool children are too young to need well-educated teachers. Yet the research consistently correlates teacher education, especially in child development and education, with children's improved performance in critical domains for school achievement (National Research Council, 2001b:261-276). Compounding the problem are low salaries that make recruiting college graduates to work as preschool teachers extremely difficult.

PREVENTING READING DIFFICULTIES IN YOUNG CHILDREN

Early Reading: A Foundational Skill

Building strong reading skills beginning in early childhood is the foundation on which nearly all subsequent school-based learning is built. Yet many children—especially those who are black, Hispanic, or American Indian, come from low-income families, or live in high-poverty neighborhoods or attend high-poverty schools—are at great risk of not acquiring essential early reading skills (National Research Council, 1998b:96-98). Catherine Snow, who chaired an NRC study on preventing reading difficulties in young children, discussed the nature and extent of reading difficulties in young children, drawing on the study report in her presentation. While noting that the practical challenge of preventing reading difficulties in young children is enormous, she argued that this is one educational problem for which research has shown that there is a viable solution.

The Risk of Falling Behind Early

Academic success, conservatively defined as high school graduation, can be predicted with reasonable accuracy by knowing how well a student reads at the end of third grade. The student who does not read at least moderately well by the end of third grade has a lesser chance of graduating from high school (National Research Council, 1998b: 21; Slavin et al., 1994). According to the National Assessment Governing Board (2000), 4th graders with basic reading skills are able to demonstrate an understanding of the overall meaning of what they read. They can make relatively obvious connections between the text and their own experiences and extend the ideas in the text by making simple inferences. On the 1998 National Assessment of Education Progress (NAEP), 64, 60, and 53 percent of black, Hispanic and American Indian 4th graders, respectively, lacked basic reading skills. This compares with 27 percent of white 4th graders and 31 percent of Asian/Pacific Islanders who scored below basic (National Center for Education Statistics, 1999a; National Research Council, 1998b:96-98).

The concentration of poor readers in certain ethnic groups and in poor, urban neighborhoods and rural towns is a matter of great concern (National Research Council, 1998b:327-328).

> The educational careers of…[these] children are imperiled because they do not read well enough, quickly enough, or easily enough to ensure comprehension in their content courses in middle and high school. Although some men and women with reading disability can and do attain significant levels of academic and occupational achievement, more typically poor readers, unless strategic interventions in reading are afforded them, fare poorly on the educational and subsequently the occupational ladder.

Problems in Early Identification and Treatment

Drawing on the report, *Preventing Reading Difficulties in Young Children*, Snow argued that early identification, coupled with effective intervention, is essential to any effective strategy to address this problem. It is estimated that more than 2 million children—approximately 3.5 percent of all U.S. schoolchildren—have been diagnosed with reading disabilities and are enrolled in special education programs for that reason. Students identified as reading disabled constitute approximately 80 percent of all children receiving special education services.

Because of the diagnostic criteria commonly used by federally supported special education programs, many children are not identified as having a reading disability until 3rd or 4th grade. By then, they typically

are lagging badly in their reading skills, which, in turn, increasingly causes them difficulties in other subjects. Without effective intervention, this situation saps children's natural enthusiasm and eagerness to learn (National Research Council, 2001b) and can lead to a downward spiral of demoralization and school failure.

Reading Benchmarks

Snow argued that one step toward preventing this from occurring is for preschool, kindergarten and early elementary school educators to frequently assess (i.e., on a monthly if not weekly basis) their children's prereading and reading skills in relation to relevant benchmarks. *Preventing Reading Difficulties in Young Children* established two sets of developmental accomplishments—one for children from birth to age 3, and one for 3- and 4-year-olds. It also includes four lists of benchmark reading accomplishments for children from kindergarten through grade 3 (National Research Council, 1998b:61, 80-83; 1999b:15-125). These benchmarks outline dimensions or types of skills that contribute to good reading.

Children's proficiency in these skills and, indeed, in reading itself tend to be normally distributed in the population. In assessments of reading skills, as is true with other normally distributed phenomena, such as blood pressure, there are no categorical markers that differentiate normalcy from disability or pathology (National Research Council, 1998b:87-93). With reading difficulties, as with hypertension, scores at the tail end of the normal distribution are interpreted to signify the need for remedial action. Although the reading difficulties of some children have clearly identifiable conditions associated with them—e.g., cognitive deficiencies, hearing impairment, early language impairment, attention deficit (pp. 100-108)—in most cases there are no clear causes for reading difficulties (pp. 85-96). For this reason, Snow suggested, educators should recognize that reading is a skill that simply is more difficult for some children to acquire than for others. Rather than categorize or label most children who are poor readers as dyslexic or reading disabled, *Preventing Reading Difficulties in Young Children* recommends that they be provided with high-quality reading support beginning in preschool (pp. 135-274). The quality of early reading instruction in classrooms serving at-risk children should be at least equal to, if not better than that available to children from more advantaged backgrounds. The report recommends that schools that enroll many at-risk children receive extra funding to pay for instructional programs that have been proven successful, reduce class size, hire the most capable teachers, and purchase a sufficient quantity of high-quality books and other materials (National Research Council, 1999b:133-134).

Snow commented on how her committee intended for its reading

benchmark lists to be used. To illustrate, she noted that the following items were included among the benchmark reading development accomplishments for 4-year-olds:

- showing an interest in story books,
- telling a brief story,
- recounting an event in his or her own words, and
- knowing 10 letters of the alphabet.

She added that the reading development benchmarks were not meant to be used as tests: "They weren't meant to be the sorts of things you had to get to before you could have your fifth birthday party. They were meant to be helpful to adults in thinking about the kinds of experiences that we should be giving kids—what kids could be expected to be able to learn—not what they have to know. They can be helpful if used to judge the adequacy of reading instruction programs."

Potential Benefits of Early Intervention

Although many Head Start programs have not yet focused or are just beginning to focus on preliteracy skills, Head Start and similar publicly funded programs serving children from low-income families typically produce significant gains (e.g., one-half of a standard deviation) in reading-related skills (National Research Council, 1998b:150). In certain small, model programs such as the Abecedarian Project, effects can be larger and longer lasting. Participants in the Abecedarian Project received enriched day care services that stressed language and cognitive development from infancy through age 5. Former participants had statistically significant gains over control subjects in their reading achievement from age 8 through 15.

It is not reasonable to expect children to learn how to do this difficult thing if they don't know what it is good for; if they don't understand that reading gives them access to the pleasure of stories, to information that might be useful to them; that writing gives them access to very fulfilling, useful functions like making lists so you don't forget, labeling things, and sending off nasty letters to people who have offended you.

Catherine Snow, Conference Co-Moderator

Opportunity to Develop Enthusiasm for Reading

Rather than focus on any specific program or strategy as being superior to others, *Preventing Reading Difficulties in Young Children* emphasizes broad principles for early reading instruction. One is the need for young children to have the opportunity to develop enthusiasm for learning to read and write. Snow noted the similarity between this finding and the comments of Edmund Gordon and John Bransford, both of whom emphasized the personalizing of school lessons. Reading and writing must be perceived as important or relevant in the context of children's lives at home and in their communities. As Snow noted, "Many kids encounter real problems [in learning to read and write] but, with sufficient enthusiasm for the task, it is possible for them to persist through the difficult moments because they understand the uses and functions of written language."

Research indicates that group differences in reading skills associated with race/ethnicity and class are not related to a lack of interest in developing literacy skills among minority and disadvantaged students or among their families (National Research Council, 1998b: 29-30; Nettles, 1997). However, the literacy experiences of children from different backgrounds have often differed. Some studies have found that although the amount of literacy-related homework done by young children with different levels of reading skills is similar, children with more advanced skills are more likely to play with books and read for pleasure (p. 31). The latter activities are more common among children from more affluent families.

Learning the Alphabetic Principle

In addition to providing young children with the opportunity to learn the pleasures and practical value of reading and writing, Snow argued that it is equally important that they learn the *alphabetic principle*—that written spellings systematically represent the sounds of spoken words. An early step toward learning the alphabetic principle is the development of *phonological* and especially *phonemic awareness*. Phonological awareness refers to the ability to attend to the sounds of language as well as to meaning. Phonemic awareness is the ability to divide words into individual sounds and to blend sounds into individual words. It is promoted by experiences of rhyming and sorting words by beginning and ending sounds. Singing songs and making rhymes in which the meanings change with these sorts of substitutions of sounds, syllables, and phonemes help develop these skills (National Research Council, 1999b:46).

Mastering the alphabetic principle means being able to fluently map letters to sounds and then to access the meaning of the word being read. Children who develop phonological awareness during the preschool years are less likely to have problems with 1st grade reading instruction. Deliberately teaching such skills from the preschool years into the early elementary grades is no less important than giving children the opportunity to appreciate written language by exposing them to good literature.

There is no single formula or mix of strategies that works equally well for all students in teaching sound-letter relationships, vocabulary, and comprehension. Each child needs varying amounts and kinds of knowledge and learning experiences to get started as a reader. After that, children need to acquire substantial reading experiences to build on these skills to the point at which associating meaning with written text becomes rapid and automatic. Awareness of the mechanics of reading should fade into the background as the reasons for reading are fulfilled (pp. 79, 84).

Correlates Are Not Causes

For a variety of reasons, children differ in how easily they learn to read and the age at which they acquire various prereading and reading skills. In her presentation, Snow cited a number of social correlates for the development of reading skills as well as risk factors for reading difficulties. She emphasized, however, that the correlates of reading skills should not be considered prerequisites and causation should not be attributed to the risk factors associated with reading difficulties for individual students. Snow argued that the knowledge and practice of teaching literacy skills to young children have progressed to the point at which the ability of educators to develop effective programs no longer is in doubt. A large number of programs that show impacts on reading outcomes already exist, including Success for All, described in greater detail in Chapter 6.

Knowing What to Do and How to Do It

According to Snow, effective reading programs for young children provide teachers with some "scripting" (i.e., a tightly structured instructional plan), along with effective professional development. They also have good curricula that are based on principles alluded to here and discussed in much greater detail in her study's two volumes (National Research Council, 1998b, 1999b), more time (especially uninterrupted time) on task, instructional leadership, and a conscious effort to recruit support for reading instruction from outside the school (especially from parents).

While confident that educators have demonstrated that they know how to teach early reading skills, she was less sure about the ability of educators to develop the reading comprehension and vocabulary skills of older students. Although studies of model programs have demonstrated techniques that work well in deepening students' reading comprehension skills and expanding vocabulary, there is little to suggest that even successful model programs are sustainable—even when taught by well-trained teachers. As Snow put it, "it is not by chance that vocabulary instruction and reading comprehension are two domains where we don't know how to implement effective programs. It is because they involve many more unconstrained knowledge domains than does early reading instruction."

Snow also cited as a daunting challenge the task of implementing effective early reading programs while simultaneously attempting to do the same with mathematics and science. She observed:

> Do we know how to do them altogether in the same school with the same teachers, when they are competing with one another for resources? Do we have any idea about how to stage the introduction of a successive focus on early reading, math and science? Strategies to get your faculty to do a better job with 1st grade reading may conflict with other things we are doing to help them do a better job at 2nd grade math instruction.
>
> We need to think about how to develop schools into learning institutions that have their own internal development trajectories. We know how to do reform efforts that focus on one thing at a time, but we don't have any models for doing multiple reforms simultaneously.

BUILDING INSTRUCTIONAL CAPACITY

Instruction as a Complex System of Social Interaction

David Cohen, who participated in one of the preconference workshops, described a conceptual model that clarifies some of the challenges in addressing this problem (Cohen et al., 2001). In Cohen's view, improving instructional capacity in reading or mathematics or across many fields is not simply a matter of improving the curriculum or teacher preparation. Drawing on the work of Vygotsky (1978), Cohen views instruction as a function of the interaction between students and teachers. Viewed in this way, the social environment of the surrounding community is not simply an extraneous factor that can affect instruction at school. Instead, Cohen argued, children could be considered "delegates" from the outside world who bring with them to instruction all sorts of knowledge, beliefs, and values that may be more or less familiar to their teachers and to other

kids. Viewed in this way, the environment becomes active within instruction, as children enact it and teachers respond to it.

> ***School improvement is a problem of knowledge use at many levels. It is also a problem of creating organizations that respect and support knowledge use. . . . It is something that public educators have only begun in a few cases to apprehend as a real problem.***
>
> *David Cohen, Workshop Presenter*

Instructional capacity then, is not a quality of curricula. It is not an attribute of teachers, nor is it an attribute of students. Instructional capacity consists of their interactions. So, if one wants to improve instructional capacity and the learning that results from it, one must simultaneously address the many things that affect that interaction. In Cohen's model, then, considering the quality of instruction apart from the qualities that characterize school-community relations is necessarily artificial and incomplete. Cohen identifies four factors that are essential to improving instructional capacity:

- coordination of instruction,
- use of resources,
- mobilizing incentives for performance, and
- managing the environment.

To improve instructional capacity, one has to think beyond how to get teachers more professional development, how to improve the curriculum, and how to make sure that students have adequate nutrition, eyeglasses, etc. All of these things are important, but it is entirely possible to address each of them singly and still have teachers unable to make use of these improvements to enhance student learning. Rather, the various elements that could contribute to improved instruction must be coordinated with each other around the goal of learning. As Cohen put it, "because instruction is interactive, there are almost infinite possibilities for discoordination between teachers and students about what they are doing."

Linking School and Community in Education Reform

Many schools lack essential resources that could improve instruction. Cohen believes that many other schools, however, do not use what they

have. Resources are of no value if they are not used. For example, a well-designed curriculum unit or readily available computer resources do no good if the curriculum unit cannot be fit into the schedule, or if there is no strategy for integrating computer use into a comprehensive instructional plan. Incentives must be mobilized to support both students' and teachers' motivation to excel. Finally, the environment of the school, along with the various environmental influences of home and community, need to be managed in a manner that is conducive to student learning. Ideally, the environments of school, home, and community function to mobilize the incentives of students to learn and the incentives of teachers to teach effectively. The incentives affecting the behavior of all actors involved in the instructional process need to be aligned, necessary resources must be available and used, and all of this must come together in a coordinated way to enhance instructional capacity.

When the four factors that Cohen sees as central to improving instructional capacity are addressed in a comprehensive way, then one can plausibly expect education reforms to take root. The seeming intractability of many educational problems over the years gives evidence of the complexity of this task, underscoring the limitations of unidimensional and scattershot approaches to reform. As Cohen put it, *scaling in* reform programs is a very difficult task that must be accomplished before one can plausibly expect to be successful in *scaling up*. Supportive government policies, superior curricula, well-prepared teachers, and ample educational resources are helpful to this task. However, there is no escaping the fact that implementing program elements that effectively coordinate these components so as to enhance instructional capacity must occur one school and one community at a time—a point underscored later in the conference by Robert Slavin.

SUMMARY

This chapter and the conference presentations on which it is based have focused primarily on cognition and learning, early childhood development, and teaching young children to read. Conference presenters highlighted the implications of this research for enhancing the education of minority and disadvantaged students and the theme of achieving high educational standards for all. A common thread running through all of the presentations is that education reform should not be thought of as something that takes place solely in school—although both basic and applied research have demonstrated school-based reforms that are promising and certainly would contribute to improved student learning.

The personalization of learning—tying school-based learning into the relevant structures of students and their families—is particularly impor-

tant during early childhood. But, as emphasized by John Bransford, personalization is essential to learning for older children and adults as well, and it is especially important for minority and disadvantaged students. Personalization is a theme that cuts across all of the presentations discussed in this chapter.

There is much that educators can do to demonstrate the relevance of school-based lessons to minority and economically disadvantaged students in ways that can be both compelling and culturally sensitive. Yet, as argued by Edmund Gordon, the adverse effects of economic insecurity and the legacy of racial discrimination have had an enormous impact on the schooling of minority and low-income students.

How do race/ethnicity and social class affect student learning? What can schools do to mitigate their effects and ensure that all students, regardless of background, have an equal opportunity to learn? How close are schools to providing students with equal educational opportunities, when the educational outcomes of students vary so much by race/ethnicity and class? These are among the issues examined in Chapter 4.

4

Social Dimensions of Learning

SOCIAL CONTEXT OF EDUCATIONAL CHANGE

Despite the persistence of gaps in educational achievement associated with race/ethnicity and class, a strong message from the conference is that *demography is not destiny*. With sufficient will and expertise, there is no reason why achievement gaps cannot be reduced and eventually eliminated. Some presenters emphasized the potential of research-based instructional reforms for accomplishing this (Chapter 3). Others emphasized how social, cultural, and economic factors affect learning, and that success in enabling all students to achieve to high standards must necessarily involve family, community, and societal changes as well. It is to this latter topic that we now turn.

From John Dewey (1916) to *Brown v. Board of Education*, through the Great Society education programs of the 1960s to the standards movement that predominates in the education reform agenda at the dawn of the new millennium, educators and political leaders have emphasized the role of schooling in fulfilling the American ideal of equal opportunity for all. Despite these noble intentions, many (including conference speakers Edmund Gordon, Marta Tienda, and Eugene Garcia) have observed that schools' best efforts often have not been enough. Understanding with certainty how various social forces, singly and in combination, have influenced and continue to influence what people learn, how they learn, and how much they learn, is perhaps impossible. Yet noting how social, cul-

tural, and economic factors are correlated with educational outcomes is both instructive and helpful in ongoing efforts to enable students from all backgrounds achieve to high educational standards.

Segregation

Gary Orfield's conference presentation focused on school segregation and its consequences. According to Orfield, U.S. schools are highly segregated not only by race and ethnicity, but also by poverty. Also, since the peak of desegregation efforts in the early 1970s, schools have been resegregated. Among schools that are 90-100 percent black or Hispanic or both, nine-tenths also have a high concentration of students living in poverty. Among overwhelmingly white schools, only 1 out of 20 has a high concentration of poverty. Orfield also reported on the basis of his statistical analysis of data from the early 1990s, that 47 percent of students in the school of the typical Hispanic student were poor, but only 9 percent of students in the school of the typical white student were poor (Orfield and Yun, 1999). As he put it, these are "incredibly different kinds of social burdens on the schools."

Orfield noted that the correlation between enrollment in a high-poverty school and poor learning outcomes is well established (U.S. Department of Education, 1999; Hill et al., 2000; Schellenberg, 2000). For this reason, he expressed concern that in-school reforms will not be enough to help many minority and low-income students who are enrolled in schools that his research shows are becoming increasingly segregated by both race and class (Orfield and Yun, 1999). As he stated during the conference,

> Almost everything that matters is aligned with the poverty concentration, which is aligned with the racial concentration. The peer group separation is different. The parent educational background is different. The quality of the facilities is usually different. The concentration of language minority and handicapped children who require special services is different.
>
> The educational background of the teachers is different. The likelihood that substitute teachers will be there is different. The probability that teachers are teaching in their field is different. The course offerings are different. The college-going rates are different. The graduation rates are different. All of these things are related to segregation in a serious way.

Marta Tienda also called attention in her presentation to the concentration of black and Hispanic students in low-performing, high-poverty urban schools (see Lloyd et al., in this volume:Figures 3 and 4).

No Excuses

Like many other prominent educators, Antoine Garibaldi argued at the conference that schools should avoid using a *deficit model* in teaching minority and economically disadvantaged students. That is, educators should not invoke students' demographic characteristics as excuses for failure. Also, educators should be cautious about inadvertently stigmatizing students whose demographic characteristics suggest that they may be at risk for school failure. Instead, minority and economically disadvantaged students, like all other students, deserve nothing less than highly skilled instruction and challenging curricula (Garibaldi, 1997:116):

> It may not be easy to change the segregated composition of the public schools where so many African Americans are currently enrolled. It may not be easy to change the number of African American students who come from poor backgrounds in those schools. But it is possible to exercise our civic duty and inquire what can be done to reduce class sizes, sustain reading and mathematics performance beyond the fourth grade, offer more college preparatory and advanced placement courses and provide comprehensive career counseling for these students.

In emphasizing instructional reforms, Garibaldi was not dismissing the relevance of poverty, segregation, and other societal influences on learning or the desirability of addressing these issues. Rather, he was suggesting that the persistence of intractable problems that are beyond educators' professional reach must not be used as an excuse to maintain an unacceptable status quo in the schools.

To dichotomize in-school instructional reforms and efforts to address broader social forces affecting learning can produce starkly contrasting education reform strategies. However, virtually all of the conference presenters acknowledged the importance of both in-school instructional reforms and efforts to address out-of-school influences on learning. Highlighting this importance, Edmund Gordon summarized the three main arguments of his presentation as follows:

> First, as educators, we simply are not doing a good-enough job—partly because we don't know how, and partly because we don't have the will to [make changes that would make a difference]. . . . We professionals . . . should not put on sackcloth and ashes for it; we ought to simply do better. The second point [is that] even if we were doing a perfect job, it may be that the solution we are searching for is not to be found in schools. It may be that schools cannot overcome the effects of an unjust society. The third point is that there is a problem in the range, quality, and amount of support for academic development that comes out of the communities and families of a lot of the youngsters that we are concerned with.

An implication of this frank assessment by Gordon is that responsibility for the kind of profound education reforms that would result in achievement to high educational standards by all is not something that can be delegated exclusively to educators. Rather, it is a cause that must be embraced by families, communities, and society as a whole.

SOCIAL PSYCHOLOGICAL PERSPECTIVE ON RACE, ETHNICITY, AND LEARNING

While people who are committed to improving education may differ in their emphases or priorities, the research-based insights of social psychologist Claude Steele illustrate the connectedness of school-based and out-of-school influences on learning. The focus of his research is on the topics of disidentification with schooling, stereotype threat, and the situations in which learning and academic performances occur, as perceived by students.

Stereotype Threat

In experiments conducted primarily with Stanford University students, Steele found that (Steele, 1997:798):

> Whenever African American students perform an explicitly scholastic or intellectual task, they face the threat of confirming or being judged by a negative societal stereotype—a suspicion about their group's intellectual ability and competence. This threat is not borne by people not stereotyped in this way. And the self-threat it causes—through a variety of mechanisms—may interfere with the intellectual functioning of these students, particularly during standardized tests.

Since admission to Stanford is highly selective, all enrolled students have a record of academic accomplishment and are assumed to identify with the goal of academic achievement. However, many talented black students at Stanford, as well as at other institutions of higher education, tend to underperform academically in relation to outcomes predicted from past academic performance. Gordon also observed this phenomenon among black students at Yale and noted that it was a topic of concern for the College Board Task Force on Minority High Achievement (1999; see also Bowen and Bok, 1998).

Steele repeatedly has found through his experiments that stereotype threat affects the test performance not only of black but also of Hispanic college students. He has also observed this phenomenon among women of any race/ethnicity who were pursuing advanced studies in male-dominated fields, such as mathematics. Steele emphasized that stereotype

threat is not caused by students doubting their own abilities, nor does it necessarily reflect on the actions or attitudes of others in the immediate environment. Rather, stereotype threat and consequent underperformance of minority students on tests appear to be a function of students' perceptions of the fairness—or lack thereof—of "the situation." Steele found that stereotype threat and related underperformance on tests is most pronounced for minority students when they are told that the test they are taking is designed to be diagnostic of their intellectual abilities. Under these circumstances, minority subjects in his experiments not only performed below expectations based on past performance, but also exhibited physiological indicators of stress, such as transient elevations in blood pressure. In contrast, the test performance of nonminority experimental controls was at the expected level (Steele and Aronson, 1995).

In addition to his work with college students at Stanford, Steele has conducted similar experiments with Los Angeles high school students and found that academic underperformance due to stereotype threat occurs at the secondary school level as well. He found, however, that the effects of stereotype threat could be produced only among students who "identify with the academic domain"—that is, among students who perceive academic achievement to be important to their self-concept. As with their collegiate counterparts, the performance of these minority high school students declined when they were told that the test they were taking was diagnostic of their abilities. Test performance improved to expected levels when the stereotype threat was removed. In contrast, high school students that Steele characterized as already having disidentified with school showed no responsiveness in their testing performance to experimentally induced stereotype threat. They took the test as instructed but gave up as soon as it became difficult, irrespective of how stereotype threat was experimentally manipulated.

Students who identified with school did not give up on the test. Steele reported that the stereotype threat situation appeared to make these students try too hard, as they frequently changed their answers and second-guessed themselves. The result was that the test performance of school-identified students in the stereotype threat situation resembled that of students who already had disidentified with the academic domain.

Vanguard and Rear Guard

Because of stereotype threat, students whom Steele described as belonging to the academic vanguard may have test scores that resemble those of students he described as the academic rear guard—yet the causes of the performance problems of the two groups of students differ. Vanguard students still identify with the academic domain and by definition

are well prepared, but stereotype threat contributes to their underperformance relative to nonminority students with similar baseline skills. Steele argued that if steps are not taken to counteract underperformance related to stereotype threat, vanguard students could become discouraged and end up disidentifying with the academic domain and, as Steele put it, eventually join the ranks of the rear guard (Steele, 1997:797).

> As the threat persists over time, it may have the further effect of pressuring these students to protectively disidentify with achievement in school and related intellectual domains. That is, it may pressure the person to define or redefine their self-concept such that school achievement is neither a basis of self-evaluation nor of personal identity. This protects the person against self-evaluative threat posed by the stereotypes but may have the byproduct of diminishing interest, motivation and ultimately achievement in the (academic) domain.

Stereotype threat can lead highly motivated students into a downward academic spiral, the result of which is the eventual loss of interest in academic pursuits. It is important to reiterate that stereotype threat is but one factor that Steele's experimental studies have shown can affect the performance of some minority students as early as the high school years. Whether stereotype threat, disidentification with schooling, or other phenomena that have been observed in experimental, survey, and ethnographic research have contributed to the racial/ethnic achievement gap has not been tested or demonstrated. Many other causes of the achievement gap already have been discussed in this volume and still others are reviewed below. However, Steele believes that stereotype threat has one thing in common with other factors: collectively, they tend to discourage students from academic pursuits and lead many to disidentify with the academic domain.

One of the practical implications of these findings, Steele argued, is that academic performance can be enhanced if instructional strategies are tailored to address the specific issues affecting student performance. Prerequisite to that is understanding the nature of the issues to be addressed. This is an issue that Gordon also has discussed (Gordon and Shipman, 1979); his perspective on this topic draws on the work of Benjamin Bloom (1976).

Bloom argued that if educators could individualize instruction to address the specific needs, cognitive styles, and situations of each student, then there is no reason why the vast majority could not develop mastery or deep understanding of the subject matter. Commenting on Bloom's argument, Gordon has noted that much more research is needed on the many factors that shape the learning of students from all backgrounds, especially of those from groups that are poorly served by schools. This

perspective is congruent with the research findings of John Bransford about the importance of learner-centered instruction, as described in Chapter 3.

Gordon argued that one reason why schools still are far from enabling the great majority of students to achieve mastery learning, as Bloom envisioned, is that educators do not yet understand the many factors that shape how students learn and perform in academic settings. It is important to be cognizant not only of the various factors that are associated with learning outcomes, but also of how these psychological, social, cultural, and economic correlates of learning may interact and be interrelated. Steele's research-based insights into the phenomena of stereotype threat and disidentification with schooling significantly contribute to this effort.

Early Outreach

Patricia Gándara also emphasized the importance of matching strategies to encourage academic achievement with the needs and circumstances of specific students. Gándara addressed this issue in a study of early intervention programs primarily serving minority and economically disadvantaged high school students. She found that early intervention programs can be effective in increasing the number of students who finish high school and go on to college. Most work by helping students to maintain an academic focus by creating positive peer pressure among program participants, providing role models, and making students feel that they belong in an academic environment. They can help to raise students' aspirations by providing academic as well as nonacademic counseling, providing access to cultural activities, and helping students to gain a more realistic understanding of the range of postsecondary educational and career possibilities and what it takes to access them (Gándara, 1999). Gordon also called attention to the importance of extrascholastic programs for minority students in this regard.

Gándara discussed the limitations of these programs as well as their beneficial effects. First, most are short-term in nature and target high school students. The more effective programs succeed in reinforcing students' motivation and identification with academic goals and result in more students graduating from high school and entering college. There is little evidence to suggest, however, that they substantially improve students' academic competencies. As Gándara noted,

> Most of these programs begin in high school at a point at which the average underrepresented minority student is functioning three to four years behind the average white or Asian student in tested academic

> abilities. Under the best of circumstances the gap is already too large to close very quickly, but these programs do not normally touch in any significant way the day-to-day schooling experiences of these students. The participants continue for the most part to struggle in the same environments with the same courses and teachers. . . . The additional years—and I mean years—of intensive high-quality instruction with the most capable teachers that would be needed in order to close the large achievement gap is not something that these programs can provide.

The term underrepresented minority is used to refer to those racial and ethnic minority groups whose enrollment as a percentage of all students in institutions of higher education is significantly lower than that group's percentage of the population at large. Gándara noted that girls far outnumber boys in most programs, an important finding given that the gains of underrepresented minority women—especially black women—in higher education far exceed those of their male counterparts (Wilds, 2000; Ready and Nickens, 1991). To illustrate, the number of bachelor's degrees awarded to black men increased 33 percent between 1977 and 1997, while the number awarded to black women increased 81 percent. By 1997, men earned only 35 percent of all bachelor's degrees awarded to blacks (U.S. Department of Education, 2000b:312).

DISIDENTIFICATION WITH SCHOOLING

According to Steele, a student may disidentify self-concept from performance in the academic domain, to insulate himself or herself from potential failure to achieve mastery over academic lessons (Steele, 1997). He also noted that despite the greater risk of academic difficulties they face, numerous studies have found that minority students' self-esteem generally is quite high (Crocker and Major, 1989). He cites these findings as evidence that many minority students selectively disidentify with the academic domain, allowing other pursuits and interests to assume larger roles in shaping their personal identities and evaluations of self (Steele, 1997:262-263).

Steele, Ferguson, and Gordon referred to several different cultural manifestations by which academic disidentification is expressed, including the development of "oppositional culture." Anthropologists Signithia Fordham and John Ogbu (1986) used this term to describe the antiacademic behavior, attitudes, and values of some black students that Fordham observed during her ethnographic study of a predominantly black high school in Washington, D.C. Fordham found that many of the students at that school would deride their academically successful classmates by accusing them of trying to "act white." Fordham and Ogbu hypothesized that this form of academic disidentification is an adaptation

based on the perception of these black students that they do not have the same kind of opportunity to access the high-status careers that education is supposed to make available as white people do.

Ronald Ferguson suggested during the conference that the rise of certain types of rap music is another cultural form through which academic disidentification has been expressed. He noted the correspondence between the sudden ascendance of rap in 1988 and the end of a 20-year period of gains in minority academic achievement. He hypothesized that rap music is at least partly responsible for the subsequent period of stagnation in minority student academic progress that began at that time (Ferguson, 2001:372-373):

> For black and Hispanic youth, more than for whites, hip hop probably transcends the realm of entertainment to become an integral aspect of identity and a lens through which to understand the world. Many of the messages in hip hop mix social class perspectives with racial commentary from an explicitly black and Hispanic point of view, especially in "gangsta" rap . . . ; messages were oppositional and challenging to mainstream culture in an "in your face" confrontational style.
>
> . . . Although the experiences that [gangsta rap] reflected may have been authentic only for some youth, others embraced the expressions and began to mimic the styles and behaviors of gangsta rap and of hip-hop personalities. Did this affect learning and school engagement more for black and Hispanic youth than for whites? I think the answer is almost certainly yes. The drop in leisure reading after 1988 may well have been the result of a shift toward listening to this popular new music.

The processes, social manifestations, and cultural expressions through which disidentification with schooling occurs vary from time to time, place to place, and among different populations. Ferguson has noted that national surveys conducted during the late 1990s have found that black students are unlikely to associate school achievement with "acting white," as was observed by Fordham in her Washington, DC, study in the 1980s (Ferguson, 2001: 375-376; Cook and Ludwig, 1998). Similarly, not all black and Hispanic youth identify with gangsta rap, let alone have it influence their academic performance. The point is that disidentification can manifest itself through a variety of social and cultural forms and can have its origins in racial/ethnic and economic inequality, the general culture, youth subcultures, or some combination thereof.

Ferguson is careful to note that no causal link between the achievement gap and the rise of gangsta rap music or other cultural manifestations of disidentification can be proven. However, he suggests that studies of how these and other social and cultural influences may affect students' engagement in learning can be helpful in the development of more effective educational programs and strategies.

Disidentification by Default

Marta Tienda, describing her work with Chicago-area Hispanic students, related yet another process through which disidentification can occur. Noting the very high rate of poverty among employed Hispanic adults with school-age children, she observed, "Mothers and fathers are working two jobs at very low wages and long hours. What this means is less parental supervision over their kids' educational outcomes. It means less involvement. There is no time, there is no energy. It is not due to a lack of will or desire. It is a lack of human capacity to cope with those circumstances." She went on to describe how disheartened she became when she observed how students who were highly motivated to learn were not receiving the academic guidance they needed either at home or at school.

> I was interviewing this young man who wanted to go to college so badly you could taste it. He asked me, "What do I need to do to go to college?" His mother wanted to help, but she didn't know. I said, "Find yourself one teacher, one person who really cares and ask them, because it won't happen in the counseling system." The counseling system has to process kid after kid, and they are just shuffling papers. They don't stop to personalize [to address the needs of] individual students unless the parent is there to broker, like I am for my child—because I know how to work the system. This kid had no idea [what to do].
>
> It is the lack of information, the lack of guidance to make the connection between your aspirations, and what you have to do to achieve them [that is the problem]. On the NELS 88 [National Educational Longitudinal Study of 1988]—all the 8th graders want to go to college and then by 10th grade there are fewer of them because they don't know what they are doing. By 12th grade they are lost because they know there is no hope.
>
> These problems really cannot be solved by educators, alone, because it is not [just] an education function. It is a community function.

Tienda's comments suggest that this process of disidentification with the academic domain is not uncommon. This may be especially true for students from low-income families, racial/ethnic minority groups, and others who do not regularly receive personalized academic guidance at home or at school. The process described by Tienda could be considered one of *disidentification by default*. Highly motivated students can give up hope because they do not have access to the kinds of information and other resources they need. The result is that for too many students, ardently held goals of academic achievement and college degrees are transformed into a distant, seemingly unattainable, mirage.

IMMIGRANT AND LANGUAGE-MINORITY CHILDREN

Since the mid-1960s, immigration from Latin America and Asia has profoundly influenced the demographic makeup of the United States, particularly in certain parts of the country (like California) where many immigrants are concentrated. As noted by Min Zhou, Latin American and Asian immigration has altered preexisting perceptions that race relations primarily are a black-white issue (Zhou, 2001). By 2000, Hispanics had tied blacks as the largest minority group in the school-age population, each comprising 15 percent of the total. The Asian population has been growing at an even faster rate than Hispanics, although from a much smaller base. By 2000 Asians made up 4 percent of the school-age population (Lloyd et al., in this volume:Figure 1).

The role of immigration in boosting the numbers of Hispanic and Asian school children is demonstrated by the fact that, in 2000, 72 percent of Hispanic and 81 percent of Asian schoolchildren either were immigrants or the children of immigrants (second-generation immigrants). By comparison, only 8 percent of non-Hispanic white and 10 percent of non-Hispanic black schoolchildren were first- or second-generation immigrants (Lloyd et al., in this volume:Figure 2).

Along with these demographic changes has come tremendous growth in the linguistic and cultural diversity of the school-age population. According to Tienda, 74 percent of Hispanic and 46 percent of Asian American schoolchildren report that a language other than English is spoken at home. In addition, 31 percent of Hispanic and 14 percent of Asian schoolchildren reported having difficulty speaking English. By comparison, less than 5 percent of black and white children report that a foreign language is spoken at home, and only about 1 percent from each group have difficulty speaking English (Lloyd et al., in this volume:Figure 11).

Another effect of recent immigration has been a substantial increase in the number of children living in poverty. As discussed in Chapter 2, a high percentage of Asian immigrants were highly educated professionals when they arrived, and the average income of Asian Americans is higher than that of non-Hispanic whites. Nevertheless, there were many more low-income Asian Americans in 2000 than in previous decades. The pattern of immigration from Latin America, especially from Mexico, is different from Asian immigration in that a much higher percentage of Hispanic immigrants arrived with little education and in search of jobs. This has contributed to the high poverty rate among Hispanic children. Approximately one-third of Hispanic children are from low-income families, approximately the same as the percentage of black children (Figure 2-6; Lloyd et al., in this volume:Figure 6).

As documented in Chapter 2, the educational achievement of Hispanic students, as measured by the National Assessment of Education Progress (Figure 2-8, and 2-10; Lloyd et al., in this volume:Figure 12 and 13) and other tests, is substantially lower than that of white and Asian students. Also, only 62 percent of Hispanics ages 25 to 29 have completed high school or earned a General Educational Development (GED) Certificate, compared with 93 and 88 percent of comparably aged non-Hispanic whites and blacks, respectively (Figure 2-4). Tienda noted that because of recent heavy immigration and linguistic differences, the educational significance of these statistics for Hispanics is not immediately clear. Are the poor educational achievement indicators of Hispanics due to the fact that many do not speak English well or have been educated outside the United States? Or is the problem more fundamental and less transitory in nature?

The conclusion reached by Tienda and colleagues (Lloyd et al., in this volume) is that immigration and linguistic differences do not fully account for the educational difficulties of Hispanics. The high school dropout rate of first-generation Mexican and other Hispanic immigrants is indeed very high. However, noting that the dropout rates of second- and third-generation Mexicans and other Hispanics are higher than those of even first-generation Asian, white, and black immigrants, she argued that factors other than foreign birth are implicated in the academic underachievement of Hispanic youth (Lloyd et al., in this volume:Figure 16).

Could that something else be the linguistic differences mentioned above? Tienda acknowledges that linguistic differences complicate learning for children with limited English proficiency, and Snow discussed the adverse effects on English language reading skills of a lack of proficiency in oral English. Tienda also observed that parents' lack of fluency in English makes it more difficult for parents and teachers alike to coordinate their efforts to help children learn. But Tienda added (Lloyd et al., in this volume: Figure 12):

> Linguistic diversity cannot be the primary reason for the scholastic underperformance of minority students. Were this so, Asians would score lower than whites and blacks on standardized tests. In fact, white, black, Hispanic, and Asian youth enter the school system at very different starting points . . . [and] unequal educational opportunity begins to take its toll on the educational pipeline at very early ages. This is clearly evident in the large differences in math and reading scores of minority and nonminority children as early as kindergarten. . . . [E]ven before entering first grade, Asians outperform white and (even more so) black and Hispanic children.
>
> This is not about linguistic diversity; this is about social class and also about strong values that give priority to educational pursuits under any circumstances.

Los Angeles Case Study

In her presentation, Min Zhou discussed the educational implications of findings from her sociological case study of three low-income immigrant neighborhoods in Los Angeles: Koreatown, Chinatown, and Pico Union. Her focus was on the adaptation of second-generation immigrant youth. Zhou described the contrasting frames of reference of first- and second-generation immigrants. She noted that the circumstances of newly arrived immigrants, including their educational attainment, "often leave much to be desired" from the perspective of most native-born Americans. But first-generation immigrants typically evaluate their circumstances in the United States in relation to their countries of origin. Second-generation immigrant youth, however, are far more likely to set their aspirations in relation to a U.S. benchmark and not that of the country their parents left behind (Zhou, 2001; Portes and Zhou, 1993; Ready, 1991a, 1991b). (Note: In addition to the U.S.-born children of immigrants, Zhou includes in her definition of second generation foreign-born persons who arrived in the United States at a young age.)

Zhou noted that getting a good education is indispensable if second-generation immigrant youth from the neighborhoods she studied are to enter the American middle class. She found, however, that there were many obstacles in their way—many related to the effects of concentrated poverty. More than half of the families living in the three neighborhoods she studied were living in poverty. She claimed that most schools had poor records in educating students, as is not uncommon for schools with high concentrations of students in poverty (U.S. Department of Education, 1999). Also associated with the concentrated poverty of the three neighborhoods were high crime rates, lack of security, and, for some young people, the lure of the streets.

Zhou argued that the oppositional or adversarial youth culture she observed in the three neighborhoods was an obstacle to school achievement, similar to what Signithia Fordham found in her ethnographic case study of a high school in Washington, D.C. Zhou noted that many of the youth in the three neighborhoods adopted "an attitude that entails the willful refusal of mainstream norms and values," including the value of academic achievement. She added that many middle-class suburban youth also identify with the trappings of urban adversarial culture, but, for them, adverse educational and other consequences are likely to be less severe. Youths in the three urban neighborhoods she studied were especially vulnerable to its effects because of less extensive social and academic support networks.

Despite these obstacles to school success, many immigrant students in the three neighborhoods do well in school. Zhou found that organized

after-school activities offered by schools, nonprofit organizations, and private organizations played important roles in facilitating school success. She noted that Asian children tended to fare better than Hispanics who lived in the same neighborhoods and attended the same schools because the Asian children had easier access to these community resources.

She illustrated this with an example from Koreatown. Only 20 percent of Koreatown residents are Korean, while 60 percent are Hispanic. Yet Koreans own most of the businesses. A variety of privately sponsored Korean organizations and programs facilitate the involvement of Korean youths in such diverse activities as karate classes, music, dance, Korean language instruction, and after-school tutoring. The many Korean businesses create job opportunities and facilitate the interaction of low-income Korean youths from the neighborhood with their middle-class coethnics. All of this helps to build community and reinforce behavioral norms and attitudes that are consistent with school success.

Family Characteristics

Edmund Gordon (Chapter 2); Barbara Bowman, Craig Ramey, and Catherine Snow (Chapter 3); and Scott Miller and Marta Tienda (Chapter 4) all commented on the substantial differences in measures of school-relevant learning that occur among young children of different racial/ethnic groups, even before schooling begins. Citing data from the Early Childhood Longitudinal Study of 1998 (U.S. Department of Education, 2000d:21, 22, 130, 131), Tienda illustrated this by pointing out the large racial/ethnic differences that exist in the mathematics and reading readiness skills of kindergarteners (Lloyd et al., in this volume:Figure 12). As mentioned earlier, Tienda believes that minorities' low income and parental education levels largely account for these differences.

She also noted that living in a single-parent, female-headed household both increases the probability that a child will be living in poverty and is inversely correlated with measures of academic skills. While noting the dramatic increase in female-headed households during the latter half of the 20th century among all racial/ethnic groups, Tienda suggested that the high proportion of black and Hispanic children living in single-parent, female-headed households contributes to racial/ethnic achievement gaps, beginning at an early age (Zill and West, 2000; Lloyd et al., in this volume: Figure 15).

Tienda commented further on the correlation of parental educational levels to children's education outcomes. She expressed concern about the potentially self-perpetuating effects of the low educational attainment

levels of residents of segregated, high-poverty neighborhoods and the elevated high school dropout rate of Hispanics in particular:

> Parents' education often constructs a floor below which offspring are not likely to fall. However, for some minority populations with historically low levels of education, such as Hispanics and many recent immigrants from Latin America and some Asian nations, parents' education may also represent a ceiling that young people's achievements are unlikely to surpass. This circumstance underscores one of the great dilemmas of equal opportunity—namely, that family background remains decisive in shaping individual opportunity beyond what is objectively possible through economic prosperity alone. . . . If educational inequalities cannot be narrowed during prosperous times, they certainly will not improve during leaner years.

SOCIODEMOGRAPHIC VARIABLES AND CHILDREN'S LEARNING

In the landmark study, *Equality of Educational Opportunity*, James Coleman and his colleagues found that the social and demographic characteristics of students and their families exerted far more influence on education outcomes than what happened in school (Coleman et al., 1966). Tienda's comments suggest that little has changed that would invalidate Coleman's 35-year-old findings. Also citing Coleman, Gordon stated, "The challenge to the nation is to uncouple academic achievement from the social divisions by which we classify people."

Various social and demographic characteristics have been associated with styles of childrearing, patterns of social interactions in the family, and differential access to home learning resources, such as books and computers (National Research Council, 2000c, 2001b). While noting how measures of school readiness vary according to parents' social and demographic backgrounds, Bowman, Ramey, and Snow (Chapter 3), and Slavin (Chapter 6) focused their comments primarily on educational strategies to increase the access of disadvantaged students to the kinds of experiences that research has found to effectively promote learning. They suggested that well-designed preschool and early grade school programs can give young children the kind of solid foundation they need for future learning—the kind of foundation that would put them on equal footing with children from more advantaged backgrounds. They also noted, however, that *sustaining* gains made by disadvantaged students who were enrolled in exemplary early childhood education programs is very difficult and all too frequently is not achieved.

The determinativeness of family social and demographic characteristics and the alterability of specific learning-relevant behaviors and atti-

tudes of students from disadvantaged backgrounds are open questions with tremendous implications for educational and social policy (Phillips et al., 1998a). The clear consensus of conference presenters was that demography need not dictate children's educational destinies. But, to paraphrase Edmund Gordon, can schooling single-handedly compensate for children's unequal life chances?

5

Policy and the Education of Minority and Disadvantaged Students

According to conference presenter Jacob Adams, education policy is a blunt but very powerful instrument that has been used to shape the education reform process. Policy can profoundly affect what goes on in classrooms, often reflecting the broad goals and sweeping visions of public officials who sometimes are far removed from the day-to-day work of instruction. Because they are removed from it, what happens in the classroom often does not conform to what was expected or intended by policy makers.

The conference examined education policies and trends in the education of minority and economically disadvantaged students since the U.S. Supreme Court's 1954 decision in *Brown v. Board of Education*. The Court found that racially segregated schools were inherently unequal, given the history and then-current facts related to the social and economic implications of race in America (Blank, 2001; National Research Council, 1989:1-54, 329-390). It is not surprising, then, that for nearly three decades following that decision, policies emanating from the executive branch, Congress, and the courts primarily addressed questions of inequality of educational resources and opportunities.

This chapter begins with a brief review of the history of court decisions and legislation related to desegregation, and then discusses the compensatory education programs that were begun in the mid-1960s. It then goes on to discuss education policies associated with court decisions concerning fiscal equity and the legal definition of an "adequate" education.

It concludes with a discussion of the evolution of education policies associated with standards-based reform.

RIGHTS AND RESOURCES

It used to be said that education was about teaching the three Rs: reading, writing, and 'rithmetic. As discussed in this volume, it is now clear that teaching these basic skills alone is no longer adequate to prepare young people for the demands of contemporary society. Taking his cues from this theme, Ronald Ferguson grouped his comments about factors that have affected the education of minority students since *Brown v. Board* in terms of "the six Rs: rights, resources, requirements, systemic reform, rules, and research-based pedagogy." Here, we turn our attention to Ferguson's first two Rs: rights and resources. In particular, we review how racial segregation and school funding inequities have been addressed by the courts and what is known about how policies related to these issues have affected student learning. We also discuss what is known about the effectiveness of federally sponsored compensatory education programs that were developed in the 1960s as part of the Johnson administration's War on Poverty.

Desegregation

In 1954, the U.S. Supreme Court made a bold statement about racial inequality in *Brown v. Board*. Discussing the Court's decision, Ferguson (in this volume) noted that it was not just about the equitable distribution of resources for black and white students. Quoting the justices in the Court's decision: "to separate [black children] from others of similar age and qualifications solely because of their race generates a feeling of inferiority as to their status in the community that may affect their hearts and minds in a way unlikely ever to be undone (Martin, 1998)" (Ferguson, in this volume). Despite the forceful rhetoric, it is important to note that very little progress was made toward the desegregation of schools until 10 years after the *Brown* decision. By 1964, no more than 1 in 50 black children in the South attended an integrated school (Rebell, in this volume; Ferguson, in this volume; Orfield and Eaton, 1996). Not surprisingly, Ferguson notes, there is no evidence of improvement in academic outcomes for black students during the first 10 years following *Brown*. As discussed in Chapter 1, the black population was highly concentrated in the South at the time of *Brown v. Board* and was still disproportionately concentrated in the South in 2000, despite substantial outmigration to the urban centers of the North and the Midwest.

It was not until the Supreme Court's 1968 decision in *Green v. County School Board* that substantial desegregation took place. Acknowledging the lack of progress toward desegregation in the years following *Brown v. Board*, the Court's *Green* decision required school boards to develop desegregation plans that promise "to realistically work now" (Rebell, in this volume) and that segregated school systems had to be dismantled "root and branch." This decision, combined with the passage in 1964 of the Civil Rights Act, posed a realistic threat of a loss of federal funding for school systems that remained segregated.

By 1972, dramatic changes finally were taking place. Over 90 percent of black students in 11 Southern states were attending school with at least some white students. However, little desegregation took place outside the South, and the school desegregation movement of the late 1960s and early 1970s left segregated Hispanic schools largely untouched (Orfield and Yun, 1999).

By 1973—only a few years after desegregation began in earnest—federal courts started to pull back their support of school desegregation. In *Keyes v. School District #1*, the Supreme Court ruled that desegregation was not required if school systems were segregated de facto because of housing patterns rather than intentional policies (Rebell, in this volume). The same year, the Supreme Court held in *Milliken v. Bradley* that predominantly white school districts in suburban Detroit were not required to participate in a metropolitan-wide desegregation plan because the Court found no evidence that the suburban districts had intentionally discriminated against minority students. The outmigration of whites from the central city to the suburbs had left few white children in the Detroit Public Schools. Thus, the *Milliken* decision made significant desegregation in Detroit and several other predominantly minority big-city school systems in the Northeast, the Midwest and the West a practical impossibility (Ferguson, in this volume).

Recognizing this, a federal district court in Michigan approved in 1977 a Detroit-only remedial plan that required the state of Michigan to provide approximately $12 million for compensatory programs, counseling services, and in-service training for teachers in Detroit. The district court's decision, known as *Milliken II*, was upheld by the Supreme Court, which noted that the plan was "aptly tailored to remedy the consequences of the Constitutional violation" (Rebell, in this volume; Orfield and Eaton, 1996). However, Orfield, commenting during the conference on the continuing pattern of low achievement in the Detroit Public Schools, stated that although "the Milliken program may have had some positive effect, . . . the programs simply did not prove to be the systemic remedy needed by urban Detroit."

Effects of School Desegregation Policies

Orfield commented further on Milliken at the conference, and on the history of school desegregation in general:

> We never had policies or practices that permitted us to cross suburban lines, except in the cases of county-wide school systems (e.g., Louisville, Jefferson County, Kentucky) . . . which have proven to be by far the most effective in producing very long-term, sustained, stable desegregation (Kurlander, Yun and Orfield, 2000). The *Milliken* decision was like *Plessy v. Ferguson* [see Chapter 1] in terms of the segregation experience of the United States.
>
> We have had no significant effort to desegregate in the country in terms of enforcement policies, except in the late sixties by the Johnson Administration, and by the courts during the period from 1968-1973. Though it [school desegregation policy] was implemented only for a very short period, it produced huge changes in the South. It didn't produce very many changes elsewhere.

Summarizing analyses of the effects of school desegregation efforts of this period, Ferguson (in this volume) drew the following conclusions:

- white achievement is entirely unaffected by desegregation;
- desegregation did not lead to an increase in black mathematics achievement;
- desegregation does tend to raise black reading scores, but by relatively small amounts . . . ; and
- gains are likely to be greatest among the younger children.

Citing Jencks and Mayer (1990), Ferguson also noted that most case studies of the effects of the desegregation plans of the late 1960s and early 1970s measured achievement at only one point in time, and that no study examined the cumulative effects of desegregation over a number of years. He also noted that studies rarely paid attention to how desegregation policies were implemented, so the mechanisms by which desegregation exerted greater or lesser effects in different circumstances were unknown. For example, Ferguson argued that it is not enough to know that black and white students attended the same schools without knowing what policies and practices, if any, were being implemented at the school level to promote racial interaction in academic and social contexts.

Orfield, citing trend data for the National Assessment of Educational Progress (NAEP) and for other national achievement tests, stated that some of the largest gains in academic achievement made by blacks occurred at the same times and places that desegregation plans exerted their greatest effects. The largest academic achievement gains for blacks oc-

curred in the South during the late 1960s into the 1970s, when desegregation plans exerted their greatest influence. This correlation, while not proving causation, suggests that desegregation contributed to academic gains for blacks (Orfield 2000; Grissmer et al., 1998:206-213; Grissmer, 2000).

Orfield noted that while the research tends to show that integration produced some academic benefits for minority children, it is a mistake to consider academic outcomes as the only ones that matter. The larger goal of desegregation policies was to undo the structures supporting the racial polarization of society. "We haven't been looking at whether it produces a different society. There is beginning to accumulate a body of evidence that suggests that it does. This is a very important thing for a society which will become predominantly non-European in another half century—and a school system that will do that in another two decades."

Orfield cited findings from a survey of high school juniors conducted in the Jefferson County, Kentucky, Public Schools in 2000. The school district, which includes Louisville, is among the most thoroughly integrated in the country and has been since the mid-1970s. Both black and white students overwhelmingly responded affirmatively when asked whether they found it easy to work with students across racial lines. Orfield indicated that Louisville's experience with a county-wide desegregation plan is not at all typical of major U.S. cities. Since the peak of desegregation efforts in the early 1970s, schools have been gradually resegregating and non-Hispanic whites are the most segregated of all racial and ethnic groups—something that Orfield argued will place white students at a distinct disadvantage given the rapidly changing demographic composition of the country.

Ferguson (in this volume) quotes James E. Ryan (1999:272) as he summed up his observations on the current status and future prospects of desegregation policy: "That poor and minority schools will remain separate from white and wealthier schools [because they are in different political jurisdictions] appears to be taken as a given, and, if anything, is reinforced by the fact that advocates are fighting not over integration but resources." In Ferguson's view, courts in the 1990s began releasing districts from desegregation orders issued in the 1970s, so it appears that court ordered desegregation will soon be a thing of the past.

Compensatory Education

In 1965, two of the most important federal programs designed to equalize educational opportunity were established: Head Start and Chapter I (later renamed Title I) of the Elementary and Secondary Education

Act. Developed as part of the Johnson administration's War on Poverty, both programs sought to compensate through supplementary education programs for some of the disadvantages associated with poverty. With the goal of improving educational outcomes for students from low-income families, these programs sought to "break the cycle of poverty" by increasing opportunities for student participants to become well-educated and eventually to become gainfully employed.

Unlike the court-ordered desegregation plans derived from the Supreme Court's decision in *Brown v. Board of Education*, these and several other compensatory education programs begun in the 1960s were race-neutral. However, since minority students were more likely than others to be poor, these programs played an especially important role in the education of many minority students.

Head Start is a preschool program that provides young children with educational enrichment along with nutritional and social services. Chapter I/Title I is a program that provides supplementary funding to schools that serve a large number of low-income students. Until recently, local school districts could use the supplementary federal funding to pay for a wide variety of educational services and strategies. Beginning in 1994, federal legislation began to link Title I funds to standards-based education reform strategies, as discussed later in this chapter. Neither of these programs was discussed in any detail at the conference, although Ronald Ferguson briefly summarized what is known about the effects of the these programs during his conference presentation, and more detail is provided in his paper in Part III of this volume.

According to Ferguson, "neither of the two large-scale evaluations of Title I has reached the conclusion that it substantially narrows achievement gaps between disadvantaged and middle-class students, as policy makers intended" (Ferguson, in this volume). As for Head Start, Ferguson reported that outcomes have been more positive. Evaluations of Head Start have found that the program improves the academic performance of children in early grade school, although the advantages that former Head Start students have over those who did not participate in the program tend to disappear after a few years (National Research Council, 1998b:150).

FUNDING EQUITY AND THE RIGHT TO AN ADEQUATE EDUCATION

By the mid-1970s, it had become clear that the courts no longer were as supportive as they once were of desegregation as a remedy for past and present inequality of educational opportunity (Rebell, in this volume; Ferguson, in this volume). Also, the courts and the public were question-

ing whether desegregation plans actually had improved student outcomes. For these reasons, equity-related school litigation began to shift from an explicit focus on race to disparities in school finance.

Serrano v. Priest, decided by the California State Supreme Court in 1971, was one of the earliest and most influential school finance cases. Citing both the equal protection clauses of the Constitution of the United States and the California constitution, the California court ruled that the state's system of school finance based on local property taxes was unconstitutional. In its place, the court adopted "fiscal neutrality" as the guiding principle of school finance (Rebell, in this volume; National Research Council, 1999e:71-75). Rebell notes that this principle means that "the level of resources available to students in each school district should not be a function of wealth, other than the wealth of the state as a whole. In other words, the fiscal neutrality principle holds that the state has a constitutional obligation to equalize the value of the taxable wealth in each district, so that equal tax efforts will yield equal resources" (in this volume).

Two years later in 1973, the U.S. Supreme Court rejected the argument that the Texas system of school funding violated the equal protection clause of the U.S. Constitution. According to Rebell, the "extreme inequities created by the Texas education finance system" that were the subject of the *San Antonio Independent School District v. Rodriguez* seemed to reformers "an ideal vehicle for establishing a new legal doctrine to make good on *Brown's* promise of equal educational opportunity" (Rebell, in this volume). The Rodriguez case was initiated by parents in the predominantly Mexican-American Edgewood Independent School District. The Edgewood district is adjacent to the much wealthier and predominantly white Alamo Heights district. Residents of the Alamo Heights district taxed their more valuable property at a rate that was 20 percent lower than did the residents of the Edgewood district. Despite Alamo Heights' lower tax rate, that district provided nearly $600 in funding for each student, compared with only $356 per pupil in Edgewood—a figure that also included supplementary antipoverty funding from federal sources.

Writing for the Court majority, Justice Powell stated that the right to education is not specifically mentioned in the U.S. Constitution and therefore funding inequities in education are not a federal issue. Justice Powell also responded to the plaintiffs' argument that an adequate education is needed for citizens to exercise their First Amendment freedoms, including the right to vote. Acknowledging the importance of an educated citizenry for democracy, Justice Powell again rejected the argument that education was a federal responsibility and cited as part of his rationale the lack of specific standards for defining how much and what kind of educa-

tion should be considered *adequate* to enable citizens to exercise their political rights. According to Rebell (in this volume),

> Justice Powell set forth a "slippery slope" argument, noting that if some level of education were to be considered a sine qua non for the exercise of political rights under the federal constitution, similar arguments could be made that "the ill-fed, ill-clothed, and ill-housed are among the most ineffective participants in the political process."

Although the *Rodriguez* case was a major defeat for reformers, Rebell argues, the Supreme Court's ruling in that case laid the groundwork for a new legal rationale to pursue equality of educational opportunity in state courts. The new strategy would be based on the fact that, unlike the U.S. Constitution, every state constitution explicitly mentions the provision of what is variously called an "adequate," "ample," or "thorough and efficient" education as a core responsibility of state government. Rebell (in this volume) goes on to quote Justice Powell's majority opinion in Rodriguez: "The State [of Texas] repeatedly asserted in its briefs…that it now assures 'every child in every school district an *adequate* education.' No proof was offered at trial persuasively discrediting or refuting the State's assertion." Rebell added that the *Rodriguez* case focused almost entirely on funding disparities, and the adequacy of the education provided to students in the Edgewood district was not even discussed by the plaintiffs.

From the early 1970s to 2000, litigation was introduced challenging the constitutionality of school finance systems in 44 of the 50 states (Rebell, in this volume), with many of the challenges based on the principle of fiscal neutrality articulated in *Serrano*. After several successful challenges of inequitable school finance systems in the 1970s, Adams and Rebell claim, the judicial tide was reversed in the early 1980s, as courts increasingly cited the *Rodriguez* ruling as a basis for rejecting challenges (Rebell, in this volume).

Rebell (in this volume) and Jacob Adams (1997; see also National Research Council, 1999e:100, 101) consider 1989 to have been a pivotal year, as courts once again reversed direction. According to Rebell (in this volume), plaintiffs had prevailed in only 7 of 15 school finance cases through 1988, and only 2 of those 7 victories occurred between 1980 and 1988. However, from 1989 through 2000, plaintiffs prevailed in nearly two-thirds (18 of 28) of the challenges to school finance systems that reached state supreme courts.

Major Events in 1989

According to both Adams and Rebell, two major events took place in 1989. The first was the National Education Summit in which the first

President Bush convened all 50 of the nation's governors and business leaders and educators to collaborate with the federal government in establishing standards-based education systems. The summit identified six national goals that became the cornerstone of the Bush administration's America 2000 program. These same goals were included among the eight goals articulated in the Clinton administration's Goals 2000 Act of 1994. Companion legislation linked federal funding for Title I, special education, and vocational education to the requirement that states establish and implement specific content and performance standards (U.S. Department of Education, 1999:xi). As of January 2001, 49 states had established statewide academic standards for what students should know in at least some subjects. All 50 states were administering tests that purportedly assess the performance of students in mastering those standards (Olson, 2001:14).

The second major event of 1989 was the *Rose v. Council for Better Education* decision in Kentucky. Plaintiffs in this school finance case, similar to the *Rodriguez* and *Serrano* cases, argued that the Commonwealth of Kentucky's system of school funding was unconstitutional. The Kentucky supreme court ruled that not only was the school finance system unconstitutional, but so was the commonwealth's entire education system because it failed to provide students with the "thorough and efficient" education required by Kentucky's constitution.

Rebell argues that it is no coincidence that the *Rose* decision occurred in the same year as the National Education Summit because the case clearly reflects the basic principles of the standards movement, as articulated at the summit. As noted by Rebell, the Kentucky supreme court ruled that a "thorough and efficient" education was one that laid out as its goal the development of the following seven capabilities in every Kentucky schoolchild:

(i) sufficient oral and written communication skills to enable the student to function in a complex and rapidly changing civilization;

(ii) sufficient knowledge of economic, social, and political systems to enable the student to make informed choices;

(iii) sufficient understanding of governmental processes to enable the student to understand the issues that affect his or her community, state, and nation;

(iv) sufficient self-knowledge and knowledge of his or her mental and physical wellness;

(v) sufficient grounding in the arts to enable each student to appreciate his or her cultural and historical heritage;

(vi) sufficient training or preparation for advanced training in either academic or vocational fields so as to enable each child to choose and pursue life work intelligently; and

(vii) sufficient levels of academic and vocational skills to enable public school students to compete favorably with their counterparts in surrounding states, in academics or in the job market (Rebell, this volume; National Research Council, 1999e: 107).

The Kentucky Educational Reform Act

After defining the constitutionally required "thorough and efficient" education in terms of these seven capabilities, the court then left it up to Kentucky's legislative and executive branches to totally redesign the education system to ensure that all Kentucky children received this kind of "thorough and efficient" or "adequate" education (Rebell, this volume). The result was the passage and implementation of the Kentucky Educational Reform Act (KERA) of 1990, which has served as the blueprint for Kentucky's education reform efforts and as a model emulated by some other states. KERA reconstituted Kentucky's entire system of elementary and secondary education, including finance, governance, and programming. According to the NRC report on school finance (National Research Council, 1999e: p.110),

> [It] increased school district revenue by 34 percent (19 percent adjusted for inflation) between 1990 and 1993 . . . and reduced disparities in spending among districts and in the relationship between district wealth and spending (Adams, 1997). KERA also featured a strong accountability program based on a new assessment system and providing financial rewards [to schools] for exceptional performance and significant sanctions for poor performance.

Lois Gray, superintendent of schools in Hardin County, Kentucky, discussed in a preconference workshop how the Kentucky Educational Reform Act has changed education in her district. She described how faculty and staff in her district were now under the same kind of pressure to perform that Kentucky basketball coaches have been under for a long time:

> [Educators] have young people to work with. They are being put on the spot. Basketball coaches in Kentucky know that if their players on the court don't do well, [the coaches] don't last long. Their tenure is shorter than that of superintendents and principals if they don't win. So, we have tried to liken [schooling] to athletics. Why shouldn't the public expect, with the time and the resources that they have given us, that we should achieve at a high level for all of their children?

As discussed below, the Kentucky Educational Reform Act emphasizes capacity building, performance standards, and accountability. The above quote from Superintendent Gray demonstrates how KERA's ac-

countability system puts pressure on teachers and administrators to get results—to improve learning outcomes for their students.

Jennifer O'Day, describing her research in Chicago, observed that the strategies emphasized in education reform programs reflect what the designers of those programs think is the primary problem. She argued that reform programs that mainly emphasize testing and accountability reflect the perception that lack of motivation is the primary problem that needs to be addressed. As in Kentucky, the potential threat of negative sanctions is used to motivate teachers and administrators in the schools she studied in Chicago. According to O'Day:

> There is quite a bit of research that supports the idea that motivation is important in performance, and that there is some interplay between motivation, ability, and the situation in which people work. So, there is reason to emphasize motivation as well as capacity building [in reform]. But there also is quite a bit of research that says that motivation itself is largely dependent on whether the individuals involved think that they can attain whatever goal is set up. So, if you have a very low performing student, or a very low performing school, and you say, "This is what you have to do," to the extent that the goal is viewed as out of the realm of possibility, it is not a motivating factor.

The Kentucky Educational Reform Act was the legislature's response to the state supreme court's ruling in *Rose*. Since *Rose* began as a school funding equity case, it is not surprising that KERA places a strong emphasis on capacity building as well as accountability. KERA addresses capacity building by requiring specific programs and policies and by augmenting and equalizing funding. Superintendent Gray describes below the efforts she is making in her district to help ensure that KERA's demanding accountability goals are perceived by students, teachers, and administrators as within reach and have a positive motivating effect. In addition to teacher professional development:

> There have been efforts to remove barriers to learning. One of those was to put family and youth resource service centers in the schools to make sure children get the physical care that they need, to help parents have the skills they need to parent, to provide advocacy for them when they need that . . . to help with clothing and toys for the home, and to make sure that books are in the home. So, we are trying to take care of some of the disadvantages that sometimes happen. We have a homework bus that travels to communities where children may not go to the library. It has computers with homework helpers and online encyclopedias, and staff who can help.

She went on to describe an information management system, not unlike what John Bransford described as an important tool to be used in promoting learning:

> In my district, we have implemented . . . a data warehouse that takes all of our software data collection information and puts it together as if it were one software package. At the click of a button, we can now manipulate different pieces of information so we can do an in-depth evaluation of how a specific child is doing, or how well specific groups are doing. . . . We are disaggregating data and looking at how specific children are doing because until we look at the individual, we won't change the whole. Which children are not doing well? Which children are doing well? What can we learn about the ones who are successful? Who taught them? Where did their teachers go to school? What professional development did their teachers do? How do African American males do when they take algebra 1 from this teacher vs. that teacher? Is there a difference? Can we replicate success? We can find that out in our data warehouse. These are some of the things we are doing in Hardin County to remove barriers for children, and similar things are happening elsewhere in Kentucky.

Superintendent Gray has made substantial progress in improving achievement for students in Hardin County, and she says that Kentucky, as a whole, has made gains. She also noted, however, that after 10 years of the Kentucky Education Reform Act, the black-white achievement gap is largely undiminished and that the commonwealth "still has a long way to go" (Orlofsky and Olson, 2001).

Commenting on Kentucky's experience, workshop participant Lorraine McDonnell emphasized the importance of patience in education reform. She noted that there is a problem in talking about having all children learn to high standards when we "are not dealing with what that means over what time period." She went on to note that educational reform programs too often are implemented "on an electoral cycle instead of on an educational cycle. I think that the thing that is most astounding about Kentucky is that somehow policy makers in Kentucky have convinced the voters to be patient, and I think that that is one of the most important lessons. If you can figure out a way to create incentives for patience, while at the same time having really clear milestones (measuring progress toward goals), that will take you a long way toward solving a lot of these problems."

MAKING MONEY MATTER

In his wide-ranging conference presentation, Ronald Ferguson discussed what is known from research about the effects of efforts to equalize or increase the resources available for the schooling of minority and economically disadvantaged students. Jacob Adams and Michael Rebell also addressed this issue in relation to the legal principle of educational adequacy. That more money does not necessarily result in better educa-

tional outcomes is implicit in the title of the 1999 NRC report *Making Money Matter*. Consistent with arguments made by Jacob Adams and Michael Rebell, *Making Money Matter* argues that "dissatisfaction has grown with school finance approaches that fail to address directly…the academic achievement levels of American students and the worsening conditions facing children in some central-city neighborhoods. The concept of equity motivating school finance reform today is shifting in emphasis from the amount of money spent to the adequacy of the education that the money provides" (National Research Council, 1999e:69).

As Adams put it, the legal concept of educational adequacy has shifted the focus of the courts from issues related to the equality of inputs to outputs—to the concern that students from all backgrounds should have a reasonable expectation of obtaining an adequate education, as it is defined by each state. For students from disadvantaged backgrounds, mere fiscal equity may not be sufficient to provide a reasonable assurance of an adequate education (see Chapter 4 discussion of the educational achievement of students in high-poverty schools). Additional funding may be needed. Jacob Adams noted that this principle was acknowledged in a ruling of the Wisconsin supreme court in summer 2000.

Rebell notes (in this volume) that funding equity cases have helped to diminish disparities between rich and poor districts but did nothing to address disparities among schools in the same district or funding disparities among the states. Interstate disparities account for approximately two-thirds of all funding disparities (National Research Council, 1999e). Despite the progress toward more equitable funding, substantial disparities remain between rich and poor districts and, to a lesser extent, between high- minority and other districts (National Research Council, 1999e: 47; Parrish, 1996a, 1996b). In some states in which interdistrict disparities were reduced, tax limitation measures such as California's Proposition 13 resulted in the downward leveling of school spending. California's per pupil spending fell from 5th in the nation in 1964-1965 to 42nd in 1994-1995 (Rebell, in this volume; Fischel, 1989). According to 2000 census data, California is home to 21 percent of the nation's minority population.

Ferguson (in this volume) and others (National Research Council, 1999e:38) commented that the argument has been made that the amount of money spent on schools has little to do with education outcomes (Hanushek, 1994, 1997). The validity of this argument is difficult to assess, given the number and complexity of factors involved (e.g., geographic variations in costs, inflation, and the purposes for which money is used). Ferguson addressed this question by evaluating studies of the effectiveness of spending for specific purposes. For example, he argued that spending on preschool and class size reduction improves academic outcomes

for minority and disadvantaged students, although the evidence is less clear for others. Ferguson argued that evidence of the effectiveness of money spent on Title I or Chapter 1, which along with Head Start is the largest federal education program serving disadvantaged students, has been hard to find. (Note: Head Start and Title I are two large education programs that trace their origins to the mid-1960s and the Johnson administration's War on Poverty. Although Head Start is discussed briefly in Chapter 2, and evidence of the effectiveness of Head Start and Title I is briefly discussed by Ferguson [in this volume], these major programs affecting the education of minority and disadvantaged students were not discussed in detail by any conference presenter.) Measures of teacher quality also are correlated with academic outcomes. To the extent that additional funding helps in the recruitment and retention of good teachers, then it is reasonable to argue that more money used for these purposes can improve educational outcomes (for a more detailed discussion of these issues, see Ferguson, in this volume).

In Chapter 3, David Cohen argued that the quality of a school building or the presence of instructional materials in a school has little to do with student learning per se. For learning to occur, resources must be used, and used skillfully, in a well-coordinated instructional program. Of course, resources cannot be used in teaching and learning if they are not present or if school facilities are in such poor condition that the environment is not conducive to learning (U.S. Department of Education, 2000e; Kozol, 1991). Given adequate material resources and facilities, however, the quality of the curricula, teachers' knowledge and didactic skills, coordination of instructional components, and the purposefulness of teachers and students are most crucial. Their presence or absence depends at least as much on good research, strong leadership, and organizational planning as on money.

STANDARDS-BASED REFORM

From the 1983 publication of the influential critique of American education, *A Nation at Risk* (National Commission on Excellence in Education, 1983) to the Year 2000 (Council of Economic Advisers, 2000:30), policy makers have argued that nothing less than the future security and prosperity of the nation are at stake if dramatic improvements in the quality of American education are not made. In the often-quoted words from *A Nation at Risk*, "If an unfriendly foreign power had attempted to impose on America the mediocre educational performance that exists today, we might well have viewed it as an act of war" (National Commission on Excellence in Education: 1). Although some believe that this statement typifies the hyperbole of *A Nation at Risk* (Berliner and Biddle, 1995), there

is no doubt that this critique of American education influenced subsequent education reforms that were more sharply focused on learning and on high-stakes assessments of it.

The emphasis on standards and assessments was reflected in the adoption of six education goals by the President and the nation's governors in 1990. The first Bush administration launched a campaign called America 2000 to coordinate the implementation of the standards (U.S. Department of Education, 1991). The Clinton administration continued and expanded this effort with two additional goals, and renamed the implementation campaign, Goals 2000 (U.S. Department of Education, 1998). Perhaps even more importantly, many state governments have made standards and accountability the centerpiece of their education policies (Curran, 1999).

Many scholars who participated in the conference and its workshops, including Jay Heubert, Jacob Adams, Michael Rebell, Lorraine McDonnell, Jennifer O'Day, Julie Underwood, and Catherine Snow, emphasized that standards-based reform has several elements that must be well aligned if the reform program is to succeed. Several presenters argued that, at times, standards-based reform has been inappropriately equated with simply setting high standards and then holding students and educators accountable for achieving them. Developing the instructional capacity (see Cohen, Chapter 3) needed to achieve the standards sometimes is overlooked as an integral part of standards-based reform. Commenting on this, Julie Underwood stated, "when children aren't learning, we should be looking at how to realign human and intellectual resources. That may mean that you provide more funds, . . . choose to do smaller classes or different approaches with curriculum. But your fundamental question is: Are we using these resources in a way that improves children's learning?"

Jay Heubert argued that standards-based reform is likely to have the greatest impact on minority and disadvantaged students. He made the point, however, that there is serious doubt as to whether the impact ultimately will be beneficial or harmful. Proponents of standards-based reform and high-stakes testing argue that since these students often are the ones who currently are being educated most poorly, they stand to gain the most from efforts to hold schools, students, and teachers to high standards of teaching and learning. In contrast, Heubert observed, "critics of high-stakes testing fear that many such students will be harmed by high-stakes tests. They will be disproportionately retained in grade or denied high school diplomas. High-stakes testing would have highly negative consequences for these students if their schools don't expose them to the knowledge and skills they need to pass the test. What it comes down to, I think, is whether we are going to use standards and high-stakes testing as

levers to improve teaching and learning, or whether we are going to punish students for not knowing what we have never taught them."

Drawing on principles of testing articulated in the NRC report on appropriate test use (National Research Council, 1999c), as well as the American Educational Research Association (AERA) (2000), the American Psychological Association and the National Council on Measurement in Education (AERA et al., 1999) Heubert argued that before a school district or state implements a program of high-stakes testing, they need to ensure that

- clear performance standards have been defined,
- the curriculum is aligned with the performance standards, and
- instruction is aligned with both the performance standards and the curriculum.

Heubert went on to argue that decisions on promotion and graduation should not be based solely on performance on a single test, because a student's performance can vary from day to day, and because tests are limited in the precision with which they can assess student learning. Furthermore, Heubert noted, if a test is not used to secure the best available placement or treatment for students, then it is being used inappropriately.

There is no reason why testing should force educators into a Hobson's choice—to have to choose between two undesirable options. That is, educators should not have to choose between failing a large number of students or allowing those students to graduate or progress to the next grade without having achieved established performance standards. Instead, Heubert argued a better use of testing and performance standards would be to conduct early and frequent formative assessments to diagnose students' needs, tailor instruction, and target educational resources. Standards-based reforms will help students if used in this way to build instructional capacity—to fine-tune and improve curriculum and instruction so that all children achieve well-defined, high academic standards. If, however, the difficult work of building instructional capacity is not integrally related to setting high performance standards and holding students and teachers accountable for achieving them, then standards-based reform will exacerbate, not lessen, existing racial/ethic and socioeconomic achievement gaps. For Heubert, it is very much an open question what the effect of standards and high-stakes testing will be.

To illustrate the potential for problems, Heubert quoted from the National Research Council report *High Stakes: Testing for Tracking, Promotion, and Graduation* (National Research Council, 1999c:179): "There is little evidence to suggest that exit exams in current use have been validated

properly against the defined curriculum and actual instruction; rather, it appears that many states have not taken adequate steps to validate their assessment instruments, and the proper studies would reveal important weaknesses."

More recently, Achieve, an organization created in the 1990s by the governors and business leaders to promote standards-based reform, has studied the alignment of state standards with state assessments and curriculum frameworks in nine states. Despite substantial efforts by some states to align standards, assessments, and curricula, Achieve found that some of the problems of validity and alignment described above in *High Stakes* remain unresolved (Edwards, 2001:33-40).

According to Heubert, the percentage of students—especially minority and disadvantaged students—who do not graduate from high school was already very high before states and school districts began their most recent round of increases in graduation and promotion requirements (National Research Council, 1999c:128-132, 2001c). In the 2000-2001 school year, 18 states required the passing of an exit exam to graduate from high school, with a total of 24 committed to implementing exit exams within the next several years. Of the 18 that required passage of a graduation exam in 2000-2001, 5 had exams calibrated to 10th grade level standards or higher. The number of states that will require mastery of similarly high standards within the next several years is expected to rise to 21 (Edwards, 2001:78).

In 2000-2001, three states required students to pass an examination in order to be promoted from one grade to another. Seven states are committed to implementing statewide promotion exams within the next few years.

Heubert noted that, in addition to statewide testing policies, many big-city school districts require passage of a district-wide test both as a condition for graduation and for promotion from grade to grade. Citing *High Stakes* (National Research Council, 1999c:130-131, 155-158, 2001c), he noted that the single strongest predictor of who will drop out of school is retention in grade. Students who are retained even once are at significantly increased risk of dropping out. He added that the effects of failing a promotion test often are not perceived until years later. As Heubert put it, "Kids don't drop out after a third grade promotion test or a sixth grade promotion test. The harm, or potential harm is invisible at the time initial retention occurs. In this sense, I would compare retention in grade with high blood pressure—a silent threat, whose effects are not felt until much later."

For Heubert, Eugene Garcia, Jacob Adams, and other conference presenters, it is still an open question whether standards-based reform will be a net plus or minus for the education of minority and disadvantaged

students. The outcome will depend on the leadership and skill of educators to coordinate and fine-tune educational resources to meet the instructional needs of students from all backgrounds. The outcome also will depend on the willingness of the public and public officials to devote the resources needed to improve instructional capacity and to make sure that the resources are used wisely. Finally, much also will depend on the availability and use of high-quality research to guide educators and policy makers as they decide how best to make education spending matter. Chapter 6 provides examples of how researchers and practitioners are working together to make standards-based reform work for all children.

6

Linking Research and Practice

PROGRESS TOWARD EDUCATIONAL INNOVATION

A major objective of the conference was to examine the role of research in improving the quality of education, especially for students from those racial/ethnic minority groups that historically have been poorly served by schools. In discussing this topic, Samuel Stringfield of the Center for the Social Organization of Schools at Johns Hopkins University noted that although there have been substantial increases in the number of years of schooling completed and in degree attainment for all segments of the population (U.S. Department of Education, 2000b), improvements in academic outcomes, as measured by the National Assessment of Education Progress (U.S. Department of Education, 2000a), have been modest, particularly since the late 1980s. Nevertheless, he expressed his opinion that substantial achievement gains reflecting improvements in the quality of instruction will be soon forthcoming. His rationale for this optimistic assessment is twofold.

Can't Afford to Fail

First, the cost of not improving educational outcomes for the country, as for individual students, has become unacceptably high. As discussed in Chapter 2, today's technology-intensive economy requires a highly educated workforce. Much more than in the past, the prosperity of the country, like the prosperity of individuals, rests on a solid educational

foundation. In short, Stringfield argued that, as a country, we no longer can afford to fail to provide students with a quality education.

Applying the Lessons from Research

Second, Stringfield cited as a rationale the accumulated lessons from nearly 60 years of research on education reform. "We can say a great deal about what is necessary to make reform work at the classroom and the school levels…yet we haven't been able to stabilize our gains." He noted that even the most valid, research-based reform models are not yet fully reliable. Six large-scale studies cited by Stringfield are: Aikin (1942); Berman and McLaughlin (1977); McLaughlin (1990); Stallings and Kaskowitz (1974); Crandall and Louks (1983); Stringfield et.al. (1997); and Ross et al. (1999).

In discussing the challenge of developing and implementing reliable models for improving student achievement, he cited the work of Lewis Thomas (1979) on the history of medicine. Thomas found that medicine did not start advancing "on the day that it turned toward science." Rather, it took decades of work laying the scientific foundation before major advances in medicine began to materialize. As Stringfield put it, "people realized that an awful lot of what was being passed off as medicine was just bunk, and that opened the door to what [Thomas] called 100 years of science."

Stringfield argued that the path of scientific research in education is not unlike that described by Thomas for medicine. Beginning with the Eight Year Study conducted during the 1930s (Aikin, 1942), many lessons have been learned in seven decades of education research. For example, he noted that Ron Edmunds' (1979) findings about the characteristics of effective schools recently were supported and elaborated on by Charles Tedlie and David Reynolds (2000): "We (now) know tremendously more than Ronald Edmunds did, but recent research reaffirms (Edmunds') statement that we can fix a school if we want to, wherever that school is." Stringfield also cited work by Jerry Brophy (1988) and E. Bridges (1986) on teacher effects and J. Millman and Linda Darling-Hammond's work (1990) on teacher professional development as providing a scientific basis to "conduct meaningful evaluations of teachers." He also cited *Preventing Reading Difficulties in Young Children* (National Research Council, 1998b) as "providing an extremely valuable summary of decades of research on beginning reading."

Good Ideas, Inventions, and Innovations

Stringfield further elaborated on the reasons for his optimism about the future of education reform by referring to the work of Peter Senge

(1990). Senge wrote about organizations that deliberately set out to learn how to improve their performance. He argued that lasting improvements in the performance of organizational goals occur only when good *ideas* and *inventions* are transformed and systematized into *innovations* that work consistently and reliably.

Drawing parallels to the history of both medical and education research, Stringfield used Senge's illustration from aviation history on how the Douglas Corporation incorporated inventions developed for the ultimately unsuccessful Boeing 257 aircraft into its design of the innovative DC-3. The Boeing 257, introduced in 1934, incorporated four important new inventions: a variable pitch propeller; retractable landing gear; lightweight, molded body construction; and a radial cooled engine. Unfortunately for Boeing, the plane still was unstable on takeoffs and landings despite these important advances. The following year, Douglas Corporation introduced the aerodynamically and commercially successful DC-3, which incorporated the four important advances developed by Boeing but added an additional feature to address the stability problem—wing flaps. Senge concluded that the scientific and engineering research done by Boeing was necessary but not sufficient to produce a reliable, high-capacity aircraft. Douglas Corporation brought all of the pieces together to produce a truly innovative airplane.

For Stringfield, the current state of education is analogous to that of aviation in 1934, just prior to the introduction of the DC-3. The field has benefited from much solid research, but the findings have not yet been systematically brought together in a way that reliably produces the kind of outcomes that are desired. Stringfield argued that there are quite a few examples of schools using reform models that are achieving good results. Continuing with Senge's terminology, he considers these to be examples of educators' good ideas having been transformed into inventions. So far, none of these "inventive" models has proven that it can be reliably and economically replicated. In other words, none can yet qualify as a true innovation by Senge's definition. Nevertheless, Stringfield argued, researchers are identifying more of the conditions under which specific reform models work and do not work. Furthermore, in his judgment, some reform models are getting close to the point at which they can be reliably and economically replicated and are not far from fitting Senge's definition of an innovation. Overall, in his view, research is getting closer to providing a solid foundation for "differential diagnosis and prescription" that will better match reform strategies to specific needs. Referring to two prominent whole-school reform models, he offered the following opinion:

> There are some schools that under some circumstances probably are a good match for Accelerated Schools (Hopfenberg et al., 1993). There are

> other schools that on the very same day are not now well matched for Accelerated Schools, or any homegrown model, but may be well matched to Success for All (Slavin et al., 1994). More power to all of them, but we need to get better at this [diagnosing needs and prescribing the right treatments].
>
> You can't go to an apothecary and get any medicine you want. You have to get something that is a good match for the disease that you have. We have [institutions and procedures] in place to make that happen in medicine. We need the same thing in education.

He went on to add that, although some reform models are more solidly based in research than are others, any number of national and locally developed models have produced good learning outcomes in at least one site (Herman et al., 1999; Northwest Regional Education Laboratory, 1999; Stringfield, 2001). For Stringfield, what is most important is not the particular theory of reform, but how the model is implemented. No matter what the model, better outcomes depend on better professional skills of teachers, better curriculum, better instruction, and better professional development. "An interesting theory is no good to a superintendent. They get fired on interesting theories." Instead, Stringfield sees the primary challenge in education in the coming years as more akin to engineering—learning how to implement on a large scale the important lessons that have been learned from research so as to reliably produce in a cost-effective way the desired learning outcomes. That is, to move from good ideas and educational inventions to reliable innovations.

Stringfield cautioned, however, that even the best reform models depend on good implementation and that, invariably, every national reform model is recreated or cocreated at the school level by local educators:

> The easiest thing for a central administration [of a school district] to do when they have a failing school is to bring in an outside model and put it in. If that is all that they do, then they are just setting the model up for failure. . . . If you have the weakest principal in a district, the youngest teachers, the lowest percent of certified teachers, and then you add in three or four other things like a long history of failed reforms, then the chances of anything succeeding are pretty low until some of these other problems are addressed.

In other words, Stringfield sees no magic formulae or shortcuts to success that can avoid dealing with these fundamental issues.

Highly Reliable Organizations

Stringfield argued that research being done on highly reliable organizations is highly relevant for the education reform process:

> Traditional organizational management theory is built on repeated trial and error leading to gradual improvement. The [highly reliable organization] field is evolving through studies of groups that are assigned the stunning task of operating correctly the first time, every time, and honoring the absolute avoidance of catastrophic failure—*trials without errors*. Air traffic controllers, operators of regional electric power grids, and persons charged with certain functions on nuclear aircraft carriers are just a few of the many groups currently operating under *trials without errors* requirements. As LaPorte and Consolini (1991) have noted, these organizations are "working in practice but not in theory."

Stringfield identified some of the principles of highly reliable organizations:

- They require that the public and employees hold the perception that failure to achieve the organization's core goals would be disastrous.
- They require clarity regarding goals. Stringfield noted that in his observation of schools that were successfully implementing various types of reform, the staffs invariably were united regarding a finite set of goals.
- They are alert to surprises or lapses. Small failures can cascade into major failures. Stringfield noted that "all of us make dozens of small mistakes a day. In highly reliable organizations, areas in which mistakes can cascade are monitored very closely." He added that various reform models agree that success in basic reading and math skills is critical to students' long-term success in school. As he put it, "it takes a young child years to learn that he or she is not a skilled reader. During that time, several adults over literally hundreds of occasions will have observed small failures in the student's learning. It is not critical to catch any one error; however, it is critical to avoid a cascade of reading failures and derailed self-confidence."
- They build powerful databases on dimensions highly relevant to the organization's ability to achieve its core goals.
- They extend formal, logical decision analysis, based on standard operating procedures, as far as knowledge allows.
- They have initiatives that identify flaws in standard operating procedures, and then nominate and validate changes in those procedures that have proven inadequate.

Stringfield mentioned other important principles: highly reliable organizations recruit extensively and then train and retrain staff constantly. They take performance evaluation seriously and allow for mutual monitoring of job performance. These organizations are hierarchically structured but incorporate "a second layer of behavior that focuses on collegial decision making regardless of rank" during times of peak loads. Highly

reliable organizations invariably are valued by their supervising organization. Finally, they prioritize high reliability over short-term efficiency.

Stringfield noted that, as a member of the Baltimore City School Board, he has worked to implement the principles of highly reliable organizations in the city's school districts. One still would not need to look very far to find serious problems in Baltimore's schools, yet he presented data documenting substantial improvement in the reading skills of Baltimore's elementary school students over a period of three years as evidence that the district's efforts to implement the principles of highly reliable organizations were beginning to produce results.

TECHNICAL ASSISTANCE FOR RESEARCH-BASED INSTRUCTIONAL REFORMS

Technical assistance, in the form of teacher professional development and various forms of collaboration between university and school-based professionals, was the primary focus of a preconference workshop. Teacher professional development, in particular, is a topic that was discussed by several speakers. Michael Klentschy, superintendent of the El Centro Unified School District in California, articulated a point made by many: the way that in-service professional development typically is done should be reexamined. Often, in-service professional development is seen as an opportunity for university-based researchers and experts to *deliver* information to teachers. Louis Gomez, Phyllis Hunter, Barbara Foorman, and Diana Lam articulated a different model of teacher professional development—one that emphasizes a two-way flow of information between providers of technical assistance and the teachers who have real-world experience in classroom settings. All emphasized the importance of partnership and mutual respect as preconditions to effective collaboration.

Diana Lam highlighted several other factors that she saw as important to effective professional development from her perspective as a superintendent:

- Time: School districts must allocate sufficient time for teachers to participate in professional development. She noted that this often is a problem.
- Reallocation of Resources: Since most school districts have limited resources for noninstructional purposes, superintendents may need to take away resources from other areas of the budget to support professional development activities.
- Consistency with District Policies: Professional development activities should be consistent and well aligned with the district's curriculum.

• Public Engagement: Efforts to engage parents, the business community, and others in support of reform efforts are important to their success. Professional development activities in support of a program of education reform should be supported by the community.

• On-Site Availability: Professional development is more effective when provided on-site, either in person or via technology. For example, many school districts have hired instructional coaches or guides as a strategy to provide teachers with ongoing professional development.

Center for Learning Technologies in Urban Schools

Louis Gomez discussed his work as a provider of technical assistance, although he would prefer to be considered a partner rather than a provider. From his base at Northwestern University, he codirects the Center for Learning Technologies in Urban Schools—a collaboration involving the Chicago Public Schools, Northwestern University, the Detroit Public Schools, and the University of Michigan. (For more information, see the center's web site: < http://www.letus.org/welcome.htm>. Accessed October 22, 2001.) Gomez stated that the center's initial goal was to help to make technology available to increase the engagement of urban students in learning, particularly in science. It soon became apparent that spending money on technology would be ineffective if the curriculum was boring. So, in collaboration with teachers from 60 schools in Detroit and Chicago, the university-based experts began working to design curricula that would be appealing to students in the participating schools and that used technology to help visualize and model the scientific principles being taught. A common vision of how to do this was developed—something that could only be accomplished by combining the knowledge and perspectives of the university and school-based professionals. As Gomez put it, "For us, learning, including learning with technology, is the social construction of knowledge in a community with distributed resources."

Like other presenters, Gomez underscored the importance of aligning the curriculum, the technology and assessments to build instructional capacity. The center's work has concentrated on aligning technology with curricula to facilitate "adventurous teaching and learning." He added, however, that alignment with district assessments has been a problem, especially in Chicago. As has occurred with other inquiry-based curricula, "[teachers] say that work on our stuff stops because the tests are being done." Teachers are not confident that the information and skills emphasized in the technology-enhanced curricula developed with the center are covered by the standardized promotion test administered by the school system.

While acknowledging that standardized testing can play a useful role helpful in promoting achievement, Gomez noted that he and other educators committed to inquiry-based learning need to work more closely with district accountability offices so that the assessments appropriately measure the knowledge and skills that students develop through inquiry-based learning.

The Texas Reading Initiative

Barbara Foorman and Phyllis Hunter described a model for delivering technical assistance to improve the reading of kindergarten and early grade schoolchildren in Texas. Foorman is a researcher who has conducted studies of the effectiveness of different strategies for teaching reading to very young children enrolled in Title I schools (Foorman et al., 1998). She also provides technical assistance to the Texas Reading Initiative. (To learn more about the Texas Reading Initiative, see <http://www.tea.state.tx.us/reading/>. Accessed October 22, 2001.)

She argued that research-based instructional practices can improve the reading skills of at-risk children, providing many with the literacy skills they need to avoid academic difficulties in later grades. Among the lessons that Foorman said she had learned is that more explicit instruction in the alphabetic principle can be effective in helping 1st and 2nd graders who are served by Title I to read better (Foorman et al., 1997). Knowledge of the alphabetic principle is awareness that written words are composed of letters that are intentionally and conventionally related to phonemic segments of the words of oral language (National Research Council, 1999b:147). Her research also has looked at the effects of teacher competencies on student reading skills. This research has informed the efforts of the Texas Reading Initiative's strategy to develop the capacity of elementary schools to teach reading more effectively in the early grades—especially in those schools with many children who are academically at risk. The initiative's efforts center on teacher professional development.

Phyllis Hunter is a consultant to the Texas Reading Initiative. She also had worked for several years as reading manager for the Houston Independent School District (HISD). Rodney Paige, then superintendent of HISD, had placed her in charge of the reading programs of 185 schools serving 225,000 students. She reported that her work in Houston taught her that caring and knowledgeable teachers are indispensable for effective reading instruction.

Referring to the statewide Texas Reading Initiative, Hunter stated: "[In 1999] Teacher Reading Academies trained 20,000 teachers. They were trained by the State of Texas—not the university, but the State of Texas—

for four days on what we think is critical to kindergarten reading, oral language development, print awareness, scaffolding expansion. . . . [In 2000] we are training all of our 1st grade teachers for five days—four days in class and one follow-up day."

Hunter noted that the follow-up training provided to teachers at their own schools is supported by several major grants to the state from the business community, and that there are other components to the reading initiative that are supported by multiple sources. One of these programs provides an incentive of $7,000 for teachers to acquire specific skills needed to be designated as a master reading teacher in a Title I school. "We are aiming to put an expert reading teacher in every school in Texas." Hunter and Foorman emphasized that the Texas program is a rare example of a research-based professional development program that has been scaled up for implementation statewide. It is supported by the state government, the private sector, and the policies of school districts statewide.

In Chapter 3, Catherine Snow noted that early reading is one of several areas in education in which the research base is strong enough that it can be expected to provide a solid foundation for improving students' reading skills if properly implemented. The Texas Reading Initiative is providing teachers with that information as well as various forms of technical assistance to help teachers to use it effectively.

"SWEATING THE DETAILS"

Robert Slavin, chairman of the Success for All Foundation and codirector of Johns Hopkins University's Center for the Social Organization of Schools, observed in his conference presentation:

> Any intelligent educator or policy maker is fully aware that to make a serious difference in student achievement, you need better curricula, better instruction, better professional development, better parent involvement, and you need better services for children at risk. You need to sweat the details. Yet policy makers, even those who are aware that this is how change must take place at the school level, don't know how to bring about school-by-school changes on a large enough scale to matter.

Slavin's message about "sweating the details" and finding ways to bring about school change on a large scale is strikingly similar to comments made by Samuel Stringfield. Success for All, the most widely disseminated whole-school reform model, is comprehensive in scope, highly scripted, and specifically designed to "sweat the details." Success for All began in a single, high-poverty, inner-city school in Baltimore in 1987. By 2000, approximately 1,800 elementary schools serving 1 million children

in 48 states were implementing Success for All. Approximately two-thirds of the students were black or Hispanic, and the great majority of the sites were high-poverty schools supported by federal Title I funds.

The primary focus of Success for All is reading, writing, and language arts. (A complementary program that adds support for mathematics instruction is called Roots and Wings.) The program provides schools with curriculum materials, instructional strategies, and extensive teacher professional development and follow-up training. It also includes one-on-one tutoring for young children who are struggling to read, as well as parent involvement programs. The various components are research-based and designed to maximize the probability that they could be reliably replicated. Slavin pointed out that from the mid-1980s onward, reading instruction has focused on the systematic development of phonics in the context of meaningful text. Slavin noted that this approach is consistent with the consensus opinion of researchers that was to emerge years later (National Research Council, 1998b).

To maximize the probability that Success For All could be replicated, Slavin stated that he chose to emphasize an engineering approach, favoring strategies that could be reliably implemented rather than more cutting-edge approaches. Noting that he considers Success For All to be an exercise in large-scale social change, he added:

> We could design better programs than Success for All, but they would only work in about one or two schools that we know about. We are trying to design something that will "fly" in a broad range of schools. [We wanted to design a program] that is practical to implement *now* in schools that are hurting, in schools that are under accountability threat, and in schools that are not under accountability threat but where they know that they are not achieving the kinds of gains for their children that they know they are capable of attaining—particularly for their children in poverty.

A major objective is to help ensure that children get off to a good start in school. Slavin noted that deficits that emerge in the early grades tend to persist as students progress through the educational continuum:

> [Success For All] really began with the observation that children are not that different from one another in preschool or kindergarten in obviously discernable ways. But even by the end of 1st grade, much less by the end of 3rd grade, you wind up with kids who are in special education and other kids who are well on a path toward substantial success. It's very difficult to change things once those trajectories have been established.

Slavin noted that although implementing Success for All increases per-pupil costs in the elementary grades, he argued that the program is

cost-effective if it is well implemented and succeeds in accomplishing its goals—especially the goal of keeping students out of special education. (According to Slavin, the additional cost of implementing Success for All is approximately $500 per pupil in the first year and about $200 per child thereafter.) He noted that a large percentage of students enter special education on the basis of poor reading skills.

The collection and monitoring of achievement data are integral to the Success For All model. Slavin, in collaboration with various researchers, has used these data as the basis for a variety of publications documenting the performance of the program. Highlighting data for more than 60,000 students enrolled in 111 schools in Texas that had used the program between 1994 and 1997, he reported that students in the program outperformed other students on the state-mandated Texas Assessment of Academic Skills (TAAS) (Hurley et al., 2000). Commenting on this and other evaluations of Success For All, Slavin noted that "there is a great deal of variation in outcomes, depending on the degree to which the program is actually implemented. I think every program on earth has that phenomenon. But even if you average across good implementers and poor implementers, you will find in study after study after study that students in Success for All schools learn more than do students in matched control schools." Other studies describing the design and performance of Success for All can be found at <www.successforall.net>

While emphasizing the importance of teacher professional development in Success for All, Slavin offered that the program outcomes, as with other reform models, vary depending upon teachers' skills and commitment:

> If you are serious about school reform, you have to design something that a 10th percentile teacher can do, and you've got to be clear in your mind that that's what you are doing, that you are setting a floor under what you expect. You have to be able to work with the teachers who are not the very best teachers, or not even the average teachers, and have them become adequate teachers. . . . If you have an outstanding teacher, they can make externally developed programs [like Success for All] "sing." An ordinary teacher can just implement it and still get better results with their kids.

Bertha Rubio, principal of Crockett Elementary School in San Antonio, Texas, discussed how Success for All was being implemented at her school. She described Crockett's 894 students as 96 percent Hispanic, 46 percent limited-English-proficient, and 96 percent economically disadvantaged. Prior to adopting Success for All in the 1997-1998 school year, 65 percent of Crockett's 3rd and 5th graders were passing the Texas Assessment of Academic Skills (TAAS) reading exam. She noted that the

TAAS, as a state-mandated criterion-referenced exam, is an important factor driving policies and practices for Crockett and all other schools throughout the state.

Its 65 percent pass rate earned for Crockett an "acceptable" rating from the state, and thus Principal Rubio was not worried about being placed on the list of low-performing schools. She was motivated to adopt Success for All by her desire to further improve Crockett's TAAS scores. She set a goal of increasing the school's pass rate from 65 to 80 percent after one year of the program, and then to 90 percent after three years. A pass rate of 80 percent would move Crockett from the "acceptable" category to being a "recognized" school; a 90 percent pass rate would earn Crockett an "exemplary" rating. However, of more fundamental importance to Rubio than ratings was her strong desire to improve the skills of the 35 percent of Crocket students whose reading was so poor that they could not pass the exam.

Under the leadership of then-superintendent Diana Lam, San Antonio elementary schools were required to choose and implement one of several nationally disseminated whole-school reform programs. In consultation with her staff of 100, Rubio chose Success for All. Among the most important reasons she cited was that it is research-based and had been shown to be effective. Also, the program includes assessments every eight weeks to track students' progress, a strong family support component, tutoring for those students who need it, and—most importantly for Rubio—program materials in both Spanish and English.

Rubio reported that after the first year of implementation, the TAAS pass rate increased from 65 to 71 percent and remained at 71 percent after year 2. At the end of the third year, the pass rate for 3rd and 5th graders on the TAAS reading exam jumped from 71 percent to 83 percent. The most dramatic gains were registered by students who participated in the program for three consecutive years and by students with limited English proficiency. Because of a high rate of geographic mobility among neighborhood residents, many children transfer in and out of Crockett Elementary School each year and therefore did not receive continuous instruction under the program. The pass rate for the latter group increased from 47 to 74 percent in three years.

Rubio attributed Crockett's success to the quality of training provided by Success for All program staff, her faculty's strong commitment to implement the model, and to parental support and involvement:

> That first year, [Success For All] trained us over the summer. All of our teachers gave up some of their summer vacation, without complaining, to go. We also had implementation visits throughout the school year from the consultants from Success for All. We have ongoing profession-

> al development where we remind staff of the need to implement the program with integrity. Family support has been very good. . . . We have very strong parental involvement.

BAKED APPLE VERSUS CHOCOLATE SOUFFLÉ

Conference co-moderator Catherine Snow used a confectionary metaphor to contrast the underlying principles of different approaches to school reform:

> Pat Graham talks about it as the baked apple versus chocolate soufflé problem. There are reform efforts that are like baked apples. If you undercook a baked apple, it is still edible. It's a pretty good, solid dessert. Even if you are not a gourmet cook, you can generate it, and feed it to people, and expect that they will eat it.

Success for All and the general philosophy of reform described by Samuel Stringfield could be thought of as being of the baked apple variety. Snow continued the metaphor, describing the chocolate soufflé:

> If it fails, it's a disaster. But if it works well, it can be quite wonderful …and that is what some of the "high end" reforms are going for. It is accountability talk, thinking curriculum, starting from learning principles, rather than starting from classroom practices.

Snow suggested that the Pittsburgh mathematics reform initiative, described at the conference by Diane Briars and Brian Lord, might be considered a chocolate soufflé-type reform, as is the reform strategy developed by Lauren Resnick, director of the University of Pittsburgh's Institute for Learning.

CREATING SCHOOL ENVIRONMENTS THAT FOSTER LEARNING AND INTELLIGENCE

Diana Lam, superintendent of the Providence, Rhode Island, Public Schools, agreed that the approach to reform that she and Lauren Resnick were currently pursuing was of the chocolate soufflé variety. Rather than choosing to implement different whole-school reform models in different schools, Superintendent Lam set out to work systematically with all of the schools in Providence. Her goal was to transform commonly heard rhetoric, like "all children can learn," "closing the gaps," and "achieving high standards for all," into reality—a distinctly uncommon reality, particularly in school districts like Providence.

Lam noted that when she arrived in Providence in fall 1999, she knew that she had her work cut out for her. Attendance was very poor, and only

60 percent of students were graduating from high school; 75 percent of Providence students are from low-income families, more than one-third are immigrants who arrived in the United States within the past three years, and more than 7,000 of the district's 26,000 students change addresses within the city each year. A total of 50 percent of Providence students are Hispanic, 22 percent are black, 10 percent are Asian, and 18 percent are non-Hispanic white.

For Lam, the key to improving learning outcomes is to change the quality of teacher-student interaction. With support from Resnick's Institute for Learning, Lam implemented a change strategy in which she, as superintendent, taught Resnick's basic philosophy and principles of learning to the principals, who in turn were expected to teach their teachers, who would put the information into practice as they worked with their students. She referred to this strategy as creating "nested learning communities." Elaborating on this idea, Resnick asked the conference audience to "think of those dolls from Eastern Europe that nest inside one another. I don't know which is more important, the little one, the center one, or the one on the outside. The important thing is that they do fit together. They are going in the same direction, they have the same general shape, and are kind of accountable to each other because they have to fit inside each other." Those being taught are held accountable for learning, but those responsible for teaching also are held accountable. Accountability is key, whether it is teachers working with students, principals working with teachers, or the superintendent working with the principals—learners are held accountable only for what they are taught.

Rather than adopt a relatively scripted reform package like Success for All, Lam chose to pursue reform in Providence based on Lauren Resnick's more general philosophy and principles of learning. Referring to her previous work as superintendent of the San Antonio Independent School District she recalled that a major focus of her work in Texas was to oversee the widespread implementation of Success for All and other New American Schools reform models (Berends et al., 2001). Comparing that with her rather different focus in Providence, she felt compelled to add "I do like baked apples—just for the record—but I also like chocolate soufflé!"

Principles of Learning

Central to Resnick's principles of learning is the premise that the kinds of higher-order thinking and problem-solving skills associated with higher intelligence can be routinely elicited by the environments in which people live and, more to the point, the environments in which children

learn. Thus for Resnick, aptitude (or intelligence) is not something that is primarily determined by one's genes or whose parameters are set in early childhood:

> Although perhaps intelligence cannot be taught, it can be socialized—in the sense that children are socialized into a belief about who they are. These beliefs carry with them patterns of behavior, some of which are very productive, some of which are less productive.

As a basis for her position, Resnick cited 30 years worth of converging evidence from brain research, social psychology, and cognitive science (National Research Council, 1987; Greeno et al., 1996; Resnick, 1998):

> That we, as educators, can create intelligence in academic settings is a hypothesis, but it is one that is well grounded in research. The only way to test it is to raise children in these kinds of productive environments, and that means that we have to go out and create them. We have had individual schools over the decades that have been pretty good at creating environments like that. They have, unfortunately, mostly been in private schools or in (scattered) public schools that have not fully participated in the life of the school district surrounding them. The challenge we are taking on now is to figure out how to build whole school systems that will socialize intelligence through the instructional environments that they build.

The first principle of learning that Resnick and Lam are using to guide them as they work to construct learning environments that will socialize intelligence is to require:

> academic rigor inside a thinking curriculum. That means that you can't teach thinking or socialize the skills of intelligence in the absence of solid, solid, demanding, academic content. That's one of the great findings of 30 years of cognitive science. Generalized skills aren't as general as we once thought. You can't think well about what you don't know, and therefore you can't teach thinking first, and then later learn some facts.
>
> Unfortunately, the opposite also is true. If you try to teach or learn factual material without thinking—without making it active instead of inert—you can't get anywhere. That was one of the very earliest findings of cognitive research—that simple memorization tasks required active meta-cognitive work.

The second principle of learning is accountability talk. Having a thinking curriculum requires lots of talk—talk among the students and between the students and teacher. But as Resnick put it, "It is not just any old kind of talk. It has to be talk that is accountable—accountable to the community in the sense of building on what others have said and using

each other's ideas. There also must be accountability to knowledge." That means that "you are supposed to say what is true, and you expect your talking partners to say what is true. It's not ok to say any old thing. You challenge each other, and you push back."

Accountability talk also requires accountability to good reasoning. As Resnick noted, cognitive scientists have found that people have a basic capacity for good reasoning but also that it can be lost if not routinely practiced. Resnick added, however, that good reasoning skills can be rebuilt in social environments that routinely require good reasoning. The other principles of learning are:

- Clear expectations,
- Fair and credible evaluations,
- Learning as apprenticeship,
- Organizing for effort,
- Recognition of accomplishment,
- Socializing intelligence, and
- Self-management of learning.

For a more complete discussion of Resnick's principles of learning, see Resnick (1998) and also <www.instituteforlearning.org>.

After one year of working to reform the Providence public schools in accordance with Resnick's principles of learning, Superintendent Lam reported great enthusiasm for these ideas from the school system's administrators and teachers. Although she did not report any changes in quantitative measures of student learning at this early juncture, frequent classroom visits have convinced her that the principles of learning were quickly finding their way into the classroom:

> I don't think I can overemphasize how countercultural and important these principles are. This simply is not how much of our society views what young people can and should do. The principles of learning place on all of us a responsibility to think, to transform our own circumstances, to construct our own work and workplace. This is the heart of the principles and a good illustration of how the nested learning communities provide a structure in which the principles of learning guide the agenda of the [nested] groups.

References

Adams, G.L., and S. Englemann
1996 *Research on Direct Instruction: 25 Years Beyond DISTAR*. Seattle: Educational Achievement Systems.

Adams, J.E.
1997 School finance policy and students' opportunities to learn: Kentucky's experience. *The Future of Children: Financing Schools* 7(3):97-95.

Aikin, W.M.
1942 *The Story of the Eight Year Study*. New York: Harper.

American Association for the Advancement of Science
1989 *Science for All Americans: A Project 2061 Report on Literacy Goals in Science, Mathematics and Technology*. Washington, DC: American Association for the Advancement of Science.

American Educational Research Association, American Psychological Association, and National Council on Measurement in Education
1999 *Standards for Educational and Psychological Testing*. Washington, DC: American Psychological Association.

Berends, M., S. Nataraj Kirby, S. Naftel, and C. McKelvey
2001 *Implementation and Performance in New American Schools: Three Years into Scale-Up*. Santa Monica, CA: RAND.

Berliner, D.C., and B.J. Biddle
1995 *The Manufactured Crisis*. Reading, MA: Addison-Wesley.

Berman, P., and M. McLaughlin
1977 Federal Programs Supporting Educational Change: Volume VII. Factors Affecting Implementation and Continuation. Santa Monica, CA: RAND.

Blank, R.M.
2001 An overview of trends in social and economic well-being, by race. In *America Becoming: Racial Trends and Their Consequences, Volume I*, N.J. Smelser, W.J. Wilson, and F. Mitchell, eds. Washington, DC: National Academy Press.

Bloom, B.
1976 *Human Characteristics and School Learning.* New York: McGraw-Hill Book Company.

Boesel, D., N. Alsalam, T.M. Smith
1998 *Educational and Labor Market Performance of GED Recipients: Research Synthesis, NLE-98-2023.* Washington, DC: Government Printing Office.

Borman, G.D., S. Stringfield, and L. Rachuba
2000 *Advancing Minority High Achievement: National Trends and Promising Programs and Practices.* New York: The College Board.

Boser, U.
2001 Pressure without support. In *Quality Counts, 2001*, V. Edwards, ed. Bethesda, MD: Editorial Projects in Education.

Bowen, W.G. and D. Bok
1998 *The Shape of the River: Long-Term Consequences of Considering Race in College and University Admissions.* Princeton: Princeton University Press.

Bourdieu, P.
1990 *Reproduction in Education, Society and Culture.* London: Sage.

Bransford, J.D., with Cognition and Technology Group at Vanderbilt
1998 Designing environments to reveal, support, and expand our children's potentials. Pp. 313-350 in *Perspectives on Fundamental Processes in Intellectual Functioning* (Vol. 1), S.A. Soraci and W. McIlvane, eds. Greenwich, CT: Ablex.

Bridges, E.
1986 *The Incompetent Teacher.* Philadelphia: Falmer.

Brophy, J.
1988 Research on teacher effects: Uses and abuses. *Elementary School Journal* 89(1):3-22.

Campbell, F.A., and C.T. Ramey
1994 Effects of early intervention on intellectual and academic achievement: A follow-up study of children from low income families. *Child Development* 65:684-698.

Clinton, W.J.
2000 Economic Report of the President Together with the Report of the Council of Economic Advisers. Transmitted to Congress February 2000. Washington, DC: U.S. Government Printing Office.

Cohen, D.K., and D. Loewenberg Ball
1999 Instruction, Capacity, and Improvement. CPRE Research Report Series RR-43. Philadelphia: Consortium for Policy Research in Education, Graduate School of Education, University of Pennsylvania.

Cohen, D.K, and J.P. Spillane
1993 Policy and practice: The relations between governance and instruction. In *Designing Coherent Educational Policy*, Susan Fuhrman, ed. San Francisco: Jossey-Bass.

Cohen, D.K., S.W. Raudenbush, and D.L. Ball
2001 Resources, instruction and research. In *Evidence Matters: Randomized trials in education research*, F. Mosteller and R. Boruch, eds. Washington, DC: Brookings.

Coleman, J.S.
1987 Families and schools. *Educational Researcher* 16:35.

Coleman, J.S., et al.
1966 *Equality of Educational Opportunity.* Washington, DC: Office of Education.

The College Board
1998 *National Report on College Bound Seniors.* New York: The College Entrance Examination Board.
1999 *Reaching the Top: Report of the National Task Force on Minority High Achievement.* New York: The College Board.

Comer, J.P.
1980 *School Power: Implications of an Intervention Project.* New York: The Free Press.
1989 Educating Poor Minority Children. *Scientific American* (November).
Cook, P., and J. Ludwig
1998 The burden of "acting white": Do black adolescents disparage academic achievement? In *The Black-White Test Score Gap*, C. Jencks and M. Phillips, eds. Washington, DC: Brookings Institution Press.
Council of Economic Advisers
2000 Annual report of the Council of Economic Advisers. In *Economic Report of the President Together with the Report of the Council of Economic Advisers,* transmitted to Congress, February 2000. Washington, DC: U.S. Government Printing Office.
Crandall, D.P., and S.F. Loucks
1983 *A Roadmap for School Improvement: Executive Summary of the Study of Dissemination Efforts Supporting School Improvement.* Andover, MA: The NETWORK.
Crocker, J., and B. Major
1989 Social stigma and self-esteem: The self-protective properties of stigma. *Psychological Review* 96:608-630.
Cuban, L.
1993 *How Teachers Taught: Constancy and Change in American Classrooms, 1890-1980.* New York: Teachers College Press.
Curran, B.
1999 *Focusing on Results: Toward an Education Accountability System.* Washington, DC: National Governors Association.
Dewey, J.
1916 *Democracy and Education.* New York: Macmillan.
DuBois, W.E.B.
1997 *The Autobiography of W.E.B. DuBois: A Soliloquy on Viewing My Life from the Last Decade of Its First Century.* New York: International Publishers.
Eccles, J., A. Wigfield and U. Schiefele
1997 Motivation to succeed. In *Handbook of Child Psychology, 5th ed., Vol. IV*. New York: John Wiley & Sons.
Edelman, M.W.
2001 Statement on Usage of Leave No Child Behind®. Available at <campaign.childrensdefense.org>. Accessed June 13, 2001.
Edmunds, R.
1979 Some schools work and more can. *Social Policy* 9:28-32.
Edwards, V.B.
2001 *Quality Counts, 2001.* Bethesda, MD: Editorial Projects in Education.
Ferguson, R.F.
1998 Teachers' perceptions and expectations and the black-white test score gap. In *The Black-White Test Score Gap*, C.S. Jencks and M. Phillips, eds. Washington, D.C.: Brookings.
2001 Test score trends along racial lines: 1971-1996. Popular culture and community academic standards. Pp. 348-390 in *America Becoming: Racial Trends and Their Consequences, Volume 1*, N.J. Smelser, W.J. Wilson, F. Mitchell, eds. Division of Behavioral and Social Sciences and Education. Washington, DC: National Academy Press.

Ferguson, R.F., with J. Brown
2000 Certification test scores, teacher quality and student achievement. In *Analytic Issues in the Assessment of Student Achievement*, National Center for Education Statistics, NCES 2000-050, David W. Grissmer and Michael J. Ross, eds. Washington, DC: U.S. Department of Education.

Fischel, W.A.
1989 Did Serrano cause Proposition 13? *National Tax Journal* 465.

Foorman, B.R, D.J. Francis, J.M. Fletcher, C. Schatschneider, and P. Mehta
1998 The role of instruction in learning to read: Preventing reading failure in at-risk children. *Journal of Educational Psychology* 90:37-55.

Foorman, B.R., D.J. Francis, S.E. Shaywitz, B.A. Shaywitz, and J.M. Fletcher
1997 The case for early reading intervention. *Foundations of Reading Acquisition and Dyslexia: Implications for Early Intervention.* B.A. Blachman, ed. Mahwah, NJ: Erlbaum.

Fordham, S., and J.U. Ogbu
1986 Black students' school success: Coping with the burden of acting white. *The Urban Review* 18(3):173-206.

Gándara, P.
1999 *Priming the Pump: Strategies for Increasing the Achievement of Underrepresented Minority Undergraduates.* New York: The College Board.

Garcia, E.
1999 *Understanding and Meeting the Challenge of Student Diversity.* Boston: Houghton Mifflin.

Garibaldi, A.M.
1997 Four decades of progress…and decline: An assessment of African American educational attainment. *Journal of Negro Education* 66(2):105-119.

Gordon, E.W., and C. Bonilla-Bowman
1994 Equity and social justice in achievement. Pp. 24-44 in *Outcome Equity in Education*, Robert Berne and Larry Picus, eds. *Annual Yearbook of the American Educational Finance Association, 15th Edition.* Thousand Oaks, CA: Corwin Press.

Gordon, E.W., and S. Shipman
1979 Human diversity, pedagogy, and educational equity. *American Psychologist* 34(10): 1030-1036.

Greeno, J.G., A.M. Collins, and L.B. Resnick
1996 Cognition and learning. Pp 15-46 in *Handbook of Educational Psychology*, D.C. Berliner and R.C. Calfee, eds. New York: Prentice Hall International.

Grissmer, D., and A. Flanagan
2000 Making Title I more effective: Lessons from recent research. In *Hard Work for Good Schools: Facts Not Fads in Title I Reform*, Gary Orfield, ed. Cambridge, MA: Harvard Civil Rights Project.

Grissmer, D., A. Flanagan, and S. Williamson
1997 Does money matter for minority and disadvantaged students? Assessing the new empirical evidence. In *Developments in School Finance: Fiscal Proceedings from the 1997 State Data Conference/National Center for Education Statistics.* Washington, DC: U.S. Department of Education.
1998 Why did the black-white test score gap narrow in the 1970s and the 1980s? Pp. 182-226 in *The Black-White Test Score Gap*, C. Jencks and M. Phillips, eds. Washington, DC: Brookings Institution Press.

Hafner, A., S. Ingals, B. Schneider, and D. Stevenson
1990 *A Profile of the American Eighth Grader: NELS 88 Student Descriptive Summary, National Education Longitudinal Study of 1988.* National Center for Educational Statistics. Washington, DC: U.S. Department of Education, U.S. Government Printing Office.

Hakuta, K.
1998 Improving Education for All Children: Meeting the Needs of Language Minority Children. Available at: <www.stanford.edu/~hakuta/Aspen.html>. Accessed August 3, 2001.

Hanushek, E.
1994 *Making Schools Work: Improving Performance and Controlling Costs.* Washington, DC: Brookings Institution Press.
1997 Assessing the effects of school resources on school performance: An update. *Educational Evaluation and Policy Analysis* 19(2):141-164.

Herman, R., D. Aladjem, P. McMahon, E. Masem, et al.
1999 *An Educator's Guide to Schoolwide Reform.* Washington, DC: American Institute for Research.

Hill, H., D.K. Cohen, and S.L. Moffitt
2000 Instruction, poverty and performance. In *Hard Work for Good Schools: Facts Not Fads in Title I Reform*, G. Orfield, ed. Cambridge, MA: Harvard Civil Rights Project.

Hopfenberg, W.S., H.M. Levin, and C. Chase
1993 *The Accelerated Schools Resource Guide.* San Francisco: Jossey-Bass Education.

Hurley, E., A. Chamberlain, R.E. Slavin, and N.A. Madden
2000 *Effects of Success for All on TAAS Reading: A Texas Statewide Evaluation.* Baltimore: Success for All Foundation.

Jencks, C.S., and S.E. Mayer
1990 The social consequences of growing up in poor neighborhoods. Pp. 111-186 in *Inner-City Poverty in the United States*, L. Lynn and M. McGreary, eds. Washington, DC: National Academy Press.

Jencks, C.S., and M. Phillips, eds.
1998 *The Black-White Test Score Gap.* Washington, DC: Brookings Institution Press.

Koretz, D.
1988 Educational practices, trends in achievement, and the potential of the reform movement. *Educational Administration Quarterly* 24(3):350-359.

Kozol, J.
1991 *Savage Inequalities.* New York: Harper Collins Publishers.

Kurlander, M., J. Yun, and G. Orfield
2000 *Is Diversity a Compelling Educational Interest? Evidence from Metropolitan Louisville.* Cambridge, MA: Harvard Civil Rights Project.

LaPorte, T., and P. Consolini
1991 Working in practice but not in theory: Theoretical challenges of high-reliability organizations. *Journal of Public Administration Research and Theory* 1(1):11-16.

Lewin, K.
1967 *Field Theory in Social Science: Selected Theoretical Papers.* London: Tavistock Publications.

McLaughlin, M.
1990 The RAND Change Agent Study revisited: Macro perspectives and micro realities. *Educational Researcher* 19(9):11-16.

Miller, L.S.
1995 *An American Imperative: Accelerating Minority Educational Achievement.* New Haven: Yale University Press.

2001 Addressing the Minority High Achievement and Minority-Majority Within-Class Achievement Gap Issues. Unpublished paper prepared for the National Academies in association with the Millennium Conference.

Millman, J., and L. Darling-Hammond, eds.
1990 *The New Handbook of Teacher Evaluation.* Beverly Hills, CA: Sage.

Moll, L., J. Tapia, and K.F. Whitmore
1993 Living knowledge: The social distribution of cultural sources for thinking. Pp. 139-163 in *Distributed Cognitions*, G. Soloman, ed. Cambridge, UK: Cambridge University Press.

Moses, R.P., and C.E. Cobb, Jr.
2001 *Radical Equations–Organizing Math Literacy and Civil Rights.* Boston: Beacon Press.

Myrdal, G.
1944 *An American Dilemma.* New York: Harper and Row.

National Academy of Education
1999 *Recommendations Regarding Research Priorities: An Advisory Report to the National Educational Research Policy and Priorities Board.* New York: National Academy of Education.

National Assessment Governing Board
1997 *Science Performance Standards: Achievement Results for the Nation and the States.* Washington, DC: National Assessment Governing Board.
2000 *Reading Framework for the National Assessment of Education Progress: 1992-2000.* Washington, DC: National Assessment Governing Board.

National Center for Education Statistics
1996 *National Education Longitudinal Study: 1988-1994: Descriptive Summary Report with an Essay on Access and Choice in Postsecondary Education.* NCES 96-175. Washington, DC: U.S. Department of Education.
1997 *NAEP 1996 Mathematics Report Card for the Nation and the States.* Washington, DC: U.S. Department of Education.
1999a *NAEP 1998 Reading Report Card for the Nation and the States.* Washington, DC: U.S. Department of Education.
1999b *Highlights from TIMMS: Overview and Key Findings Across Grade Levels*. NCES 1999-081. Washington, DC: National Center for Education Statistics.

National Commission on Excellence in Education
1983 *A Nation at Risk.* Washington, DC: U.S. Department of Education.

National Council of Teachers of Mathematics
2000 *Principles and Standards for School Mathematics.* Reston, VA: National Council of Teachers of Mathematics.

National Education Research Policy and Priorities Board
1999 *Investing in Learning: A Policy Statement with Recommendations on Research in Education by the National Research Policy and Priorities Board.* Washington, DC: U.S. Department of Education.

National Research Council
1987 *Education and Learning to Think.* Committee on Research in Mathematics, Science and Technology Education, L.B. Resnick, ed. Commission on Behavioral and Social Sciences and Education. Washington, DC: National Academy Press.
1989 *A Common Destiny: Blacks in American Society.* Committee on the Status of Black Americans, G.D. Jaynes and R.M. Williams, eds. Commission on Behavioral and Social Sciences and Education. Washington, DC: National Academy Press.
1996 *National Science Education Standards.* Washington, DC: National Academy Press.

1997a *Improving Schooling for Language Minority Children: A Research Agenda.* Committee on Developing a Research Agenda on the Education of Limited English Proficient and Bilingual Students, D. August and K. Hakuta, eds. Commission on Behavioral and Social Sciences and Education. Washington, DC: National Academy Press.

1997b *Learning from TIMSS: Results of the Third International Mathematics and Science Study, Summary of a Symposium.* Committee on Science Education, K-12, A. Beatty, ed. Commission on Behavioral and Social Sciences and Education. Washington, DC: National Academy Press.

1998a *How People Learn: Brain, Mind, Experience and School.* Committee on Developments in the Science of Learning, J.D. Bransford, A.L. Brown, and R.R. Cocking, eds. Commission on Behavioral and Social Sciences and Education. Washington, DC: National Academy Press.

1998b *Preventing Reading Difficulties in Young Children.* Committee on the Prevention of Reading Difficulties in Young Children, C.E. Snow, M.S. Burns, and P. Griffin, eds. Commission on Behavioral and Social Sciences and Education. Washington, DC: National Academy Press.

1998c *Educating Language Minority Children.* Committee on Developing a Research Agenda on the Education of Limited-English Proficient and Bilingual Students, D. August and K. Hakuta, eds. Commission on Behavioral and Social Sciences and Education. Washington, DC: National Academy Press.

1998d *Grading the Nation's Report Card: Evaluating NAEP and Transforming the Assessment of Educational Progress.* Committee on the Evaluation of National and State Assessments of Education Progress, J.W. Pellegrino, L.R. Jones, and K.J. Mitchell, eds. Commission on Behavioral and Social Sciences and Education. Washington, DC: National Academy Press.

1999a *How People Learn: Bridging Research and Practice.* Committee on Developments in the Science of Learning, M.S. Donovan, J.D. Bransford, and J.W. Pellegrino, eds. Commission on Behavioral and Social Sciences and Education. Washington, DC: National Academy Press.

1999b *Starting Out Right: A Guide to Promoting Children's Reading Success.* Committee on the Prevention of Reading Difficulties in Young Children, M.S. Burns, P. Griffin, and C.E. Snow, eds. Commission on Behavioral and Social Sciences and Education. Washington, DC: National Academy Press.

1999c *High Stakes: Testing for Tracking, Promotion and Graduation.* Committee on Appropriate Test Use, J.P. Heubert and R.M. Hauser, eds. Commission on Behavioral and Social Sciences and Education. Washington, DC: National Academy Press.

1999d *Improving Student Learning: A Strategic Plan for Education Research and Its Utilization.* Committee on a Feasibility Study for a Strategic Education Research Program, Commission on Behavioral and Social Sciences and Education. Washington, DC: National Academy Press

1999e *Making Money Matter: Financing America's Schools.* Committee on Education Finance, H.F. Ladd and J.S. Hansen, eds. Commission on Behavioral and Social Sciences and Education. Washington, DC: National Academy Press.

1999f *Teaching, Testing and Learning: A Guide for States and School Districts*, Committee on Title I Testing and Assessment. Richard F. Elmore and Robert Rothman, eds. Commission on Behavioral and Social Sciences and Education. Washington, DC: National Academy Press.

2000a *How People Learn: Brain, Mind, Experience and School - Expanded Edition.* Committee on Developments in the Science of Learning, J.D. Bransford, A.L. Brown, and R.R. Cocking, eds. Commission on Behavioral and Social Sciences and Education. Washington, DC: National Academy Press.

2000b *Early Childhood Intervention: Views from the Field: Report of a Workshop.* Committee on Integrating the Science of Early Childhood Development, J.P. Shonkoff, D.A. Phillips, and B. Keilty, eds. Commission on Behavioral and Social Sciences and Education. Washington, DC: National Academy Press.

2000c *From Neurons to Neighborhoods: The Science of Early Childhood Development.* Committee on Integrating the Science of Early Childhood Development, J.P. Shonkoff, and D.A. Phillips, eds. Commission on Behavioral and Social Sciences and Education. Washington, DC: National Academy Press.

2000d *Letter Report to the Office for Civil Rights.* Department of Education, Board on Testing and Assessment, Commission on Behavioral and Social Sciences and Education. Washington, DC Available at <http://www.nap.edu/books/NI000224/html>. Accessed June 14, 2001.

2001a *America Becoming: Racial Trends and Their Consequences. Volumes I and II.* N.J. Smelser, W.J. Wilson, and F. Mitchell, eds. Commission on Behavioral and Social Sciences and Education. Washington, DC: National Academy Press.

2001b *Eager to Learn: Educating Our Preschoolers.* Committee on Early Childhood Pedagogy, B.T. Bowman, M.S. Donovan, and M.S. Burns, eds. Division of Behavioral and Social Sciences and Education. Washington, DC: National Academy Press.

2001c *Understanding Dropouts: Statistics, Strategies, and High-Stakes Testing.* Committee on Educational Excellence and Testing Equity. Alexandra Beatty, Ulric Neisser, William T. Trent, and Jay P. Heubert, eds. Board on Testing and Assessment, Division of Behavioral and Social Sciences and Education. Washington, DC: National Academy Press.

Nettles, M.T.

1997 *The African-American Education Data Book, Volume II: Preschool through High School Education.* Frederick D. Patterson Research Institute of the College Fund/UNCF, Fairfax, VA.

Northwest Regional Education Laboratory

1999 *Catalogue of School Reform Models.* Portland, Oregon: Northwest Regional Education Laboratory. Also www.nwrl.org/scpd/natspec/catalog/index.html.

O'Day, J.A., and M.S. Smith

1993 Systemic reform and educational opportunity. In *Designing Coherent Educational Policy*, S. Fuhrman, ed. San Francisco: Jossey-Bass.

Ogbu, J.U.

1978 *Minority Education and Caste: The American System in Cross-Cultural Perspective.* New York: Academic Press.

Olson, L.

2001 Finding the right mix. In *Quality Counts, 2001*, V.B. Edwards, ed. *Education Week Annual Supplement*.

Orfield, G.

2000 Strengthening Title I: Designing a policy based on evidence. In *Hard Work for Good Schools: Facts Not Fads in Title I Reform*, G. Orfield, ed. Cambridge, MA: Harvard Civil Rights Project.

Orfield, G., and S. Eaton

1996 *Dismantling Desegregation: The Quiet Reversal of Brown v. Board of Education.* New York: The New Press.

Orfield, G., and J.T. Yun
1999 *Resegregation in American Schools.* Cambridge, MA: Harvard Civil Rights Project.

Orlofsky, G.F., and L. Olson
2001 The state of the states. Pp. 86-110 in *Quality Counts, 2001.* V.B. Edwards, ed. Bethesda, MD: Editorial Projects in Education.

Parrish, T.B.
1996a *Do Districts Enrolling High Percentages of Minority Students Spend Less?* Issue Brief, IB-2-96. Washington, DC: National Center for Education Statistics, U.S. Department of Education.
1996b *Do Rich and Poor Districts Spend Alike?* Issue Brief, IB-1-96. Washington, DC: National Center for Education Statistics, U.S. Department of Education.

Phillips, M.
2000 Understanding ethnic differences in academic achievement. In *Analytic Issues in the Assessment of Student Achievement*, U.S. Department of Education. National Center for Education Statistics, NCES 2000-050, D.W. Grissmer and M.J. Ross, eds. Washington, DC.

Phillips, M., J. Brooks-Gunn, G.J. Duncan, and J. Crane
1998a Family background, parenting practices and the black-white test score gap. In *The Black-White Test Score Gap*, C.S. Jencks and M. Phillips, eds. Washington, DC: Brookings Institution Press.

Phillips, M., J. Crouse, and J. Ralph
1998b Does the black-white test score gap widen after children enter school? In *The Black-White Test Score Gap*, C.S. Jencks and M. Phillips, eds. Washington, DC: Brookings Institution Press.

Piaget, J.
1978 *Success and Understanding.* Cambridge, MA: Harvard University Press.

Portes, A., and M. Zhou
1993 The second generation: Segmented assimilation and its variants among post-1965 immigrant youth. *Annals of American Academy of Political and Social Science* 530:74-98.

Ramey, C.T., and S. Landesman Ramey
1998a Early intervention and early experience. *American Psychologist* 58:109-120.
1998b Prevention of intellectual disabilities: Early interventions to improve cognitive development. *Preventive Medicine* 27:224-232.

Ramey, C.T., D.M. Bryand, and T.M. Suarez
1985 Preschool compensatory education and the modifiability of intelligence: A critical review. Pp. 247-296 in *Current Topics in Human Intelligence*, D. Detterman, ed. Norwood, NJ: Ablex.

Ready, T.
1991a *Latino Immigrant Youth: Passages from Adolescence to Adulthood.* New York: Garland Publishing.
1991b School and the passage of refuge youth from adolescence to adulthood. Pp. 181-200 in *Refugee Children: Theory, Research and Services*, F.L. Ahearn Jr. and J.L. Athey, eds. Baltimore, MD: Johns Hopkins University Press.

Ready, T., and H.W. Nickens
1991 Black men in the medical education pipeline: Past, present and future. *Academic Medicine* 66(4):181-187.

Resnick, L.B.
1998 Socializing intelligences. In *Piaget, Vygotsky and Beyond: Future Issues for Developmental Psychology and Education*. L. Smith, J. Dockress and P. Tomlinson, eds. London: Oxford University Press.

Rogoff, B.
1990 *Apprenticeship in Thinking: Cognitive Development in Social Context.* New York: Oxford University Press.

Ross, S., L. Wang, W. Sanders, and S. Stringfield
1999 *Two-and-Three Year Achievement Results on the Tennessee Value-Added Assessment System for Restructuring Schools in Memphis.* Arlington, VA: Educational Research Service.

Ryan, J.
1999 Schools, race and money. *Yale Law Journal* 109:249-316.

Schofield, J.W.
1995 Review of research on school desegregation's impact on elementary and secondary school students. Pp. 597-616 in *Handbook of Research on Multicultural Education*. J.A. Banks and C.A. McGee, eds. New York: Macmillan Publishing.

Schellenberg, S.J.
2000 Concentration of poverty and the ongoing need for Title I. In *Hard Work for Good Schools: Facts Not Fads in Title I Reform*, G. Orfield, ed. Cambridge, MA: Harvard Civil Rights Project.

Schultz, T.
1960 Capital formation by education. *Journal of Political Economy* 68:571, 572.

Senge, P.
1990 *The Fifth Discipline: The Art and Practice of the Learning Organization.* New York: Doubleday/Currency.

Shaw, D.E. (chair)
1997 Report to the President on the Use of Technology to Strengthen K-12 Education in the United States. Washington, DC: President's Committee of Advisers on Science and Technology.

Simon, H.A.
1996 *The Sciences of the Artificial.* Cambridge, MA: MIT Press.

Slavin, R.E., N.L. Karweit, B.A. Wasik, N.A. Madden and L.J. Dolan
1994 Success for All: A comprehensive approach to prevention and early intervention. Pp.175-205 in *Preventing Early School Failure*, R.E. Slavin, N.L. Karweit and B.A. Wasik, eds. Boston: Allyn and Bacon.

Smith, M.S.
2000 Assessment trends in a contemporary policy context. In *Analytic Issues in the Assessment of Student Achievement*, D.W. Grissmer and M.J. Ross, eds. National Center for Education Statistics, NCES 2000-050. Washington, DC: U.S. Department of Education.

Smith, M.S., and J.A. O'Day
1991 Educational equality: 1966 and now. In *Spheres of Justice in Education: The 1990 American Education Finance Association Yearbook*, D. Verstegen and J. Ward, eds. New York: Harper Business.
1993 Systemic reform and educational opportunity. In *Designing Coherent Education Policy*, S. Fuhrman (ed.). San Francisco: Jossey-Bass Publishers

Spindler, G., L. Spindler, with H. Trueba and M.D. Williams
1990 *The American Cultural Dialogue and Its Transmission.* Bristol, PA: Falmer Press.

Stallings, J., and D. Kaskowitz
1974 *Follow Through Classroom Observation Evaluation, 1972-1973 (SRI Project URU-7370).* Menlo Park, CA: Stanford Research Institute.

Steele, C.M.
1997 A threat in the air: How stereotypes shape intellectual identity and performance. *American Psychologist* 52(6):613-629.

Steele, C.M., and J. Aronson
1995 Stereotype threat and the intellectual test performance of African Americans. *Journal of Personality and Social Psychology* 69(950):797-811.
Stringfield, S.
1999 The phoenix rises from its ashes…Doesn't it? In *School Climate: Measuring, Improving and Sustaining Healthy Learning Environments*, H.J. Freidberg, ed. Philadelphia: Falmer Press.
2001 Reviewing four reviews of whole-school reform designs. *School Effectiveness and School Improvement* 11(2): 259-269.
Stringfield, S., M.A. Milsapp, R. Herman, N. Yoder, N. Brigham, P. Nesselrodt, E. Schaffer, N. Karweit, M. Levin, and R. Stevens
1997 *Urban and Suburban/Rural Special Strategies for Educating Disadvantaged Children. Final Report.* Washington, DC: U.S. Department of Education.
Swartz, D.
1997 *Culture and Power: The Sociology of Pierre Bourdieu.* Chicago: The University of Chicago Press.
Tedlie, C., and D. Reynolds, eds.
2000 *The International Handbook of School Effectiveness Research.* London: Falmer.
Thernstrom, S., and A. Thernstrom
1997 *America in Black and White: One Nation, Indivisible.* New York: Simon and Schuster.
Thomas, L.
1979 Medical lessons from history. In *The Medusa and the Snail*, in L. Thomas. New York: Viking.
Timpane, M.
1998 *National Directions in Education Research Planning Conference Report.* Washington, DC: National Education Research Policy and Planning Board, U.S. Department of Education.
U.S. Bureau of the Census
2000 *Current Population Reports, P60-209, Money Income in the United States: 1999.* Washington, DC: U.S. Government Printing Office.
2001 *Current Population Reports*, Series P60-214, *Poverty in the United States: 2000*. Washington, DC: U.S. Government Printing Office.
U.S. Department of Education
1991 *AMERICA 2000: An Education Strategy*. Washington, DC: U.S. Department of Education.
1998 *Goals 2000: Reforming Education to Improve Student Achievement.* Washington, DC: U.S. Department of Education.
1999 *Promising Results, Continuing Challenges: The Final Report of the National Assessment of Title I.* Washington, DC: U.S. Department of Education.
2000a *NAEP 1999 Trends in Academic Progress: Three Decades of Student Performance.* Office of Educational Research and Improvement, National Center for Educational Statistics. NCES 2000-469. J.R. Campbell, C.M. Hombo, and J. Mazzro, eds. Washington, DC: U.S. Department of Education.
2000b *Digest of Education Statistics, 1999.* NCES 2000-031. Washington, DC: U.S. Department of Education.
2000c *Pursuing Excellence: Comparisons of International Eighth Grade Mathematics and Science Achievement from a U.S. Perspective, 1995 and 1999.* NCES 2001-028. P. Gonzales, C. Calsyn, and L. Jocelyn, eds. Washington, DC: U.S. Department of Education.
2000d *The Condition of Education 2000.* NCES 2000-062. Washington, DC: U.S. Government Printing Office.

2000e *The Condition of America's Public School Facilities, 1999.* NCES 2000-32. Washington, DC: U.S. Department of Education.

2000f *Characteristics of the 100 Largest Public Elementary and Secondary School Districts in the United States: 1998-1999.* NCES 2000-345. Beth Aronstamm-Young, ed. Washington, DC: U.S. Department of Education.

2001 *Digest of Education Statistics, 2000.* NCES 2001-034. Washington, DC: U.S. Department of Education.

U.S. Immigration and Naturalization Service

1998 Statistical Yearbook of the Immigration and Naturalization Service. (From Internet: <http://www.ins.usdoj.gov/graphics/aboutins/statistics/imm98.pdf>, accessed January 15, 2001.

Vygotsky, L.S.

1978 *Mind in Society: The Development of the Higher Psychological Processes.* Cambridge, MA: Harvard University Press (Originally published 1930, New York: Oxford University Press).

White, R.W.

1959 Motivation reconsidered: The concept of competence. *Psychological Review* 66:297-333.

Wilds, D.J.

2000 *Seventeenth Annual Status Report on Minorities in Higher Education.* Washington, DC: American Council on Education.

Zhou, M.

2001 Contemporary immigration and the dynamics of race and ethnicity. Pp. 200-242 in *America Becoming: Racial Trends and Their Consequences, Volume 1*. National Research Council, N.J. Smelser, W.J. Wilson, and F. Mitchell, eds. Division of Behavioral and Social Sciences and Education. Washington, DC: National Academy Press.

Zill, N., and J. West

2000 Entering kindergarten: A portrait of American children when they begin school. Pp. xvi-xlvii in *The Condition of Education 2000, NCES-062*. Washington, DC: U.S. Government Printing Office.

Part II

Perspectives of the Co-Moderators

Overview

Catherine E. Snow

The question that motivated the conference and this volume can be formulated as follows:

> What policies and strategies should be pursued to improve educational outcomes for students from those segments of society that have been least well served by their schools? Should the primary focus be on targeted efforts to close the gaps? Are programs and policies designed to equalize educational opportunities and resources what are needed most? Or will a concerted effort to implement high educational standards for all students be sufficient?

In a preconference workshop, Kent McGuire, the assistant secretary of education, formulated the challenge to the education research community more straightforwardly, as one of "helping people be smarter" about educating children. In other words, precisely the challenge we would formulate for all children in U.S. schools, and in particular for those who typically have lower-than-expected achievement levels, is the challenge we must face ourselves. How do we become smarter about educating children? How do we help teachers become smarter? How do we ensure that the school administrators who hire and supervise teachers, select curricula, and launch reform efforts become smarter about doing those things? And how do we help policy makers become smarter about using research to guide their efforts?

GETTING SMARTER

Fortunately, the principles of learning and teaching outlined in *How People Learn* (see Chapter 3) apply to adults as well as to children. Intelligence is a dynamic capacity, and even very difficult learning challenges become tractable if presented in a way that acknowledges both their complexities (knowledge-centered teaching) and the state of understanding of the learner (learner-centered teaching). Effective learning for adults, as for children, requires some degree of personalization, opportunities to construct rather than simply consume the bases for new understandings, and procedures for assessing one's own progress. Unfortunately, rather little of what currently goes on in most teacher preparation or professional development programs, or for that matter in preparation programs for principals or superintendents, lives up to these principles of learning. We will not close the student achievement gap if we fail to acknowledge the many gaps in teachers' capacities and in administrators' skills. While skilled and effective teachers and administrators exist, they have typically achieved their status by dint of natural talent, good luck, and high motivation. Being a good teacher or administrator should be like being a good reader—something that anyone can achieve with appropriate background knowledge and instruction. Shifting from the notion of talent to the notion of craft as central to the educational professions is a lesson we have started to learn from comparisons of U.S. and Japanese science and math teaching (National Research Council, 1997b) but have not yet fully internalized.

USING RESEARCH-BASED KNOWLEDGE

A first step in becoming smarter involves charting those domains of knowledge that are sufficiently well established to support education reform. Various presenters at the conference argued convincingly that there is an intellectual basis for making vastly improved education, characterized by research-based new practices, in at least the following domains:

- Early childhood care and education: classrooms serving preschool-age and kindergarten children need to offer environments rich in linguistic and cognitive stimulation, exposure to authentic opportunities to learn and practice emergent literacy and math skills, activities structured by planful thinking about curriculum, and many ways of learning and of representing knowledge about the world. Also, the cognitive and linguistic advances of children in these settings become possible only if they have warm relationships with the adults. For young children, it is impossible to distinguish between education and care.

- Early reading instruction: literacy development starts with rich language and literacy experiences in preschool and kindergarten. In the 1st and 2nd grades, children need opportunities to learn about the alphabetic principle—the ways in which letters represent sounds—in the context of reading and being read to from meaningful and engaging texts. They need opportunities to write, using invented spelling initially, and to practice reading to achieve fluency.
- Early math instruction: as for literacy, primary math instruction should be able to build on understandings about quantity, measurement, estimation, and geometry that children have developed during the preschool years. In the primary grades, ensuring that children learn number facts is not in conflict with their coming to understand math conceptually, e.g., by inventing new ways to solve problems or by exploring numbers using manipulatives.
- Science achievement: the inquiry-based learning of science generates engagement and personalization of knowledge, automatically starts from the theories the students hold and thus offers the possibility of changing those theories, and builds in assessment automatically as well. Real inquiry-based learning requires, of course, an authentic inquiry orientation from teachers—the capacity to admit ignorance, to seek advice from more advanced scientists, to deviate from a prescribed curriculum. Such an approach teaches science by modeling the procedures engaged in by scientists, rather than treating science as a static body of knowledge.

The conference presenters described new practices for each of these domains— instructional procedures that incorporate the principles of integrating skills with meaning, providing opportunities for constructing new understandings, connecting new knowledge to old, and promoting active engagement. While the specific form of these new practices varies as a function of the age of the learner, the content being taught, the setting, and other factors, the new practices all grow out of a similar understanding of the nature of learning and a shared commitment to use knowledge generated by research.

PUTTING NEW PRACTICES IN PLACE

Using the new practices comprehensively in classrooms is far from easy. Getting them implemented requires providing the curricula, materials, technology, and professional support to scaffold good-enough practice (that is, good enough to ensure learning for most children) while simultaneously creating opportunities for teachers to get smarter so they can develop mastery of the new practices. An underlying assumption is that excellent practice will bring lower-achieving students up to expected

levels of performance. Even in these areas in which we know what the new practices should look like, we can hardly expect their immediate introduction into every classroom—adults don't learn like that. Like children, adults need time to internalize and construct the learning that would underpin their new practices, and they need opportunities to participate in professional communities that support their learning. Thus, it is crucial to have structures in place that provide good-enough instruction while teachers are getting smarter. And it is crucial that administrators understand the complexity of what teachers embracing new practices are undertaking, so they can ensure:

- structural support, e.g., mentoring for new teachers, changing schedules to accommodate longer classes or coteaching, availability in the school of specialists to provide help when children have reading or language problems, speak a second language, or have special learning needs;
- sensible curricula, i.e., those that scaffold the performance of novice teachers while giving more skilled teachers lots of opportunity for variation, expansion, and enrichment;
- adequate professional development, i.e., coherent school site-based programs focusing on the new practices;
- ongoing teacher engagement, e.g., by involving more advanced teachers in assessment, research, mentoring of less experienced teachers, or other professional activities; and
- appropriate incentives, i.e., procedures for recognizing and expressing appreciation of professional engagement and improved practice.

ENSURING THE NEW PRACTICES WORK AT SCALE AND IN CONTEXT

The new practices outlined above represent our best bet, based on current research findings and on theory, about how to improve educational outcomes for children. But no one has systematically taken these practices to scale—evaluating their use across all the classrooms in a district or a state. Nor have they ever been evaluated in context, i.e., in classrooms in which all of them were being pursued simultaneously. One of the features that limits understanding of these new practices is that they tend to be introduced one at a time, so that upgrading literacy instruction may even compete with maintaining attention to good practice for math and for science.

Furthermore, these new practices—as promising as they are—remain hypotheses about best practice for all children. Their impact needs to be evaluated carefully, not just for schoolsful of children, but in a way that disaggregates the performance of children in high-risk groups from those

at lower risk, of children from varying linguistic and cultural backgrounds, of children who have immigrated recently, and of children at the top and the bottom of the achievement curves. There is too much evidence—some of it reviewed in Chapter 4—concerning subgroup differences in the nature of the knowledge available to bring to learning, in pedagogical and interactive strategies learned in the home, in availability of resources in the community to support learning, and in dozens of other domains, just to assume that one set of new practices will work best for all children. Still, there is also considerable evidence that excellent teachers equipped with excellent curricula are effective with children from varying backgrounds and with differing resources, since the principles of learning are the same for all of us. Only further research will help us to answer the question whether greatly improved instruction will by itself close the gap between high- and low-achieving groups. We do know that it will improve performance across the board.

BEYOND NEW PRACTICES

The new practices briefly sketched here hardly constitute a full agenda for reforming U.S. schools and increasing achievement. We have not even discussed the challenges of helping students succeed at reading with comprehension in the various content areas, or advanced math and science, or foreign languages, history, geography, computer competency, music, physical education, and the other components of an excellent education. But improvement in these central areas of early childhood education and care and early reading, math, and science instruction—where we have a knowledge base to call on—needs focused, persistent attention, investment, and evaluation. Meanwhile, we should be pursuing research to provide a knowledge base for improvements in those other crucial areas.

A major failing of the U.S. education policy and research establishment is the absence of a mechanism for exploiting basic research that is relevant to practice or for ensuring that practices proven effective can travel beyond the site where they were developed. Three bodies have addressed this issue: the National Academy of Education with its *Recommendations Regarding Research Priorities* (1999); the National Educational Research Policy and Priorities Board's report called *Investing in Learning* (1999), and the National Research Council in a brief report called *Improving Student Learning: A Strategic Plan for Education Research and Its Utilization* (1999d). The NRC is following up on the plan outlined in *Improving Student Learning* by launching the Strategic Education Research Program, whose initial strategic planning and research centers around teaching and instruction and student engagement and motivation. In all these reports, the recommendations were similar: ensure better dissemination of the

best research, recognize that reform has to happen a school at a time, but also that no school should have to invent the process on its own, and recognize that educational challenges will always be with us, that the need to improve achievement will never be satisfied.

Another dilemma in U.S. education policy is that reform efforts are often started or supported as political initiatives, then evaluated prematurely or in some cases eliminated before proving their value because political winds shift. The standards and accountability movement is at the center of such a dilemma right now. There is considerable consensus that U.S. schools need to be held to higher standards and that student assessment is one crucial piece of defining and approaching those standards. Nonetheless, the early imposition of high stakes associated with the tests has caused distress among educators and parents, is suspected of leading to increased dropout rates, has powerfully highlighted the racial and ethnic divide, and has led to negative consequences for many schools. Standards and accountability can be imposed without unfair stakes for students or schools (National Research Council, 1999c), but only if many safeguards are in place, including clear definitions of the standards, assessments well aligned with them, curriculum clearly aligned with both, appropriate accommodations for students who speak English as a second language or have disabilities, and adequate opportunities for all students to have learned the material tested. Because the stakes have preceded the safeguards, some states are now lowering standards or reducing accountability—before the reform has really had a chance to demonstrate its degree of utility.

KNOWLEDGE AND WILL

Edmund Gordon asked at the conference which was the more important factor limiting our capacity to improve education for all students—knowledge of what to do or the will to do it. This volume has summarized material suggesting strongly that, for several domains at least, the knowledge is in place. The task is to muster the will to use that knowledge effectively. In other domains, more knowledge is needed—knowledge that will require the investment of research dollars and of precious human resources. But, as Christopher Edley notes, the task of achieving high standards for all students is the most urgent one we face.

Education Reform in Context: Research, Politics, and Civil Rights

Christopher Edley, Jr.

THE CONTEXT

The modern civil rights movement made popular the aspiration that we improve educational outcomes for children from communities to whom America historically denied equal rights and equal opportunities to advance. Political tides notwithstanding, the moral claim has grown stronger with time, not weaker. And now the structural changes in the economy combine with inexorable, almost breathtaking demographic changes to add a material urgency making that moral claim an imperative for all.

Disparities as Reflection of History and Portent for the Future

The conference papers and presentations highlighted matters of context that, in a reasonable world, would lead to a redoubling of efforts to promote equal opportunity. First, the dramatic racial disparities, summarized in Chapter 2, speak to our past, present, and future. They are the evidence of the lingering effects of historical sins, and of the legacy of racial caste. The disparities also signal painful imperfections in the machinery of opportunity today. But for the future, and especially in light of the demographics, the disparities measure a challenge to the nation's future greatness: deepening, persistent divisions threaten our collective economic prosperity, social stability, and capacity for democratic self-governance. Moreover, this is a challenge to our national character. If we

accept that racial and ethnic disparities are impervious to intergenerational mobility, then we confess that the American myth is a lie.

A dimension of this future threat is our growing separateness by color and class in our schools. The consequences are evident in learning outcomes, but also in such broader societal outcomes as shared community and intercultural competence in the workplace, the political arena, and the civic sphere generally. Nonwhite students already constitute majorities in California, Texas, Mississippi, Louisiana, Hawaii, and New Mexico and make up 67 percent of all students in the nation's 100 largest school districts.[1] Schools with large majorities of minority children are far more likely to have high concentrations of poverty, which in turn makes those schools far less likely to be successful.[2]

We know that the workforce will be increasingly Hispanic and black, but will these workers have the skills to be competitive and to keep America competitive? The wage advantage of young adult men with bachelor's degrees over young men who did not complete high school increased from 40 percent in 1973 to 124 percent in 1998.[3] Moreover, the data indicate that minority drop out rates exceed college completion rates (Table 1). Without more effective public policies and private practices,

TABLE 1 Percent of High School and College Graduates, Ages 18-29 by Age, Race and Hispanic Origin

	Age	Not High School Graduate	High School Graduate	Bachelor's Degree
Whites	18-19	39.9	60.1	—
	20-24	9.4	91.6	13.2
	25-29	6.0	94.0	34.0
Blacks	18-19	50.2	49.8	0.1
	20-24	19.5	80.5	6.3
	25-29	13.2	86.8	17.8
Asians/	18-19	37.4	62.6	1.1
Pacific	20-24	7.1	92.9	22.3
Islanders	25-29	6.5	93.5	53.9
Hispanic	18-19	56.4	43.6	—
	20-24	37.7	62.3	3.0
	25-29	37.2	62.8	9.7

SOURCE: "Percent of High School and College Graduates of the Population 15 Years and Over by Age, Sex, Race, and Hispanic Origin," March 2000, U.S. Census Bureau; www.census.gov/population/socdemo/education/p20-536/tab01a.pdf.

our divisions will widen as the growing market premium on education makes poor schooling a socioeconomic death sentence.

Political Context

A second salient aspect of the context is the politics of school reform. In the 2000 national election and in the opening months of the Bush presidency there was partisan competition to be passionate and "bold" on the subject of school improvement.[4] Such competition, while a good place to start, does not necessarily translate into thoughtful proposals.

Although through much of the 1980s and 1990s there were partisan battles over whether to eliminate the federal Department of Education, President George W. Bush abandoned that oft-stated GOP position and instead proposed greater percentage increases in education funding than for any other domestic program in his first budget.[5] Congressional Democrats successfully sought still more, but this merely confirmed a recent pattern of bipartisan congressional interest in an expanded federal financial role in K-12 education, even while the form for federal activity remains hotly debated. The prototype Republican plan tends toward block grants with few federal requirements apart from intensive state-defined testing programs for public disclosure and accountability purposes, and perhaps augmented by encouragement for private school vouchers. The prototype Democratic plan tends toward substantial additional funding for more specific needs widely thought to be critical ingredients for school improvement, including more and better-trained teachers, capital investments in facilities and technology, and smaller class size in the early grades. The legislative compromise lies between these positions, and includes more resources, substantial emphasis on testing, and flexibility short of block grants.[6] The general nature of this national legislative consensus seems likely to remain stable for several years, and much of the programmatic and structural change will continue to be driven at the state level, with some significant but not revolutionary expansions in federal support for those efforts.

A key unresolved question, however, is whether the equity and disparity issues beginning to emerge in the national discussions, and a few states, including Texas under former Governor Bush, will become a powerful force shaping state and local policies. At this writing, new federal legislation seems likely to include a requirement that state accountability systems report the results of their frequent student tests disaggregated by race, disability, English language proficiency, and class.[7] Civil rights and other advocates unsuccessfully urged Congress to go a step farther by requiring that published evidence of disparity be more than a hoped-for prod for popular political accountability. In addition, some of these advo-

cates and observers argued that the change in achievement disparities should be an ingredient of the statutory requirement that states make "adequate yearly progress" in school improvement or face administrative and fiscal sanctions from the federal Department of Education. Traditional conservatives have been opposed to such prescriptiveness, and the traditional liberals have been opposed to fiscal sanctions which, they believe, ultimately hurt needy children and school districts.

All of this points to the need for an ambitious research agenda along the lines of the work discussed in this volume in order to continue to refine the newly ambitious federal role and the increasingly activist state reform role over the coming decade.

The Civil Rights Connection

A third area of concern, even for a convocation primarily of social scientists, is the civil rights context. The foundation of the modern civil rights movement was the attack on school segregation, not because black leaders believed that black children could only learn if seated next to a white child, but because they believed that apartheid in education would mean apartheid in opportunity; that separate could never be equal; and that unequal education would perpetuate the entire structure of injustice for generations to come. Contemporary racial justice advocates, following decades of attack on barriers in voting, employment, housing, entrepreneurship, criminal justice, and so forth, are now revisiting education issues with renewed vigor. There is a growing consensus within that community that equal education opportunity and the elimination of disparities in achievement and attainment must be the number one agenda item for the civil rights movement in the decade ahead.[8] As some have put it, algebra is a civil right.[9] While liberals stress the mantra that "every child can learn,"[10] conservatives argue that poor and minority families deserve private school vouchers so that they will supposedly have choices like other families to escape failing schools, and people across the spectrum proclaim that we must "leave no child behind."[11]

Another aspect of the civil rights context, however, is less about the rekindled aspirations for educational successes than about insistence that the antidiscrimination and equality norms familiar to civil rights law be given their appropriate, contemporary interpretation and aggressively enforced. One prominent example concerns testing.

When President Clinton proposed a voluntary national test (VNT) in his 1997 State of the Union Address,[12] he viewed it as an important device to promote comparability and accountability, and a needed spur to the standards-based school reform movement. Several members of the Congressional Black Caucus, among other leaders in minority communities,

opposed the VNT. Among their reasons were the risk that such tests would be used not only for diagnostic and intervention purposes, but for high stakes imposed on students who may not have had the opportunity to learn the material included on the tests—denial of diplomas, tracking into dead-end curricula, and retention in grade. Thus, went the critique, the tests would almost surely be used to penalize the very students who were being ill-served by failing schools, rather than used to identify underperformance by teachers, administrators, and officials at all levels. President Clinton and Secretary Riley reacted to such civil rights concerns rather dismissively, suggesting privately that perhaps these leaders were not committed to excellence or high standards.[13]

This charge was, of course, utterly false. The civil rights claim has three central components. First, conventional civil rights antidiscrimination law suggests that when a policy, although race-neutral on its face, is applied and produces racially disparate results, there is a prima facie case of discrimination under regulations implementing the Civil Rights Act of 1964.[14] The burden then shifts to the policy maker—in this case school authorities—to demonstrate that the policy is "educationally necessary" to the legitimate purposes of the government. If officials meet this burden, then the civil rights plaintiff would have the burden of showing that, even if educationally necessary, there are alternative means of pursuing the legitimate goals without so serious a disparate impact. There are, of course, "antitesting" advocates who oppose so-called standardized testing in most forms and contexts. The civil rights complaint, however, is not against the test, but against the high-stakes use of the test for retention in grade or denial of diplomas, rather than for the wide range of other accountability and intervention measures that would not punish the ill-taught or poorly performing student. Relatedly, the civil rights claim is that a high-stakes regime cannot be "educationally necessary" if the assessments fail to satisfy the generally accepted professional norms of the psychometric and testing community—see the principles in the "Joint Standards" and in various NRC publications.[15]

The important civil rights thesis, underlying all antidiscrimination law, is this: When a policy or practice is favored by powerful interests but noxious to a "discrete and insular minority,"[16] we cannot be confident that the ordinary rules of majority politics and democratic policy making will produce just outcomes, even over an extended period of time. Put bluntly, if the victims of a policy are largely minority and poor, the self-correcting mechanisms of deliberation and reform may not work so well. Antidiscrimination laws, whether rooted in the Constitution or in statute, are intended to be antidotes to the antiminority tilt of democratic rule—in, for example, a subordinate jurisdiction, or at some future moment. In that special sense, antidiscrimination laws are antidemocratic and at cer-

tain times and in certain places contrary to popular wisdom or a majority's preferences. That's their purpose.

The structure of this legal argument has become clear over the past few years. The relationship between scientifically sound testing practices and civil rights law was examined in an important 1999 publication by the National Research Council (NRC), *High Stakes: Testing for Tracking, Promotion and Graduation*, edited by Robert Hauser and Jay Heubert. That same analysis was largely adopted in a formally published guidance on test use produced by the Department of Education's Office for Civil Rights in December 2000, since "archived" by the new Bush administration pending detailed review.[17] It has met with little success in the courts, however, because judges so naturally tend to defer to the expertise of state and local school officials, and the judges themselves are, like politicians and much of the public, seemingly in the thrall of testing.[18]

To be sure, there is a largely unexamined empirical assertion underlying the arguments of high-stakes proponents: attaching high-stakes consequences for the students provides an indispensable, otherwise unobtainable incentive for students, parents, and teachers to pay careful attention to learning tasks. For the countless parents, policy makers, and observers who approach these debates as instrumentalists, the accuracy of this assertion is a central mystery as we struggle to close the education gap.

High-stakes testing is also problematic from a civil rights perspective if curriculum is not aligned with the test, or if instruction is not aligned with the curriculum.[19] The simple insight, reflected in both case law and professional testing standards, is that it is a denial of due process to punish a student when he or she has not even had a chance to prepare for the exam. This is the most pointed form of a general concern about providing adequate and equitable opportunity to students before imposing on them a potentially devastating decision about tracking, retention in grade (with, many believe, resulting increases in the risk of dropping out),[20] or diploma denial. While liberal education reformers tried during the first Clinton administration to include general "opportunity to learn" provisions as a condition of federal financial assistance to the states and a necessary complement to standards-based accountability, this linkage was soundly rejected in Congress and has not generally been made in state policies. The narrower legal claim of civil rights and other advocates is that, in some circumstances, opportunities may be so inadequate in relation to the high-stakes test as to amount to fundamental unfairness in a constitutional sense. Court decisions and state policy makers have often responded by building a lag into the schedule between announcement of a high-stakes test and its implementation, presumably to permit alignment of curriculum and instruction so that everyone has a fair chance to

get ready.[21] The deeper question, requiring case-specific research, is whether the alignment and preparation really take place for the neediest and least powerful before the accountability axe falls.

This issue of adequate opportunity has civil rights resonance outside of the testing arena. For example, Michael Rebell's contribution in Part III of this volume describes a thus far successful effort in New York state courts to demand greater equality in the provision of the minimum adequate education guaranteed by that state's constitution. Failure to do so is a denial of rights. I would add that, given this right under state law, it therefore because a denial of federal constitutional due process rights to deprive a child of that right, and a violation of federal civil rights statutes as well.[22] Indeed, there are at least two major strands of civil rights claims being pursued under various state constitutional law theories: failure to provide disadvantaged students with a minimally adequate basic education, and failure to assure some rough comparability in education finances or services across school districts. These interdistrict equity claims, while impossible under the U.S. Supreme Court's interpretation of federal equal protection doctrine,[23] have met with significant success in the state courts, as Rebell details.

It is important to bear in mind, however, that attention to these fancy, still evolving civil rights claims should not cause us to ignore the myriad garden variety discrimination claims based on intradistrict inequalities (e.g., minority schools without text books or certified teachers),[24] or discrimination in the administration of ability grouping, special education, school discipline, and so forth. Beneath much of the subtle discrimination, which advocates believe is all too common among educators and officials, is a form of racial stereotyping or "academic racial profiling" in which expectations are lower for students of color.[25] Against this backdrop, thoughtful focus on racial disparities, as represented in this volume, is a vital antidote.

The gravamen of all this is that the success or failures of minority children in our schools must be understood to be a matter of civil rights urgency—and the concerns are far broader than the historical attention to racial isolation and state-sponsored segregation. The agenda in this new century encompasses a whole vision of opportunity and achievement.

The Urgency of School Improvement

A fourth and final aspect of the context is the broad sense that there is a crisis in public education. Polling evidence suggests that many parents feel that, while my child's school is fine, public schools in general are in serious trouble.[26] Another piece of evidence is the continuing interest in private school vouchers, public school choice, charter schools, and other

strategies that, in one way or another, amount to a rejection of business as usual in the public school system and in particular a skepticism that the customary strategies for bureaucratic innovation and reform will suffice. At present, the bulk of leadership in minority communities, both nationally and regionally, support public schools, oppose private school vouchers, and voice at least cautious commitment to the ordinary processes of incremental progressive reform. It seems likely, however, that the erosion of this commitment will accelerate unless leaders and their constituents see substantial gains in minority achievement and reductions in disparities within the next few years. There has been too little attention in policy and political debates to the rate of school improvement, as though truly modest movement in the right direction is cause for celebration and self-satisfied media events by officials from the White House to the school house.[27] The linchpin of federal accountability imposed on the states, in fact, has been the requirement that states adopt some kind of assessment system and demonstrate "adequate yearly progress." To any dispassionate observer of such policy outputs, this is all but laughable: "progress" has only the thinnest of statutory definitions, and "adequate" has no definition whatsoever.[28] Surely, the findings surveyed in this volume suggest that the dismaying disparities along lines of color and class are too dangerous for half measure or slow cures. Yet, curiously, there is little public debate and little research about the rate of change we should require of school reform efforts in order to win the continuing support of voters and taxpayers. Part of the context for this examination, I suggest, is that patience is wearing thin, and is not inexhaustible. In short, improvements must be pursued and indeed accomplished with a sense of urgency, lest the consensus for supporting public education vanish over the course of the next generation—or sooner.

Our task in light of this context is to take a set of normative propositions—about the opportunity, achievement, and justice we want—and recast them so that they are more than mere statements of aspiration, hortatory in character. Instead, they must be scientifically descriptive statements about closing achievement gaps that are then married to an enforceable regulatory regime. Surely the facts presented in this volume and at the conference suggest no less.

HOW STRONG IS THE RESEARCH FOUNDATION FOR CHANGE?

From the perspective of the National Research Council, however, this raises the question of whether we have a research predicate for the dramatic if not revolutionary K-12 change I believe the context demands. We might consider research in three dimensions: it is a foundation for policy

choice, a critical guide for implementation engineering, and a foundation for enforcement.

There is more to this than an academic's standard plea for more research. Return, for example, to the issue of a minimally adequate education under state constitutional and federal due process theories. Unless there is a research predicate to help define and measure the vague "adequacy" concept derived from legal doctrine (not to mention education policy), it will be impossible to create a judicially manageable standard or a useful set of objectives for policy makers to attend to. Or, to use another example, understanding scientific principles regarding the predicate for appropriate use of tests (construct validity, reliability, alignment, inferential validity, etc.) is necessary. But it is obviously not a sufficient predicate for enforcing fidelity to those norms in the political, bureaucratic, or legal processes that shape school change. Is the research predicate adequate? The conference and this volume suggest that it is actually pretty good. This requires some caveats. Not withstanding daunting uncertainties, the findings are good enough for policy making—good enough for government work, as the expression goes. This is because if politics presses, politicians will act; when the research base is nonexistent or inconveniently inaccessible, then the dispositive "research" is provided by pollsters who ferret out hot-button phrases and symbolic gimmicks, not research-based policy proposals. Pollsters drive the policy choices, rather than research evidence. My favorite example is the early Clinton administration, strapped for cash, touting school uniforms as though it were a central component for bold federal leadership on school improvement. Why? It polled well, and fit with the desired political message.[29] Anecdotal evidence sufficed.

There is a further, crucial caveat. Certainly much research remains to be done—conceptualized, even—in the continuing effort to give educators and parents the insights needed to promote learning. The exploding diversity in school districts and classrooms makes some dimensions of the research urgent.

Research on Achievement and Learning

This volume, building on the conference, does much to illuminate the gap, its dynamic over time, and to some extent its determinants. This kind of research is critical in order (a) to target treatments; (b) to some extent to actually design the treatments; and (c) importantly, to help build political will for needed changes by demonstrating that the problems are frightening but the possibilities for success are real. Many policy interventions do not depend upon a detailed understanding of how the achievement gap comes to be. Instead, there are some treatments likely to be helpful no

matter what the origin of the disease, so to speak. Moreover, even if we are not using the evidence about the etiology of disparities to target or design our treatments, research that goes only to the magnitudes helps build the moral consensus needed if we are to find and apply resources in a sustainable way. Certainly, we must continue with an even more ambitious research agenda. But meanwhile, leaders must be prepared to act.

Following discussion of the achievement gap, the conference turned to the subject of learning: the research on how we learn, on early childhood learning and appropriate interventions, and on reading specifically as the indispensable foundation (see Chapter 3). Of course there are, again, continuing disagreements about what the research demonstrates, but a substantial body of work, including important reports by the NRC (see Box 1-1 in Chapter 1, Part I, of this volume), offer important findings that do deserve wide acceptance. In particular, Lauren Resnick made a critical observation: we now have a conceptual and an empirical foundation to substantiate the claim that virtually all students can learn at high levels (see Chapter 6, Part I). This conclusion is of singular importance for policy makers and politicians. The principle is more than an eloquent turn of phrase.

Tools for Policy Change

Turning to particular programmatic strategies to address adequacy and equity, the conference discussion covered the five most salient strands of the broader policy debate—choice, teaching, assessment, accountability, and integration.

One of these topics, choice in its various forms sparked little discussion, perhaps because from a research perspective it is speculative. Indeed, much of the school choice debate has long struck me as an ideological matter in a central sense, in particular those species of "choice" embodied in private school vouchers and in large-scale public school choice. The commanding question for reformers is whether quasi-market incentive and signaling schemes based on family decision makers will be more effective at driving change than the alternative reform schemes. Those alternatives promise school improvement driven by politico-professional and bureaucratic methods, including, of course, assorted incentive elements. This question of comparative efficacy—the market or not the market—simply has not been answered by research, leaving the strategic choice even more open than most to ideological battle and policy prejudice.

For many serious policy analysts, the choice issue is uninteresting because there is so little good science to digest, the methodological challenges seem all but imponderable, and purists insist that there should be

large-scale randomized experiments, which seem impossible on practical grounds. The few studies to date have feuled a firestorm of controversy out of proportion to the available evidence.[30] This is unfortunate because coarse political decision making will flourish in such science-starved environments—like a staph infection with no disinfectants in sight. So the politico-policy system will muddle through, perhaps making some dangerous choices along the way. And we should not count on bold new research and evaluation efforts to detect and correct promptly the errors of our ways, especially with poor and powerless victims. Here is where the enormous decentralization and diversity in the public school system may be a blessing indeed.

On the question of teaching, the most important insight is that basic "research" result: *In order to improve student achievement, pick better students; failing that, do better and more teaching of the students you are stuck with.* The former strategy is illustrated by retention, over-referrals to special education, "push-out" strategies, and choice schemes that involve overt or subtle screening on family, motivational, or academic variables. The latter strategy is illustrated by reducing class size, investments in greater teacher professionalism and development, extended school day or school year, research-proven instructional strategies, curriculum that is aligned with the achievement goals, and so forth. It is not difficult to inventory the list of "do's" and even many of the "don'ts." The question is largely one of will (resources, leadership) and implementation—which is not to gainsay the difficulties there.

That brings us to assessment and accountability. The conference discussion included substantial attention to the critical distinction between using tests for diagnostic or assessment purposes on the one hand, and attaching high-stakes consequences to those test results. High stakes for students raise concerns among those in the civil rights community, as discussed earlier. High stakes for teachers raise concerns among many teachers and unions, and not simply for job security reasons. There are daunting methodological questions[31] of how to measure "value added," ranging from assessment validity to fluid student enrollments, and those problems of method are considered by many to be unacceptable if the purpose of the measurement has high stakes for some powerful constituency. Finally, in any high-stakes context, there are serious questions of testing reliability—the random and other variability one might observe between hypothetical administrations of a test—the political policy makers seem never to confront.

Children, of course, are less powerful, so doubts about student-edged high stakes have far less political potency. Nevertheless, there is growing discussion of evidence concerning the misuse of such tests, as judged by reference to the Joint Standards,[32] and especially the question of how such

tests may drive up retention rates and special education referral rates, while driving down diploma completion rates.[33] I refer to diploma completion, because most official data on dropouts is seriously incomplete and misleading,[34] and because the GED is a far less valuable credential in the labor market.[35]

The concerns over assessment and student-edged accountability are only heightened by the intriguing work presented by Claude Steele concerning stereotype threat and disidentification, described in Chapter 4, Part I, of this volume. There should be little doubt that test-driven standards-based reforms taken as a whole are spurring important school improvement in a great many places. There is, however, collateral damage. Steele's work raises questions both about a particular form of collateral damage among traumatized test-takers, and even more fundamental questions about the validity of the underlying assessments and inferences from them. If, as he suggests, the test and its context produce psychological responses that depress the performance of the test-taker, then the resulting measurement has a systematic error that biases the results downward, generally to an unknown degree. Warning lights, hazard signals, and sirens going off continuously. And they have to be louder and brighter, because of the imperatives for revolutionary change and coupled with the fairness demands of a civil rights sensibility.

Integration

With respect to school integration by class and race, the most important point to be gleaned from the conference is that there is far too little attention in political and policy debates to the importance of integration as a tool for improving learning outcomes and, ultimately as important if not more so, as a tool for improving societal outcomes. Without an integration strategy responsive to our exploding diversity, one must worry about civic virtues and about our personal and collective capacity to thrive.

SPECULATIONS AND FURTHER WORK

Finally, we turn to a few speculations, focusing on several matters for further investigation and consideration.

English Language Learners (ELLs)

The political and policy conflict over how best to educate students who are not proficient in English continues,[36] while the number of ELLs enrolled in public schools increases. Between 1980 and 1995, students

speaking a language other than English at home increased from 8.8 percent of the total student population to 13.3 percent.[37] Meanwhile, to date, research shows that the difference in academic learning acquired through bilingual education programs that use native language support and English immersion programs are not that significant.[38] However, the knowledge gap between ELLs and their non-ELL peers is great. One leading expert, Kenji Hakuta, has noted several findings he believes are well supported and widely accepted in the research community (if not among politicians and policy makers), including:

- There is significant variation in the definition and implementation details of ELL programs, creating enormous difficulties for research and evaluation.[39]
- 77 percent of ELLs come from low-income backgrounds and are generally concentrated in linguistically segregated schools in which most of the school population comes from low-income backgrounds.[40] Among ELL programs, students receiving transitional bilingual education are more socioeconomically disadvantaged and attend higher-poverty schools than students in ESL. As between the two dominant models, transitional bilingual education and ESL, the former appears to be modestly better, but neither makes a substantial dent in the achievement gap between poor ELL and middle-class English speakers. In other words, the furious political debate between bilingual strategies is, from the perspective of student achievement, almost entirely beside the point.[41]
- The research evidence is that no-support, sink-or-swim "immersion" strategies are distinctly inferior for the typical student; indeed, this was the basis for the Supreme Court's 1974 decision in *Lau v. Nichols*.
- How long does the language transition take? The evidence is that the time needed to achieve English proficiency depends on many factors, including age of the child, level and quality of prior schooling of the child, education level obtained by the parents, type of language instruction provided, the child's exposure to English in his or her community, quality of the teachers, and quality of the instruction, including the bilingual education instruction, that a child receives.[42] Given all these variables, researchers generally agree that the time it takes to become proficient in English ranges from two to eight years.[43] There is no substantial research support for a one- or two-year time limit on bilingual services applicable to all students.

The legal principles are simple to state, if not apply: students with limited English proficiency may not be denied access to an education due to failure of the schools to make reasonable accommodations through some form of language or translation assistance. The leading case,

Castenada v. Pickard, established a three-part test for determining whether a school district "has taken appropriate action to overcome language barriers" (648F.2d989[5th Cir. 1981]). It requires that the school district's program (1) be based on sound educational theories, (2) effectively implement the education theories, and (3) produce results showing that language barriers are being overcome. Given the state of social science research, these legal principles suggest that no one approach to bilingual education should be mandated. Implementing strict one-year English immersion programs or mandating three-year time limits on bilingual education instruction would likely violate the rights of many children granted under the Equal Educational Opportunities Act.[44]

So, interestingly, the antidiscimination *legal* framework puts the minimal adequacy of policy research directly at issue, at least in principle. (Ultimately, judges tend to defer to government policy makers, rather than make a more independent judgment, based on expert testimony, of which choices the research supports.) The *political* framework, however, is far less attentive to research evidence. And when social scientists for good and principled reasons dither with definitiveness, they invite irrelevance in policy debates, and there is more space for error and even demagoguery, as in the sometimes xenophobic demands for English-only laws.

Looking to the future, this situation must not stand. Language barriers are an increasingly important component of the racial and ethnic gap in achievement, the sharp wedge that widens economic and social divisions. We must have research of sufficient quantity and quality to match the growing challenge that this represents in so many communities.

High Stakes and Accountability for Others Besides Students

While there has been much attention to high-stakes testing for students, and an enormous scientific enterprise of psychometric and other disciplines focused on student assessments in that context, there is far less intellectual capital concerning high stakes for teachers, schools, districts, and states. For example, researchers have raised important questions about "value added" models that attempt to make valid inferences about achievement gains over time.[45] Despite the scientific difficulties, the very structure of federal legislation now demands that states demonstrate "adequate yearly progress" in student achievement.[46] Many states—among them Kentucky, Texas, New York, Florida, and California—purport to attach financial and administrative rewards and sanctions to measured changes in school and district performance on tests.[47] The standards-based reform movement finds its motive force in accountability, which requires that the targeted actors above students demonstrate improvement over time.

Why is the emphasis on high stakes for *students*—diploma denials, retention in grade, tracking, even alternative schools—rather than high stakes for other actors? In part it is because students are the least politically powerful in the system, especially if they are poor and minority.[48] An additional explanation, however, is that the problems of measurement are supposedly even more daunting when we contemplate high-stakes judgments at higher organizational levels: the number of exogenous variables seems to mount exponentially as one moves up the chain of responsibility; the data problems multiply (flux in student population, for example); authority is often diffuse; and so forth. All of this makes establishing causation, attribution, and culpability arguably more difficult—or so teachers, administrators and elected officials say when deflecting calls for high stakes directed at them rather than the students.

I am not persuaded that these defenses are true, that accountability is from a scientific perspective *dramatically* more difficult for teachers or districts than for students. Indeed, from a purely analytical perspective, some of the "noise" and randomness of individual test results and micro-level data becomes less of a problem when you aggregate inferences more supportable than those we make at the student level. Analytics aside, however, anyone on the receiving end of a sanction can offer explanations and excuses, be they student or state commissioner or anyone in between. The scientific question is how to gauge the truth of the excuses. The policy and political question is how much weight to accord them in light of the science.

The science is too thin. We are in the midst of dramatic increases in K-12 expenditures in an effort to spur reform, but support for these welcome investments will soon evaporate unless the public sees effective accountability and meaningful improvements. Perhaps it is a good gamble that states and districts will drive change forward by focusing the high stakes principally on powerless children, with far less attention to carrots and sticks for other actors. (I am doubtful, and in any case it seems a cruel gamble.) Surely, however, our investment will be more secure if research provides more guidance in constructing higher-level accountability methods. This is an urgent matter.

Reconsidering Radical Decentralization

A more radical suggestion, perhaps, is that we make a less romantic and more scientific assessment of the decentralization in our 15,000-district education sector. The choice by national and state governments to decentralize should be considered one of several possible "treatments" or engineering strategies in school reform, just as a multinational conglomerate might adopt a strategy concerning centralization versus site-based

autonomy. Is the strategy we've had the one we should choose in this new century?

Imagine the perspective of a passionate, concerned parent, hearing a claim that school improvement will come from devolving more discretion to principals and teachers. "Why?" asks the parent. "I'm not all that interested in giving principals or teachers the freedom to be stupid at the expense of my kid. I'm just not. It's too important. Indeed, I'm not all that interested in giving my local school board the autonomous discretion to continue its history of bad administration, because the people in my community and I don't have the practical political power to force our school board to do better."

Here is an analogy. I am not interested in giving my local oncologist the freedom to experiment and innovate. I would prefer that the National Institutes of Health (NIH) be giving some guidance, that the oncologist feel considerable pressure to follow that guidance, and that the Food and Drug Administration mark some treatments clearly out of bounds because they are ineffective or dangerous. Ideally, I want the local oncologist to be aware of all the treatment options, and fully skilled at selecting among them. Absent the ideal clinician, however, I want a quality safety net. (I also want to be able to sue the doctor if she's negligent.) And I want all of this, thank you very much, because it matters to me what choices are made, intensely. I feel only slightly less frantic about the wisdom of the choices shaping my child's education.

This could be put another way. Starting with an acknowledgement of education problems in the decentralized system we have, where is the research evidence that just letting 15,000 flowers bloom is the better strategy for bringing about the tremendous changes needed to close the racial gaps in achievement, or the broader change the public demands?

Toward a Science of Diffusion

Finally, retreating from radicalism to accept the more realistic assumption of a high degree of decentralization, do we know enough about how change occurs? About the processes for the diffusion of reform strategies, especially the diffusion of research about successful practices under a variety of different circumstances? There is an enormous education policy literature, of course, but far less rigorous attention to the question of how insight about success in district A can be analyzed, transmitted, and applied to inform practice in district Z.

Between promising research and program evaluation on one end, and successful implementation on the other, a diffusion and refinement of knowledge takes place through a variety of processes varying in their formality and quality-assuring characteristics. These processes deserve

far more study and self-conscious design effort than we have seen, including consideration of the need for more powerful intermediary institutions.[49] Leaving it to schools of education and a meager jumble of in-service training investments will not do. Again, the magnitude of the challenges, combined with the coming of major new investments, make this an important avenue for work.

Consider once more a medical analogy. How does clinical research about the latest strategies for combating a particular type of cancer in a particular type of patient find its way to the practice group in your local hospital, and to the desktop and the mind of the physician who is going to treat you? Well, it is a complicated process, with elaborate mechanisms involving a combination of institutions. Sometimes it works well, sometimes it doesn't. But it is far less ad hoc than the diffusion of new practices to schools and teachers.

In medicine, NIH and other agencies are thinking hard about how to harness technology to shrink the length of time that it takes for the effective dissemination of new clinical strategies. There is no assumption that every patient ought to be treated the same and, in the case of cancer, there is a recognition that it is not a single disease, but a constellation of diseases. Some of the mechanisms of disease are shared, but some of them are different. And the treatments vary enormously, from the high end modern genetic interventions of the sort that we are going to be seeing increasingly over the next few years, to the common sense we-need-more-prevention. In this incredibly complex system, progress is not left to decentralized, unanalyzed processes of diffusion. There is focused attention to the problem of getting news out and into practice.

Now, we stand at the threshold of many tens of billions of dollars of new investments in school improvement, in the teaching profession, and in experimentation and research. A key question, therefore, is whether we are smart enough to make the best possible use of those new investments by devising better strategies and mediating institutions to take the best ideas and implement them. That problem, that puzzle, I think, is a research set of questions. The diffusion delays we see in education would be unacceptable for promising new treatments of cancer, heart disease, or even acne.

CONCLUSION

"Millennium Conference" is an awfully ambitious title, but for good reason. The conference organizers hoped we would recognize this as an occasion for making new commitments, and for rededicating ourselves to some things that are *fundamental*. The ideas of opportunity, achievement, and justice certainly do qualify. Americans have learned the hard way

that when we are missing those things, this isn't the kind of nation we want and we don't have the kinds of communities our children deserve to grow up in.

The sponsorship by the Department of Education was a welcome opportunity to focus the National Academies on the importance of closing the opportunity gap. One can find in the work of the National Research Council much reason to be encouraged about the possible contributions of research science to that undertaking. Any and all possible undertakings in this regard must be encouraged, because it is difficult—I would say impossible—to imagine a more important set of challenges for the opening decades of this millennium.

REFERENCES

1. *Digest of Education Statistics, 2000.* NCES 2001-034. Washington, DC: U.S. Department of Education, 2001. *Characteristics of the 100 Largest Public Elementary and Secondary School Districts in the United States: 1998-1999.* NCES 2000-345, by Beth Aronstamm-Young. Washington, DC: U.S. Department of Education, 2000.
2. Gary Orfield and John T. Yun, *Resegregation in American Schools*. Cambridge, MA: Harvard Civil Rights Project, 1999. Also see Lloyd, et al., this volume.
3. The Use of Tests as Part of High-Stakes Decision-Making for Students: A Resource Guide for Educators and Policy-Makers, Office for Civil Rights, Washington, DC, 2000. Available at www.ed.gov/offices/OCR/testing/index1.html Accessed June 14, 2001.
4. Joetta L. Sack, "Candidates' K-12 Policies Share Themes," *Education Week* 9/6/00; David E. Rosenbaum, "The 2000 Campaign: The Education Policies; Bush and Gore Stake Claim to the Federal Role in Education," *New York Times* 8/30/00, A1; Jacques Steinberg, "The 2000 Campaign: Education," *New York Times* 11/5/00, A44; David E. Sanger, "The New Administration: The Plan; Bush Pushes Ambitious Education Plan," *New York Times* 1/24/01, A1. J. Sack, "Democrats' 'Three R's' Bill Regains Currency," *Education Week* 3/21/01.
5. Department of Education Press Release (April 9, 2001) (available at http://www.ed.gov/offices/OUS/budget02/summary); Office of Management and Budget, "A Blueprint for New Beginnings: A Responsible Budget for America's Priorities" 2001, pp. 29-43. (available at http://www.whitehouse.gov/news/usbudget/blueprint/budtoc.html).
6. Lizette Alvarez, "Testing Requirement to Stay in House Bill," *New York Times*, May 23, 2001, A22; Lizette Alvarez, "On Way to Passage, Bush's Education Plan Gets a Makeover," *New York Times*, May 4, 2001, A16.
7. H.R. 1, 107th Cong., § 111 (2001). The Texas accountability system, while in other respects criticized by some civil rights commentators, does have achievement data disaggregated by race and poverty, and does tie rewards and sanctions to performance of law-defined achieving students.
8. Kwase Mfume, Presidential Address to the 4th Annual Daisy Bates Education Summit, May 17, 2001. See <www.naacp.orgcommunications/press_releases/edu4th052401.asp> Accessed June 13, 2001. Also, Hugh B. Price, National Urban League Opportunity Agenda. Available at <www.nul.org/econsummit>. Accessed June 13, 2001.
9. Moses, Robert P., and Charles E. Cobb, Jr., *Radical Equations - Organizing Math Literacy and Civil Rights*. Boston: Beacon Press, 2001.

10. The opening paragraph of *A Nation at Risk* intones:
    > All, regardless of race or class or economic status, are entitled to a fair chance and to the tools for developing their individual powers of mind and spirit to the utmost. This promise means that all children by virtue of their own efforts, competently guided, can hope to attain the mature and informed judgement needed to secure gainful employment, and to manage their own lives, thereby serving not only their own interests but also the progress of society itself.

    A Nation at Risk, 1983: http://www.ed.gov/pubs/NatAtRisk/risk.html. This document is generally thought to mark the national ascendancy of the standards-based reform movement.
11. This Bush presidential campaign slogan was appropriated from the liberal Children's Defense Fund. http://www.childrensdefense.org.
12. William J. Clinton, State of the Union Address (Feb. 4, 1997).
13. I had several conversations with President Clinton and Secretary Riley on this subject during 1997 and 1998, and each of them offered the same characterization to me of the civil rights concerns. My rebuttals were ineffective.
14. 42 U.S.C. §§ 2000d to 2000d-1. Administrative regulations to enforce Title VI contain standards for disparate impact cases. For example, the Department of Education's regulations state that programs which have "the effect of subjecting individuals to discrimination because of their race, color, or national origin" can violate Title VI. 34 C.F.R. § 100.3. The U.S. Supreme Court recently limited the availability of private lawsuits to enforce disparate impact regulations, but the Court did not limit government enforcement of the regulations nor address the legality of the regulations themselves. *Alexander v. Sandoval*, 121 S. Ct. 1511 (2001). Title VI's protections are limited to race, color, or national origin. Title IX of the Education Amendments of 1972 protects individuals based on sex. 20 U.S.C. § 1681. Persons with disabilities are protected in various ways by the Americans with Disabilities Act of 1990, 42 U.S.C. §§ 12101-12213, section 504 of the Rehabilitation Act of 1973, 29 U.S.C. § 794, and the Individuals with Disabilities Education Act, 20 U.S.C. §§ 1401-1420.
15. American Educational Research Association, American Psychological Association, National Council on Measurement in Education, *Standards for Educational and Psychological Testing*. (Washington, D.C.: American Psychological Association, 1999); National Research Council, Committee on Appropriate Test Use, *High Stakes: Testing for Tracking, Promotion, and Graduation*, Jay P. Heubert and Robert M. Hauser, eds. (Washington, D.C.: National Academy Press, 1999).
16. *United States v. Carolene Products Co.*, 304 U.S. 144, 152 n.4 (1938). For an analysis of the *Carolene Products* case and the role of judicial review in addressing problems with the majoritarian process, see John Hart Ely, *Democracy and Distrust* (Cambridge, MA: Harvard University Press, 1981).
17. "The Use of Tests When Making High-Stakes Decisions for Students: A Resource Guide for Educators and Policymakers." (available at http://www.ed.gov/offices/OCR/testing/TestingResource.pdf).
18. *GI Forum v. Texas Education Agency*, 87 F. Supp. 667 (W.D. Tex. 2000); *Parents for Education Justice v. Picard*, (No. 00-0633, E.D. La. 2000). Moreover, unless overturned by Congressional amendments to Title VI, the Supreme Court's decision in the recent *Sandoval* case means that court challenges to testing policies based on the disparate impact regulations can be brought only by federal enforcement officials. Private persons may complain to the Office for Civil Rights, but may not themselves pursue the matter in court unless the basis for their claim involves *intentional* discrimination, rather than the *effects-based* or *disparate impact* discrimination discussed here. *Alexander v. Sandoval*, 121 S. Ct. 1511 (2001).

19. The related concern of education policy, as distinct from civil rights polity, is that would-be reformers often treat the test as the statement of learning goals and then insist that the curriculum in some sense be "aligned" with the test. This is nonsensical to testing experts, who recognize that any test instrument is just a sample over some learning domain. In practice, this inverted perspective is driven by high stakes use of a test and can produce a narrowing of the curriculum and teaching to the test.
20. C. Thomas Holmes, " Grade Level Retention Effects: A Meta-Analysis of Research Studies" in Shepard and Smith, *Flunking Grades: Research and Policies on Retention* (London: Falmer Press, 1989), pp. 16-33; Robert M. Hauser, "Should We End Social Promotion? Truth and Consequences," in Gary Orfield and Mindy Kornhaber (eds.), *Raising Standards or Raising Barriers? Inequality and High-Stakes Testing in Public Education* (New York: Century Foundation Press, 2001), pp. 151-178.
21. *Debra P. v. Turlington*, 644 F.2d 397 (5th Cir.1981). In Massachusetts, students graduating in 2003 will be the first students required to have passed the high stakes examination. In California and New York, the testing requirement first applies to students graduating in 2004. Similar delays in implementation can be found in proposed federal legislation, which does not require states to adopt content standards in history or science until the beginning of the 2005-2006 school year. H.R. 1, 107th Cong. § 111 (2001).
22. *See Board of Regents v. Roth*, 408 U.S. 564 (1972). Violations of constitutional due process rights are enforced through Reconstruction-era federal civil rights legislation. 42 U.S.C. § 1983.
23. *San Antonio Indep. Sch. Dist. v. Rodriguez*, 411 U.S. 1 (1973). *See also*, Rebell's paper in this volume.
24. Historically, of course, it is well established that before *Brown*, expenditures for minority students attending segregated schools were grossly unequal. See, e.g., Gary Orfield, *Dismantling Desegregation,* 36-37; Michael Middleton, Brown v. Board: Revisited, 20 *S. Ill. U. L. J.* 19, 32 (1995) (describing how black children received inferior education under segregated systems because of severe underfunding). Today, by far the stronger relationship is between poverty and underfunding. More important, there is a strong interaction effect produced by the disproportionate concentration of poverty in heavily minority schools. See, e.g., Gary Orfield, *Schools More Separate: Consequences of a Decade of Resegregation* at 39-40 (July 2001, The Civil Rights Project at Harvard) (www.law.harvard.edu/civilrights/publications/pressseg.html). The percent of poor children in the school of the average African American student is twice that for the average white student, and the disparity is slightly greater for Latino children. Among highly racially isolated schools (90 percent or more white, or 90 percent black and Latino), only 17 percent of those white schools have half or more poor children, compared with 88 percent of minority schools. *Id*., at 40 (using 1998-99 NCES Common Core of Data). Contemporary court decisions support the observation that race is correlated with resource disparities. See, e.g., *Campaign for Fiscal Equity, Inc. v. State of New York,* (2001 N.Y. Misc. Lexis 1); *Robinson v. Kansas,* 117 F. Supp. 2d 1124 (D. Kan. 2000) (Title VI claim alleging disproportionate resources). Indeed the relationship is accepted knowledge in the civil rights enforcement community. According to the U.S. Department of Education, the problem of unequal resources affects minority and low-income students the hardest. See U.S. Department of Education, Office for Civil Rights, *Intradistrict Resource Comparability Investigative Resources* at 3 (2000).
25. See, e.g., Ronald Ferguson, "Teachers' Perceptions and Expectations and the Black-White Test Score Gap," in Jenks and Phillips (eds.), *The Black-White Test Score Gap* at 273 (Brookings 1998).
26. Mark Gillespie, "Local Schools Get Passing Grades," September 8, 1999 (available at http://www.Gallup.com/poll/releases/pr990908.asp)

27. http://www.whitehouse.gov/news/reports/no-child-left-behind.html.
28. 20 U.S.C. § 6311. The statute only states that "adequate yearly progress" shall be defined in a manner: "(i) that is consistent with guidelines established by the Secretary that result in continuous and substantial yearly improvement of each local educational agency and school sufficient to achieve the goal of all children served under this part meeting the State's proficient and advanced levels of performance, particularly economically disadvantaged and limited English proficient children; and (ii) that links progress primarily to performance on the assessments carried out under this section while permitting progress to be established in part through the use of other measures."
29. William J. Clinton, *Text of Presidential Memo to Secretary of Education on School Uniforms* (Washington, DC: U.S. Newswire, 1996).
30. William G. Howell, Patrick J. Wolf, Paul E. Peterson and David E. Campbell, "Test-Score Effects of School Vouchers in Dayton, Ohio, New York City, and Washington D.C.: Evidence from Randomized Field Trials." Paper Prepared for the Annual Meetings of the American Political Science Association, September 2000; Paul E. Peterson and Bryan Hassel, eds., *Learning from School Choice* (Washington, D.C.: Brookings Institution Press, 1998); Cecilia Rouse, "Private School Vouchers and Student Achievement: An Evaluation of the Milwaukee Parental Choice Program," *Quarterly Journal of Economics*, v. 113, no. 1, February 1998; Kate Zernicke, "New Doubt is Cast on Study that Backs Voucher Effects," *The New York Times*, September 15, 2000.
31. Daniel M. Koretz and Sheila I. Barron, *The Validity of Gains in Scores on the Kentucky Instructional Results Information System* (Santa Monica, CA: Rand Corporation, 1998).
32. National Research Council, Committee on Appropriate Test Use, *High Stakes: Testing for Tracking, Promotion, and Graduation*, Jay P. Heubert and Robert M. Hauser, eds. (Washington, DC: National Academy Press, 1999): American Educational Research Association, American Psychological Association, National Council on Measurement in Education, *Standards for Educational and Psychological Testing*. (Washington, DC: American Psychological Association, 1999).
33. John Bishop and Ferran Mane, "The Impacts of Minimum Competency Exam Graduation Requirements on College Attendance and Early Labor Market Success of Disadvantaged Students," in Gary Orfield and Mindy L. Kornhaber (eds.), *Raising Standards or Raising Barriers? Inequality and High Stakes Testing in Public Education* (New York: Century Foundation Press, 2001); Hauser, op cit.; Gary Natriello and Aaron M. Pallas, "The Development and Impact of High Stakes Testing," in Gary Orfield and Mindy L. Kornhaber (eds.), *Raising Standards or Raising Barriers? Inequality and High Stakes Testing in Public Education* (New York: Century Foundation Press, 2001); C. Thomas Holmers, op. cit. Note that the magnitude of these effects is disputed, especially as regards drop outs. Deciding this is an important empirical question for policy, but it is complicated by problems with drop out data, and by the problem of holding constant exogenous variables, especially the impact of a tight labor market on propensity to drop out.
34. Phillip Kaufman, "The National Dropout Data Collection System: Assessing Consistency," A paper prepared for Achieve and The Civil Rights Project Conference, Dropout Research: Accurate Counts and Positive Interventions, January 13, 2001.
35. Richard Murnane, John B. Willett and K. P. Boudett (1995). "Do High School Dropouts Benefit from Obtaining a GED?" *Educational Evaluation and Policy Analysis*, *17*, 133-147; Richard J. Murnane, John B. Willett, and John H. Tyler (2000). "Who Benefits from Obtaining a GED? Evidence from High School and Beyond." *The Review of Economics and Statistics*, 82, 23-37.
36. For example, California Proposition 227 passed on June 2, 1998 codified at Cal. Educ. Code section 300, et seq. (popularly known as the Unz Initiative, after businessman Ron Unz) which essentially eliminated bilingual education programs and mandated struc-

tured English immersion programs with the goal of moving limited-English-proficient students into mainstream classes after one year; Arizona Proposition 203 passed on November 7, 2000 codified at Title 15, chapter 7 Ariz. Rev. Stat. Ann. Section 15-751, et seq., (2001), Article 3.1 which is similar to California's Proposition 227.

37. J. Ruiz de Velasco and M. Fix, eds., *Overlooked and Underserved: Immigrant Children in U.S. Secondary Schools.* Washington, DC: The Urban Institute, 2001.
38. While bilingual education programs generally have produced better outcomes in academic achievement, it is not clear how much better these programs are. See Testimony of Kenji Hakuta to the United States Commission on Civil Rights, "The Education of Language Minority Students," April 13, 2001, www.stanford.edu/~hakuta/Docs/CivilRightsCommission.htm. Also see, Jorge Amselle and Amy Allison, "Two Years of Success: An Analysis of California Test Scores After Proposition 227," http://www.ceousa.org/html/227rep.html, August 2000; Californians Together, "Schools with Large Enrollments of English Learners and Substantial Bilingual Instruction are Effective in Teaching English," August 21, 2000; and Orr, Butler, Bousquet, and Hakuta, "What Can We Learn About the Impact of Proposition 227 from SAT-9 Scores?" August, 2000 analyzing student achievement scores on the Stanford 9 after the implementation of Proposition 227.
39. *Educating Language Minority Children.* Committee on Developing a Research Agenda on the Education of Limited-English Proficient and Bilingual Students, D. August and K. Hakuta, eds. Commission on Behavioral and Social Sciences and Education. Washington, DC: National Academy Press, 1998.
40. *Educating Language Minority Children*, p. 5; Ruiz de Velasco and Fix, op. cit. pp. 14, 30.
41. Kenji Hakuta, Improving Education for All Children: Meeting the Needs of Language Minority Children. Available at: <www.stanford.edu/~hakuta/Aspen.html>
42. Some may define proficiency as proficiency in conversational skills while others define proficiency as having appropriate oral, written, and reading skills for a native speaker of English at a particular grade or age level. Still more relevant in the context of achievement testing, however, is proficiency sufficient for academic *learning* in English.
43. Public Education: Meeting the Needs of Students with Limited English Proficiency. Washington, DC: Government Accounting Office, pp. 5-6, 2001.
44. While the United States District Court for the Northern District of California ruled in *Valeria G. v. Wilson*, 12 F.Supp.2d 1007 (July 15, 1998), that Proposition 227 on its face did not violate the EEOA, the case has been appealed and it is unclear whether another court would make the same finding. The Court in *Valeria G*. found that Proposition 227 did not violate the EEOA because the defendants presented evidence that structured immersion is the "predominant method of teaching immigrant children in many countries in Western Europe, Canada and Israel." *Id*. at 1018. It also found that because the initiative was flexible and allowed schools and school districts to make choices about the type of curriculum they would implement that "this court can not conclude that no possible choice could constitute 'appropriate action' under Section 1703(f)." *Id*. at 1019.
45. D. Koretz, "Educational practices, trends in achievement, and the potential of the reform movement." *Educational Administration Quarterly* 24(3):350-359, 1988; William L Sanders and Sandra P. Horn, "Research Findings from the Tennessee Value-Added Assessment (TVAAS) Database Implications for Educational Evaluation and Research." *Journal of Personnel Evaluation in Education* 12(3):247-256.
46. 20 U.S.C. § 6311. The 2001 reauthorization, pending as of this writing, will continue and strengthen this requirement.
47. Ulrich Boser, 2001, "Pressure without Support." In *Quality Counts, 2001*, V. Edwards, ed. Bethesda, MD: Editorial Projects in Education; Jeff Archer, "Teacher-Quality Bill Comes Down To Wire in New Mexico," *Education Week*, March 21, 2001; Ann Bradly,

"Denver Teachers to Pilot Pay-for-Performance Plan," *Education Week*, September 22, 1999; Beth Reinhard, "Texas Proposal Ties Teacher Performance to School Scores," *Education Week* February 12, 1997; Mark Stricherz, "Top Oakland Administrators to Receive Bonuses Tied to Test Scores," *Education Week*, January 24, 2001; Mark Stricherz, "N.Y.C. Administrators to Receive Merit Pay for Boosting Scores," *Education Week*, June 6, 2001.

48. My earlier discussion included the claim that only student-focused incentives will command the attention of students, and will also focus the energy of parents, teachers and administrators.
49. For an overview of the approaches adopted by the National Institutes of Health for the dissemination of biomedical and clinical research, see http://www.nih.gov/about/NIHoverview.html.

Part III

Conference Papers

Trends in Educational Achievement of Minority Students Since Brown v. Board of Education

Kim M. Lloyd, Marta Tienda, and Anna Zajacova[1]

Prior to the 1954 *Brown v. Board of Education* Supreme Court decision that ordered the racial integration of public schools, segregation produced and perpetuated unequal educational chances for blacks, Hispanics, and American Indians. This landmark Court decision gave a strong impetus to the civil rights movement and a spate of antidiscrimination and affirmative action legislation designed to equalize educational opportunity and, ultimately, eliminate racial gaps in education and economic outcomes. The decade of the 1960s inspired great hope that the War on Poverty and the civil rights movement would yield high social dividends toward the twin goals of reducing socioeconomic inequality and promoting racial and ethnic integration. Achieving a color-blind meritocracy—one consistent with the vision of the architects of the Great Society—seemed well within the reach of social policy.

Philosophically, the meritocratic foundations of our democratic society remain intact. However, support for the social policies needed to achieve the integrated society envisioned after the 1954 Supreme Court decision has eroded as the demographic composition of the population has become more diverse along racial and ethnic lines (Bobo and Kluegel, 1993; Kuklinski et al. 1997; Olzak et al., 1994; Orfield et al., 1996; Tienda, 1999). Moreover, recent trends indicate that in some ways we are further away from the goal of economic equality than we were in the mid-1970s (Marshall, 2000; Danziger and Gottschalk, 1995). Persisting educational disparity is a major reason for persisting economic inequality. This has been even more true after 1973, when the returns to education rose, especially favoring college-educated workers (Danziger and Gottschalk, 1993; Carnevale, 1999).[2]

Our purpose here is to present a broad overview of educational trends to illustrate group differences in educational attainment over time and to document where racial/ethnic groups stand as they begin the 21st century. To trace the evolution of educational attainment since the landmark Supreme Court decision mandating integration of segregated schools, we assemble comparative data from published statistics on minority schooling from 1950 to the present.

Two disturbing developments set the stage for changing educational opportunity in the United States. First, despite impressive gains in educational attainment since the 1960s, more recent improvements since 1980 have been very modest, especially for Hispanics, who continue to leave school before graduating at four times the rate of non-Hispanic whites (National Center for Educational Statistics, 1999a; Current Population Surveys, 1999, 2000).[3] Second, gaps in graduation rates of majority white and nonwhite youth have widened at all education levels, but especially among the college-educated (U.S. Bureau of the Census, 1993). These troubling trends signal deepening cleavages between race and ethnic groups; worse, if allowed to follow their current course, they could undermine the social and economic foundations of the nation's democratic institutions. Our purpose in raising these issues is not to replay past societal failures, but rather to question whether it is possible to achieve a color-blind meritocracy without first equalizing educational opportunity at all levels of education.

To begin, we trace the increasing racial and ethnic diversity of the school-age population in the United States and illustrate key social and economic correlates of group membership that exacerbate educational disparities, such as residential concentration, living arrangements, poverty, parental education, access to computers, and linguistic diversity. Subsequently, we discuss how the educational pipeline reduces the pool of students able to compete for college admissions. The concluding section discusses the practices that can reverse the trends toward rising educational inequality by leveling the playing field when children enter the educational system and preventing achievement gaps at the lower and middle grades. We argue that the increasing diversification of the student population requires strong policies of inclusion and representation because this is a minimum condition for shaping a common voice and preserving the meritocratic foundations of all educational institutions.

DEMOGRAPHIC TRENDS

Three master trends characterize the changing demography of the school-age population since *Brown v. Board of Education* in 1954. These are: (1) rapid racial and ethnic diversification of the school-age population, (2)

a growing presence of foreign-born students at primary, middle, and secondary schools, and (3) increased regional and urban concentration of minority students. The spatial dimensions of population distribution are important for appreciating how segregation continues to delimit educational opportunity to the present day.

In 1950, the U.S. Bureau of the Census enumerated 150 million inhabitants, of which just under one-third were of school age.[4] At that time, 14 percent of youth were classified "minority" (i.e., nonwhite). The vast majority of such students—12 percent—were black and just 2 percent were Hispanic and other races combined. During the 1950s, the U.S. population increased by 30 million, and 25 million more were added to the population during the 1960s. Because this growth was driven by higher fertility, the school-age population as a share of the total rose from 31 to 37 percent during the "baby boom."[5] Thereafter, the proportion of youth began a gradual decline and currently accounts for just over one-quarter of the total population. However, because the U.S. population base has continued to grow, the *absolute size* of the school-age population has remained stable since 1970—about 75-76 million.

The minority share of youth rose relatively slowly during the 1950s and 1960s, reaching 15 percent by 1960 and 16 percent a decade later (U.S. Bureau of the Census, 1960, 1970). However, the gradual increase in the racial and ethnic diversification of the population changed dramatically during the 1970s—partly due to an increase in the volume and diversity of immigration, partly due to higher fertility of minority populations, and partly due to changes in the Census Bureau's methods used to enumerate minority groups, particularly Hispanics and Asians. By 1980 nearly 1 in 4 of the 77 million people ages 5 to 24 were classified as minority. Ten years later, 30 percent of school-age youth were black, Hispanic, Asian, or American Indian. And, as Figure 1 shows, this proportion exceeded 1 in 3 by 2000. Although the diversification of the school-age population appears gradual when evaluated on a decade-by-decade basis, the pace of change is quite striking from a 50-year perspective—approximately two generations in demographic time. Figure 1 reveals that the minority share of the K-12 population more than doubled in 50 years, increasing by a factor of 2.5. The absolute size of the minority college-age population grew slightly faster, at 61 percent. These trends indicate that diversification simultaneously affected primary and secondary schools, as well as colleges and universities.

Both the direction and timing of these demographic shifts have important implications for educational opportunities and outcomes. Changes in the racial/ethnic composition of the school-age population occurred in tandem with equally profound shifts in other spheres, including the residential distribution of youth from rural to urban and suburban

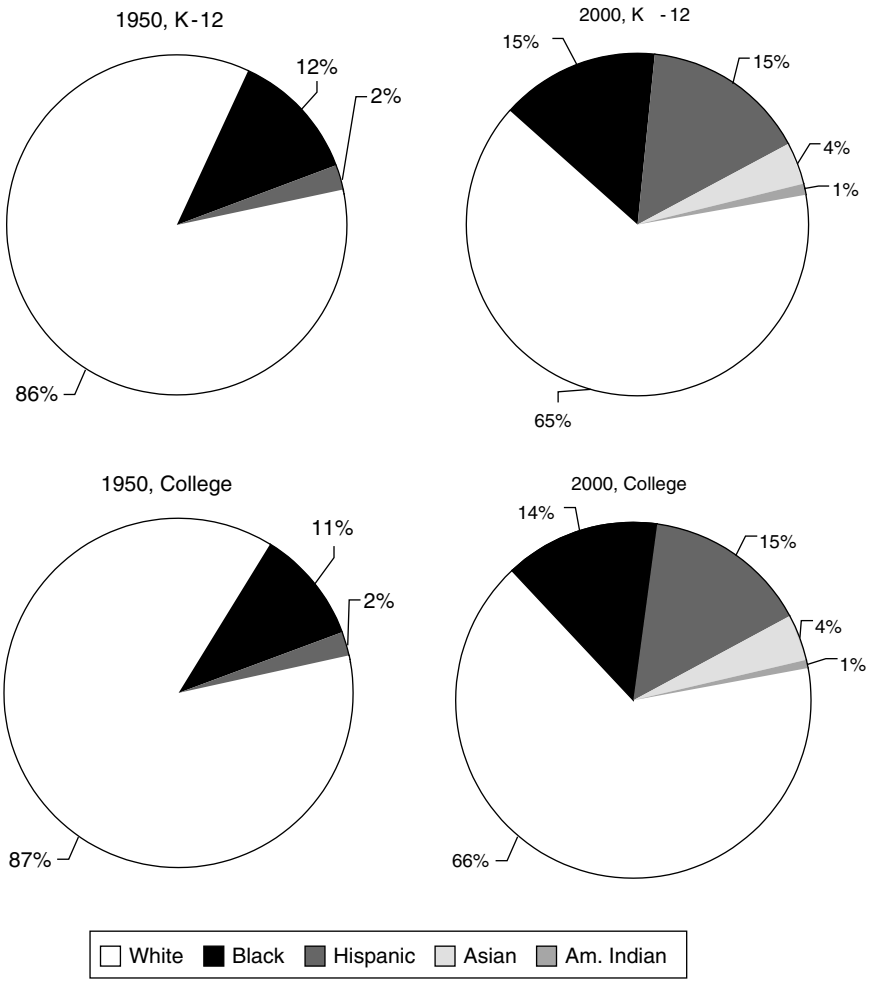

FIGURE 1 Racial/ethnic composition of the school-age population: 1950 and 2000. SOURCE: U.S. Bureau of the Census (1950, 2000).

areas (Long, 1988); in the diversification of educational institutions (Barron's Educational Series, 1992; National Center for Education Statistics, 1999a); and in the structure of employment away from manufacturing and toward the service sector and technical jobs requiring higher levels of skills (Levy, 1987; Danzinger and Gottschalk, 1993). Combined, these trends have raised the value of postsecondary schooling while in-

creasing competition for slots in the most prestigious colleges and universities.

During this same period the volume and composition of immigrants arriving on U.S. shores also had a profound impact on the American educational system. The foreign-born share of the total population decreased slightly during the 1950s, stabilized during the 1960s, and increased substantially thereafter (U.S. Bureau of the Census, 1999). Not only did the volume of immigrants admitted to the United States increase after 1970, but also the regional origins of new arrivals became more diversified (Farley, 1996; Rumbaut, 1996). Because the majority of immigrants and their children now hail from Latin America and Asia, the foreign born share of Hispanic and Asian students rose appreciably. In 1960, 16 percent of all Hispanics were foreign born, but by 1990, over 1 in 3 was born outside the United States (U.S. Bureau of the Census, 1960, 1999). This share remained constant during the 1990s, but since the population base increased by 25 million in absolute terms, there were more immigrant children enrolled in educational institutions.

Large-scale Asian immigration is a more recent phenomenon than Hispanic immigration. Because the Asian population base is much smaller, the impact of recent immigration is even more striking. In 1960, 1 in 3 Asians were foreign born, but by 1990 over 3 in 5 Asians were immigrants (U.S. Bureau of the Census, 1960, 1999). This share remained quite stable during the 1990s, as the Immigration and Naturalization Service implemented new measures to regulate the numbers of immigrants admitted. As evident in Figure 2, recent immigration trends have left an indelible imprint on the school-age population at the turn of the 21st century. Nearly 3 in 4 Hispanic and 81 percent of Asian youth are either foreign born or children of immigrants. By contrast, only 10 percent of black school-age youth are foreign born or children of immigrants, and an even smaller share of white youth so qualify.

These demographic shifts pose formidable challenges for education systems, but not uniformly at the national, regional, and local levels. Not only are minority youth geographically concentrated, but they are also disproportionately more likely than their white peers to be in central-city school districts (Current Population Surveys, 2000). If all schools afforded equal educational opportunity, differences in geographic location would be irrelevant for the contours of racial and ethnic inequality. Unfortunately, this is not the case (National Center for Education Statistics, 1999a, 2001a). Moreover, the distribution of minority students among urban, suburban, and rural schools has also become more unequal since the landmark Supreme Court decision in 1954 (Orfield et al., 1996).

Regionally, black students remain concentrated in the South and in the major industrial cities of the Midwest and the Northeast (U.S. Bureau

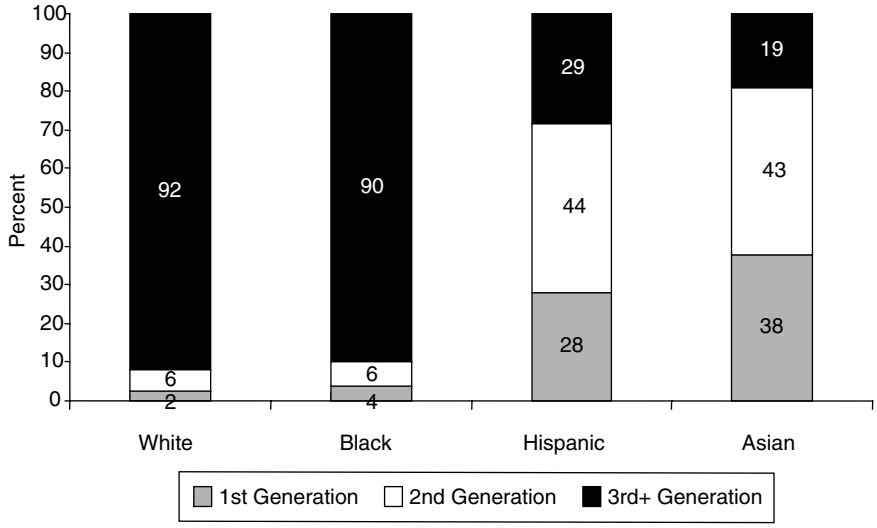

FIGURE 2 Immigrant generation status of the school-age population: 2000. SOURCE: Current Population Surveys (2000).

of the Census, 1990). Hispanics have increased their presence throughout the Southwest, even while they established a strong representation in South Florida, the Eastern Seaboard, and in selected pockets of the Midwest, where agricultural and industrial jobs lured employment-hungry workers during the 1950s and 1960s (Bean and Tienda, 1987; U.S. Bureau of the Census, 1990). Compared with blacks and Hispanics, Asians are more regionally dispersed, but they also have a strong presence on the West and East coasts, as well as several pockets in the South and Southeast.

At the state level, the impact of recent demographic trends on population composition has been highly uneven. According to the 2000 Census, blacks, Hispanics, Asians, and American Indians combined comprise half of California's population and over half of New Mexico's population (*Newsweek*, 2000). Furthermore, 45 percent of Texans are nonwhite, as are approximately one-third of New York, New Jersey, and Florida residents. Just over one-quarter of Illinois inhabitants self-identify as black, Hispanic, Asian, or American Indian. In many counties and cities in these states, people of color represent a clear demographic majority.[6]

Within state jurisdictions, not only is the minority school-age population disproportionately concentrated in large, central cities, but this concentration has also increased over time. Figure 3 provides detail about the

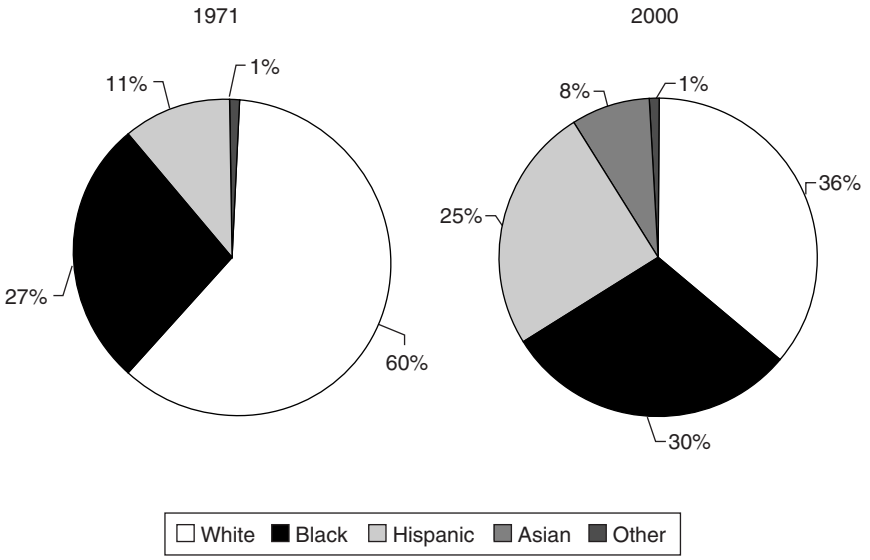

FIGURE 3 Racial/ethnic composition of the school age central-city population. SOURCE: Current Population Surveys (1971, 2000).

racial/ethnic profile of urban central-city school districts. In 1971, 39 percent of central-city student populations were minority, but 29 years later this share had climbed to 64 percent. These changes in the school-age population occurred during a period of suburbanization and depopulation of the largest urban areas, which further polarized educational opportunity among precollege students (Orfield et al., 1996).

Currently, just over 1 in 3 central-city students are white, 30 percent are black, 1 in 4 are Hispanic, 8 percent are Asian, and 1 percent American Indian. These differences are stark enough when mapped against the racial/ethnic composition of the student body, but when viewed as group-specific population shares (depicted in Figure 4), racial and ethnic differences in urban school attendance are even more dramatic. Of all black students, nearly half reside in a central-city school district, whereas only 14 percent of all white students do so. Although only 14 percent of American Indians live in urban school districts, the vast majority of the remainder attends rural schools rather than higher performing suburban schools where white youth are disproportionately concentrated. These differences in the geographic distribution of students would be inconsequential if the quality of schooling afforded in central-city, suburban, and rural school districts were roughly comparable. Unfortunately, minority students are

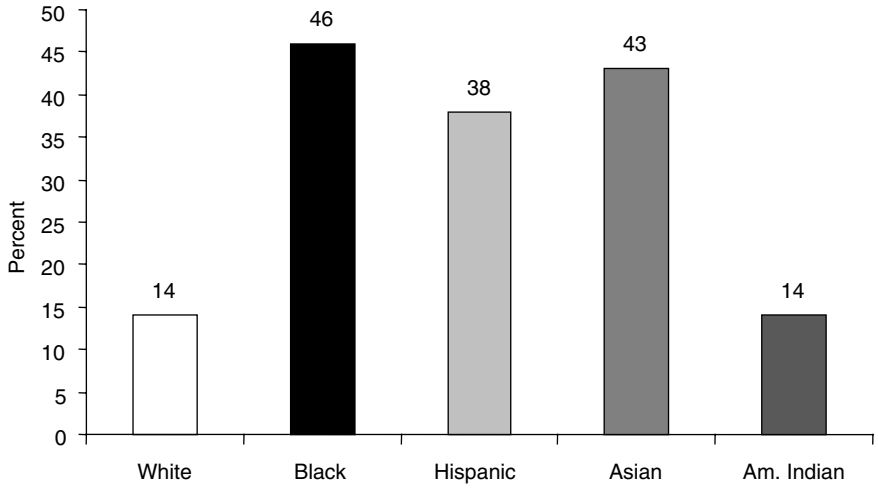

FIGURE 4 Population shares of school-age youth residing in central-city school districts: 2000. SOURCE: Current Population Surveys (2000).

more likely to attend highly segregated and low-performing schools where educational opportunities are limited (Orfield et al., 1996).

Overall, these trends in the demography of the school-age population pose formidable challenges for school systems responsible for educating large numbers of minority students, including recent immigrants. But with the possible exception of linguistic variation, these challenges do not derive from diversity per se. Rather, they are the consequence of persistent inequities in the resource endowments of urban, suburban, and rural schools and the inability of local governments to implement significant reform in underperforming schools (Arum, 2000; Kain and Singleton, 1996). In the face of persisting residential segregation (Massey and Denton, 1993), the need to readdress inequities in educational curricula is even more urgent now than in the past, when minority representation in underperforming, central-city schools was lower.

SOCIOECONOMIC TRENDS

Additional obstacles to enhancing educational opportunity, regardless of race, lie in the substantial social and economic differences among demographic groups. Key correlates of group membership—such as family structure, poverty, parental education, access to computers, and linguistic diversity—exacerbate educational disparities in the United States. These disparities then contribute to the exclusion of large numbers of

minority students from the privileges enjoyed by many whites. Because of their pivotal role in determining educational outcomes, we briefly summarize and illustrate these correlates of educational attainment that produce educational disparities between minority and nonminority youth.

The rise in the share of children reared in single-parent homes is one of the most profound social changes witnessed during the past 40 years (Wojtkiewicz et al., 1990). Living arrangements are crucial for understanding racial and ethnic differences in educational opportunities and outcomes, because youth reared by a lone parent have considerably lower educational achievement than those reared by two parents (Teachman et al., 1997; Thomson et al., 1994), and because minority youth are more likely than whites to reside with a single parent (U.S. Bureau of the Census, 1994; Wojtkiewicz, 1992). The share of youth living with one parent more than doubled from 1970 to the present, but as Figure 5 shows, this overall change conceals large differences by race and Hispanic origin. In 1970, less than 10 percent of white children and nearly a third of black children lived with a single mother. By 1998, 18 percent of white children, 27 percent of Hispanic children, and over half of blacks lived with a single mother.

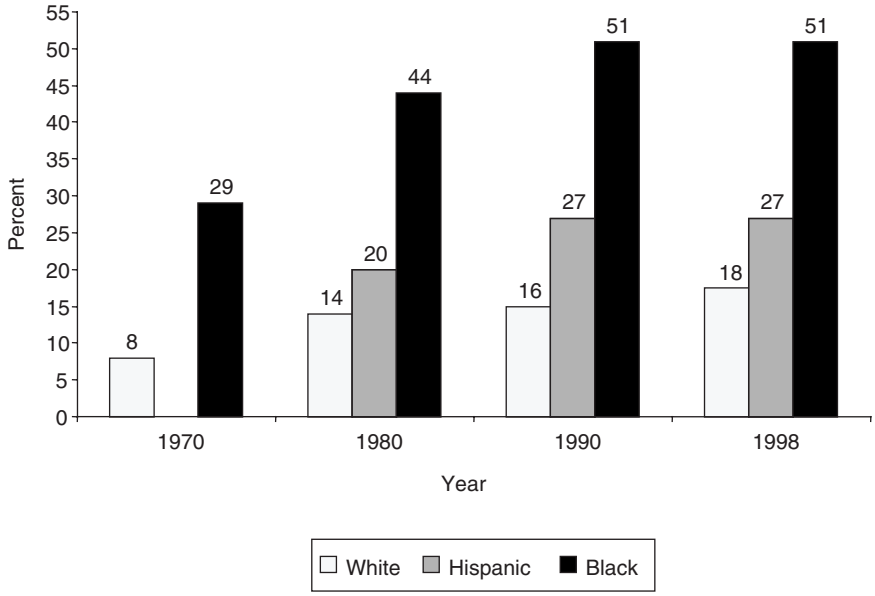

FIGURE 5 Children 18 and under living with mother only: 1970-1998. SOURCE: Federal Interagency Forum on Child and Family Statistics (1998).

Equally striking is the propensity of youth under age 18 to reside with neither parent. Nearly 10 percent of black and 5 percent of Hispanic children resided with neither parent in 1998, compared with only 3 percent of their white counterparts (Federal Interagency Forum on Child and Family Statistics, 1998). Presumably these children lived with more distant family members, with friends, or in foster homes. Although their relative proportions are small, their absolute numbers are not. These youth, who experience a myriad of social problems, are especially vulnerable to school failure, and they are among those in greatest need of social support. For a large majority, the idea of high school graduation, much less college attendance, is an alien concept. If current trends in family structure continue, the shares of minority youth residing in vulnerable families will grow, potentially widening racial and ethnic gaps in school attainment even more.

Past research also indicates the important role of siblings in determining the educational attainment of youth (Blake, 1989; Powell and Steelman, 1993). Research consistently demonstrates the inverse relationship between family size and completed levels of schooling, regardless of race and ethnicity (Lloyd, 1993). In fact, the influence of family size on educational attainment rivals those of parental education and occupation. The average number of children per household—a proxy for number of siblings—has steadily declined over the past 50 years and has also begun to converge among different racial/ethnic groups. In 1970, the typical white family had an average of 2.3 children, compared with 2.79 children in black and 2.69 in Hispanic families (U.S. Bureau of the Census, 1970). By 1998, the number of children per family had dropped to a mere 1.86 for white, 1.98 for black, and 2.09 for Hispanic families (U.S. Bureau of the Census, 1998b). This convergence is promising in terms of promoting more equal educational outcomes across disparate demographic groups.

Poor youth are more prone to scholastic underperformance and low educational attainment than youth reared in affluent families (Teachman et al., 1997). On this score, trends in poverty have both troubling and promising aspects. As Figure 6 demonstrates, the black-white poverty ratio hovered around 3 throughout the 1980s and early 1990s, but finally dropped to 2.4 in 1997—following several years of impressive economic growth. While this provides strong grounds for optimism about the educational prospects of black youth, recent signs of a slowing economy are clearly evident. Unfortunately, the historical record shows that minority youth, and particularly black youth, are the most vulnerable to the risk of poverty when labor markets slacken (Hirschman, 1988; Donahoe and Tienda, 2000). If the economy continues to falter, the improved racial gap in poverty may be short-lived.

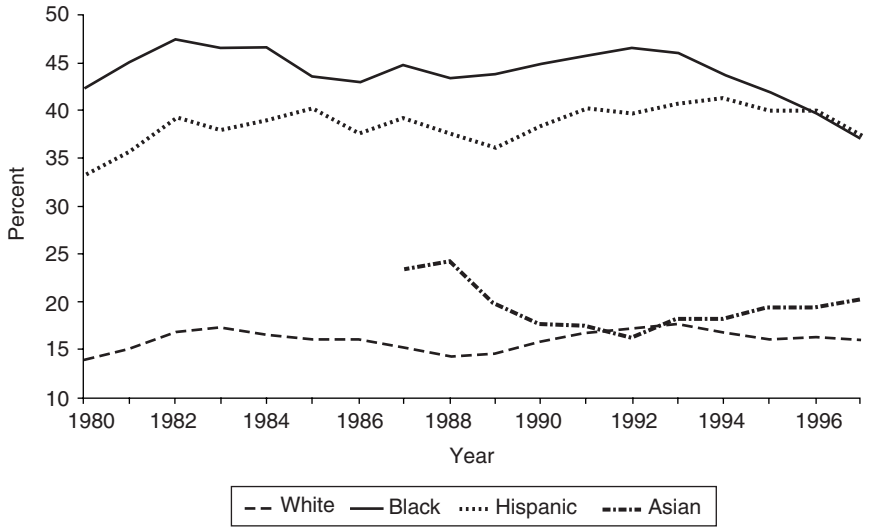

FIGURE 6 Children under 18 living in poverty: 1980-1997. SOURCE: U.S. Bureau of the Census (1998a).

As Figure 6 shows, the Hispanic-white youth poverty ratio is below the black-white ratio for most of the period displayed.[7] This ratio has proven resistant to change, even during the brisk economic growth that characterized the early to mid-1990s. In fact, Hispanic and black youth poverty rates converged during the late 1990s, when black poverty fell more precipitously than Hispanic poverty. This is worrisome, because the Hispanic population is growing more rapidly than the black population (see Figure 1), and because Hispanic poverty is largely associated with low-wage work rather than unemployment (Stier and Tienda, 2001; Tienda, 1995, 1993). Finally, the Asian-white youth poverty ratio hovered around 1 throughout most of the 1990s. Despite initial convergence with whites, it again began to rise during the latter part of the 1990s. This is another troubling sign that may be reflected in educational outcomes in the future.

Low-wage poverty has proven more difficult to modify through policy interventions than poverty stemming from lack of work because most employment policies focus on labor supply (i.e., raising worker skills to increase their employability) to the relative neglect of demand side policies (Bartick, 2001). Supply-side policies tend to have modest employment effects for low-income workers (Blank, 2000; Solow, 2000). But increases in aggregate demand also do little to help the poor unless the

policies are targeted to specific groups (Bartick, 2001; Carnevale and Desrochers, 2000).

Figure 7 shows how youth poverty rates covary with family living arrangements. However, among youth residing with a lone mother, the risk of being poor also differs according to race and Hispanic origin. Compared with white youth reared in two-parent families, whites raised by a single mother are five times more likely to be poor. Blacks are 4.2 times more likely to be poor if they live with a single mother compared with two parents, and Hispanic children are 2.4 times more likely to be poor if raised in a female-headed family. The lower poverty differentials by family type do not signal better socioeconomic conditions of minority youth, but rather reflect the higher overall poverty rates of children of color, whether they live with both parents or only one.

Although family structure and poverty status are important correlates of educational outcomes that covary with group membership, parental education is a key socioeconomic attribute that directly shapes racial and ethnic differences in children's scholastic performance and educational attainment (Duncan et al., 1972; Hauser, 1971). Parental education drives the expectations set for children and determines financial, material, and intellectual resources deployed to promote achievement in school. On this count, Hispanics clearly are the most disadvantaged group. Figure 8

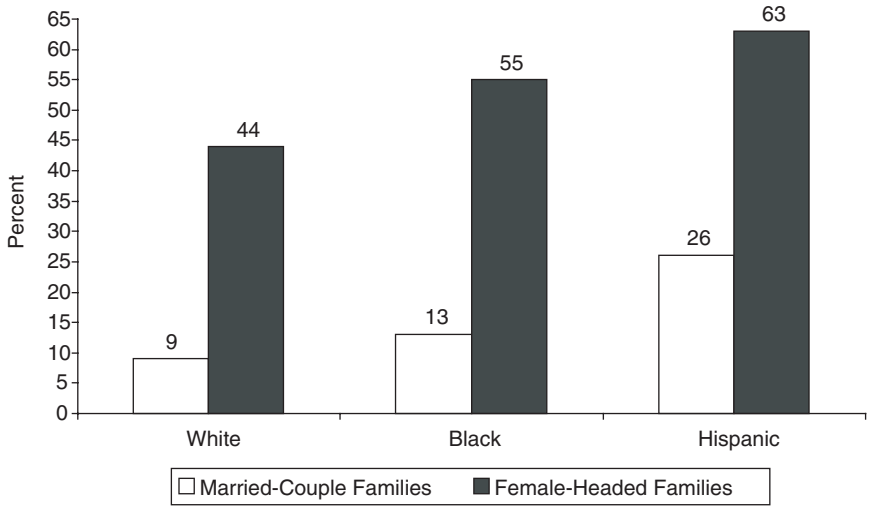

FIGURE 7 Poverty rates of children under 18 by family type. SOURCE: U.S. Bureau of the Census (1998a).

reveals that Hispanic children are more than six times as likely as white children and three times as likely as black children to have a father who did not complete high school.

Figure 8 also displays trends in fathers' education over the past 25 years. There have been significant improvements in paternal education during this period. The decline in the proportion of children whose fathers have not completed high school is most dramatic among blacks. From 1974 to 1999, the percentage of black children whose father did not have a high school diploma dropped from 61 to only 15. While the proportion of white and Hispanic children whose fathers had less than a high school education also fell during this time, the declines where more modest. In 1974, over half (58 percent) of Hispanic children's fathers had less than 12 years of completed schooling, compared with 29 percent of whites. By 1999 these percentages had dropped to 49 and 8, respectively. Trends in mothers' education are very similar to those reported for fathers, except that mothers tend to have even lower levels of attainment (National Center for Educational Statistics, 2000).

At the other end of the educational continuum, as Figure 9 shows, only a small fraction of Hispanic youth have college-educated fathers. Moreover, this share has been relatively stable since 1974, rising only from 8 to 10 percent. By contrast, 1 in 3 white youth have college-edu-

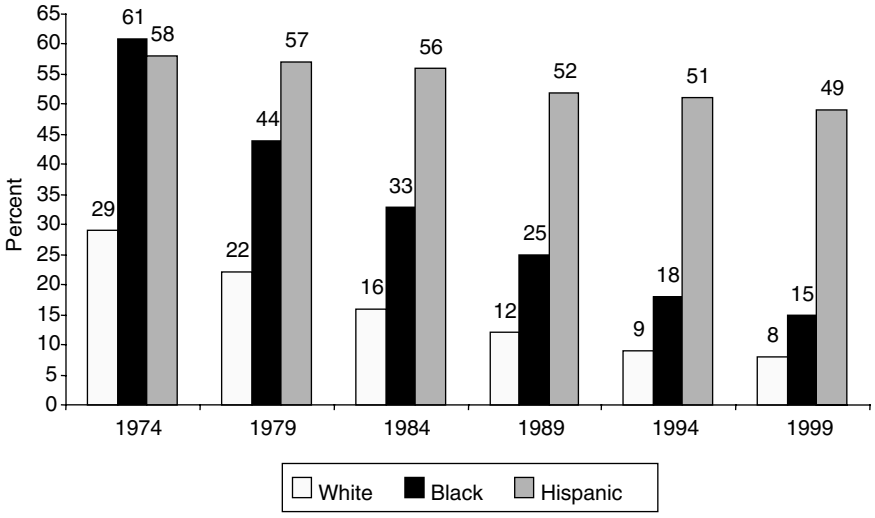

FIGURE 8 Youth ages 6-18 with fathers with less than a high school diploma: 1974-1999. SOURCE: National Center for Educational Statistics (2000).

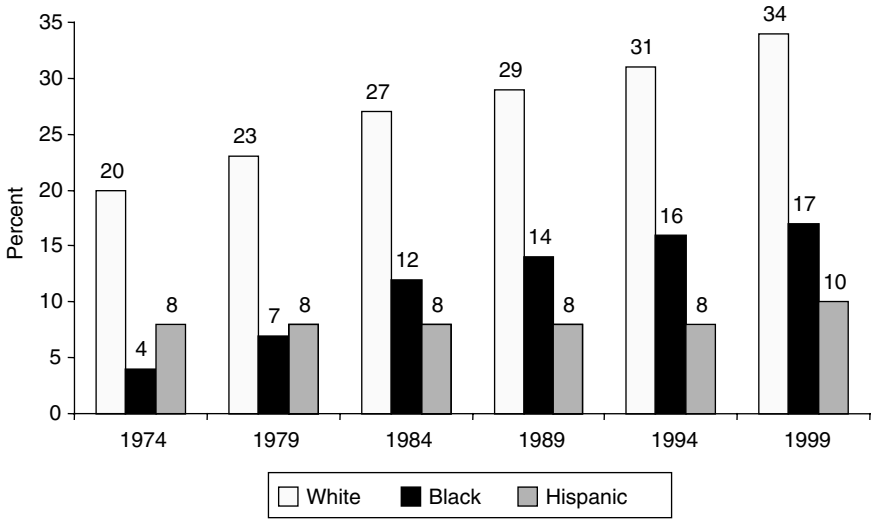

FIGURE 9 Youth ages 6-18 with college-educated fathers: 1974-1999. SOURCE: National Center for Educational Statistics (2000).

cated fathers, and this share rose appreciably over the 25 years depicted in Figure 9, from 20 to 34 percent. Blacks are intermediate between these extremes in that 17 percent have fathers with college degrees in 1999. What is noteworthy about blacks is that the share of youth with college-educated fathers more than tripled over the 25-year period, from less than 5 to 17 percent. This is encouraging news, yet the parental education gap vis-à-vis whites remains substantial, as white youth are two times more likely than black youth to have college-educated fathers and more than three times more likely than Hispanics. The racial and ethnic differences in mothers' education parallel those of fathers, except that the story is even more bleak because fewer mothers hold college degrees (National Center for Educational Statistics, 2000).

That minority group membership is tightly coupled with social class also shapes differential access to a broad range of educational resources, such as books, places to study, and home computers (Bean and Tienda, 1987:Chapter 8; Kao et al., 1996; Kao, 1995). Disparities in the availability of personal computers, for instance, may be relevant for understanding unequal opportunities and outcomes in a society in which easy electronic access is becoming a new axis of social inequality. Evidence in support of this assertion is beginning to emerge (see, for example, Attewell and Battle, 1999; Mitchell, 1996). If Internet and computer access is related to success in school, then the distribution of these resources across demo-

graphic groups is important for understanding educational outcomes. Figure 10 reveals that white students enrolled in grades 1-12 are four times more likely than Hispanics and blacks to have access to the Internet via home computers (National Center for Educational Statistics, 2000). These differentials in access to information are reproduced in Internet usage at school as well. Compared with 83 percent of whites, only 70 percent of black and Hispanic students use the Internet at school. Easy Internet access has become a goal in political rhetoric about connecting American students to the world, but current circumstances imply highly unequal connectivity along racial and ethnic lines. Inasmuch as minority youth are more likely than whites to attend poorly endowed schools, these differentials in access to information are reproduced and reinforced.

Taken together, these selected socioeconomic differentials raise a crucially important question about the changing contours of educational opportunity as well as the meaning of racial and ethnic differences in educational outcomes. Specifically, to what extent do the differences in educational outcomes reflect group-specific differences in the legacy of previous disadvantage and limited opportunity? While multivariate analyses are beyond the scope of this descriptive profile, we shed light on

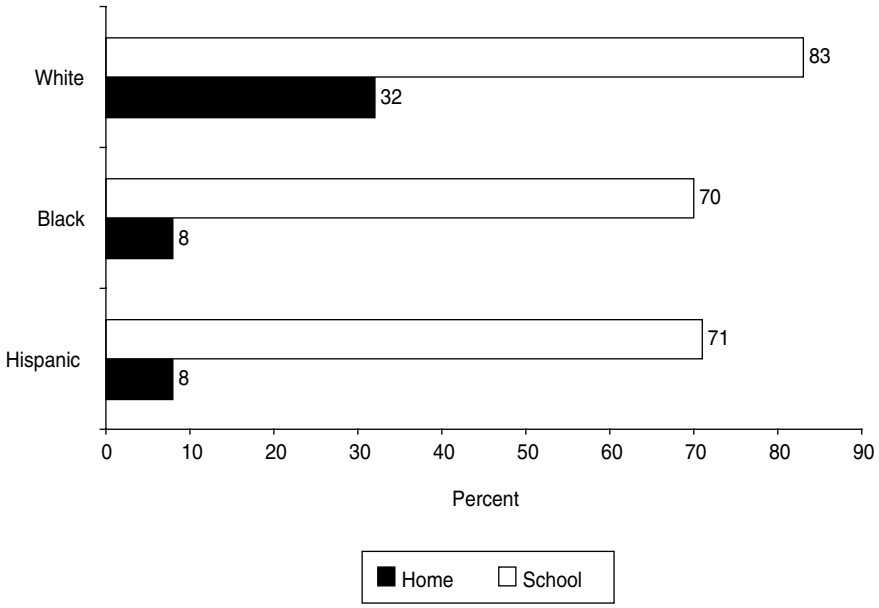

FIGURE 10 Students' internet use: 1999. SOURCE: National Center for Educational Statistics (2000).

this question by examining group differences in linguistic diversity and selected indicators of scholastic performance as well as trends and differentials in educational attainment. These outcomes can lead to a fuller understanding of the progress made by minority students through the educational pipeline since the historic Supreme Court decision of *Brown v. Board of Education*.

ELEMENTARY AND SECONDARY EDUCATIONAL TRENDS

How linguistic diversity challenges schools depends more on whether immigrant children and native-born children of immigrant parents are proficient in English and less on whether they are bilingual (Portes and Rumbaut, 1996:Chapter 6; Portes and Rumbaut, 2001:Chapter 6). These issues are trivial for blacks and whites but quite salient for Asians and especially Hispanic youth, among whom the foreign-born population shares have been rising. As Figure 11 demonstrates, nearly 1 in 3 Hispanic children between the ages of 5 and 17 has difficulty speaking English, compared with less than half as many Asian youth. Surely this hampers Hispanic children's ability to comprehend academic subject matter taught exclusively in a language that is difficult for them to understand. It is also significant that nearly 3 in 4 Hispanic youth live in homes in which a language other than English is spoken, compared with 46 percent of Asians. Use of a foreign language at home may signal difficulties in par-

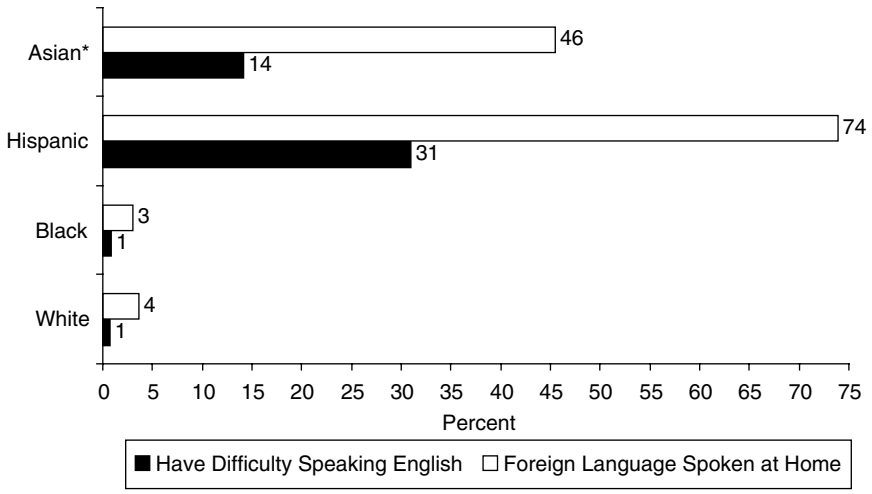

FIGURE 11 Linguistic diversity of youth ages 5-17: 1995. SOURCE: Federal Interagency Forum on Child and Family Statistics (2000).

ents' ability to provide strong links between their children and the schools (Zhou, 2000). It is unlikely that immigrant parents do not value education; rather, their limited communication skills may significantly reduce their ability to engage with the school system and broker on behalf of their children, or to provide help with homework and to support extracurricular school activities. Until immigrant youth and their parents become proficient in English, such communication obstacles require creative outreach efforts and ingenuity, assuming the political will exists.

However, linguistic diversity cannot be the primary reason for the scholastic underperformance of minority students. Were this so, Asians would score lower than whites and blacks on standardized tests. In fact, white, black, Hispanic, and Asian youth enter the school system at very different starting points. Figure 12 shows that unequal educational opportunity begins to take its toll at the beginning of the educational pipeline. This is clearly evident in the large differences in math and reading scores of minority and nonminority children as early as kindergarten. According to the Early Childhood Longitudinal Study of the National Assessment of Educational Progress, even before entering 1st grade, Asians outperform white and (even more so) black and Hispanic children (National Center for Educational Statistics, 2000). These differences are not simply a reflection of linguistic diversity; they mirror social class and

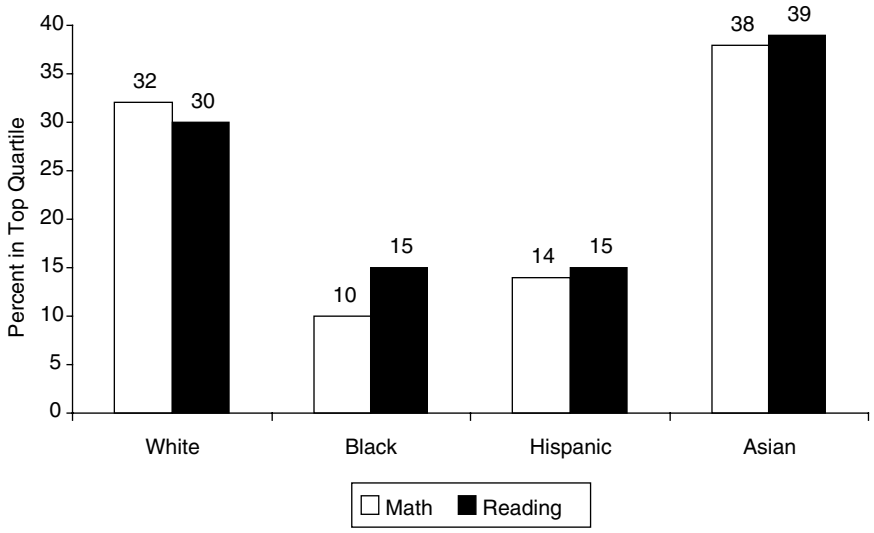

FIGURE 12 Math and reading proficiency of kindergartners: 1998. Excludes 30 percent of Hispanic and 19 percent of Asian children not tested because of language problems. SOURCE: National Center for Educational Statistics (2000).

family structure differences as well as student and parental values that give high priority to educational pursuits (Fuligni, 1997; Kao et al., 1996; Kao and Tienda, 1995).[8]

Racial and ethnic disparities in school readiness carry over through elementary and middle school. As demonstrated in Figure 13, by 4th grade, 60 percent of black and Hispanic students read below basic proficiency, compared with about 30 percent of whites and Asians.[9] By 8th grade, only modest gains in reading proficiency are evident, thereby maintaining the achievement gap by group membership. On a positive note, the racial and ethnic gap in reading performance actually declines at higher grades. However, this may be a conservative estimate of reading deficits because some of the lowest performing students may have already dropped out of school prior to their senior year. By 12th grade, approximately 40 percent of black and Hispanic students continue to read below basic proficiency levels. As shown in Figure 13, disproportionate shares of lower performing students are black and Hispanic. By contrast, nearly half of white seniors read at or above proficiency level.

Figure 14 presents trends in math and reading scores of seniors by race and Hispanic origin. While the racial/ethnic performance differential in math scores is apparent throughout the period, there has been some convergence between 1973 and 1996. This is especially true between 1973 and the early 1990s, when both black and Hispanic mathematics achievement scores increased significantly. Many researchers have attributed these gains to greater black and Hispanic student enrollment in high school algebra and geometry courses (see, for example, Jones 1984). Temporal data for Asians are incomplete, but their math performance generally exceeds that of whites by a substantial margin (data not shown in Figure 14). It is noteworthy that the Asian-white math proficiency differentials generally lead to less social concern than the white-black or white-Hispanic gaps, for surely all children should be able to achieve at levels comparable to those of Asian youth.

The time trend in reading scores also shows considerable improvement for minority students, which results in narrower racial/ethnic gaps over time.[10] Specifically, black students witnessed a 20-point improvement in reading scores during the 1980s and Hispanics a 14-point gain. This is a promising sign of what is possible. Although reading proficiency of black and Hispanic students converged by the mid-1990s, it is troubling that a substantial achievement gap vis-à-vis whites remains.

A further implication of low reading and math scores is that underperformance is a precursor to premature withdrawal from school, which in turn lowers the shares of students who aspire to attend college (Kao and Tienda, 1995; Kao et al., 1996). Although temporal changes provide signs of hope, there remain equally troubling trends in high school drop-

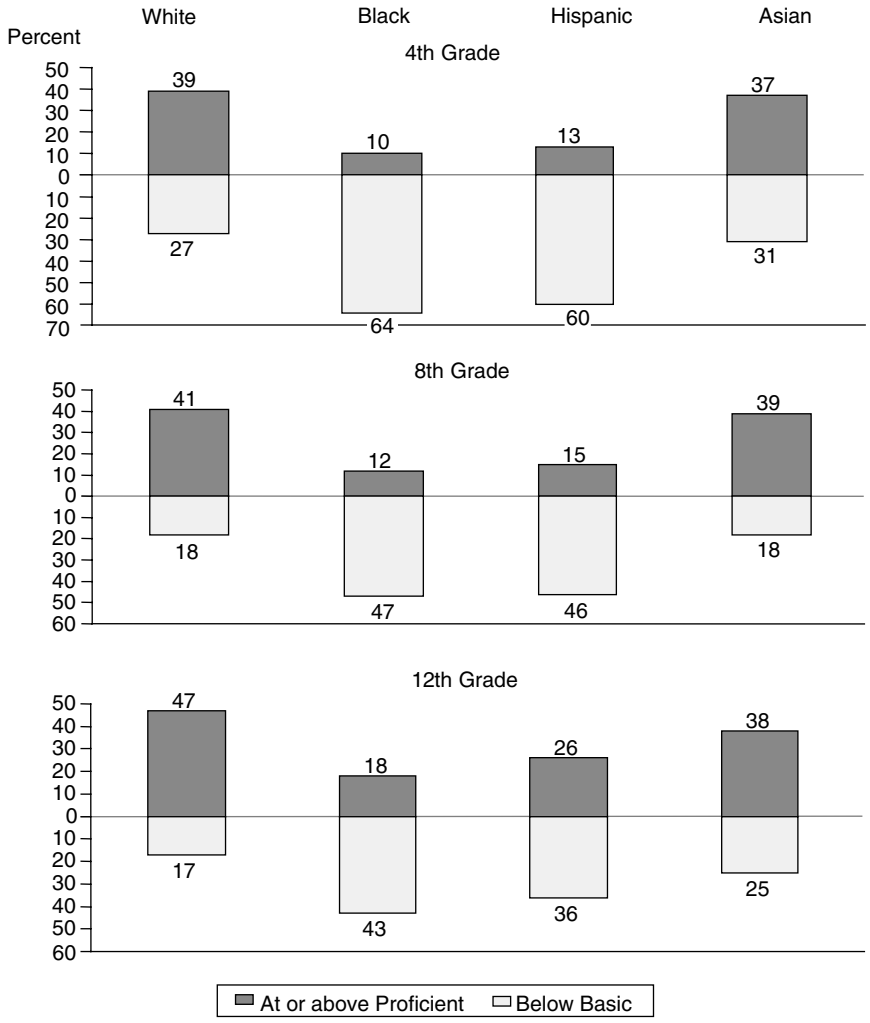

FIGURE 13 Students reading achievement levels: 1998. SOURCE: National Center for Educational Statistics (1998a).

out rates. On the promising side, Figure 15 shows that the white high school dropout rate was cut in half—from 15.5 to 7.7 percent between 1967 and 2000. Furthermore, the black dropout rate was reduced by more than half, although it remains 5 percentage points above that of whites. On the troubling side is the resistant Hispanic dropout rate, which has hovered around 28 to 35 percent throughout the time period.

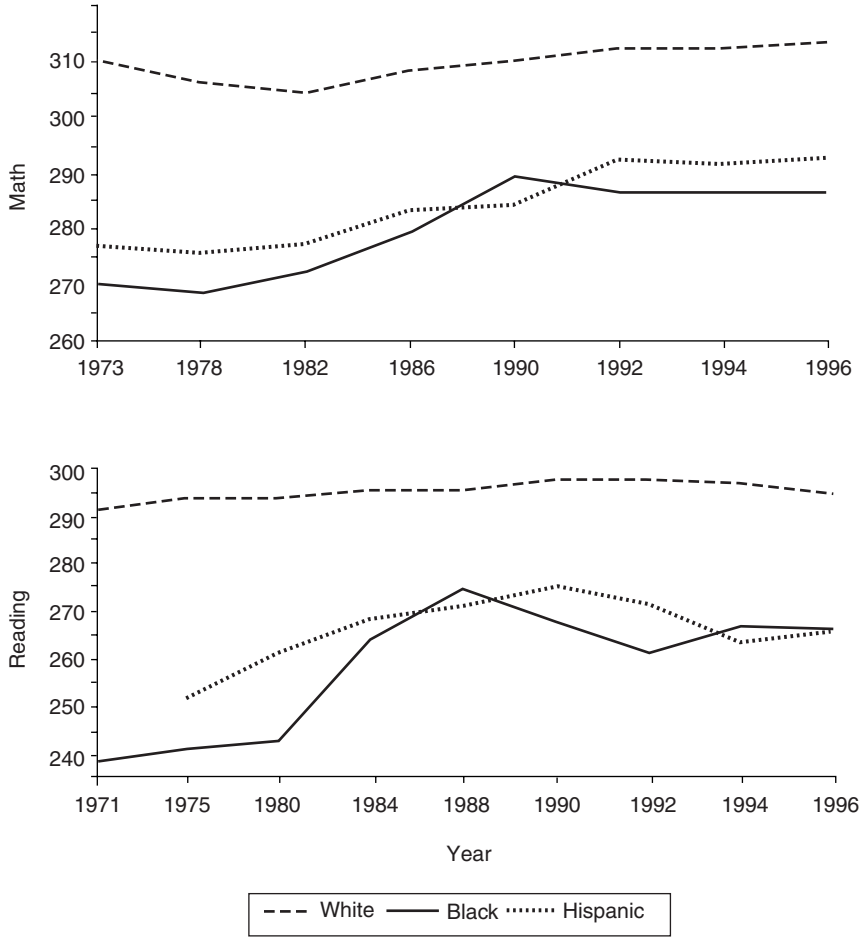

FIGURE 14 12th grade math and reading scores: 1973-1996. SOURCE: National Center for Educational Statistics (1998b).

One plausible explanation for Hispanics' resistant dropout rate is that the influx of poorly educated immigrants from Central and South America lowers the graduation rate for the total Hispanic population. These groups have parents with very low education levels, and parental education is one of the strongest determinants of offspring's educational attainment (Mare, 1995). However, this is not the whole story. In support of the immigration explanation are the high dropout rates of first-generation Hispanics. Figure 16 shows that slightly over half of all Mexican and 44 percent of other Hispanic immigrant youth fail to graduate from high

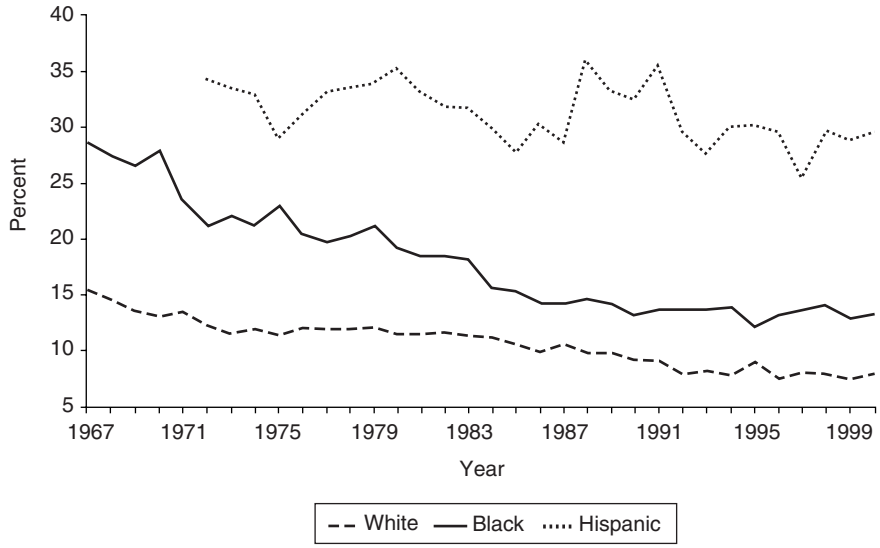

FIGURE 15 High school dropout rates for persons ages 16-24: 1967-2000. SOURCE: National Center for Educational Statistics (1999a); Current Population Surveys (1999, 2000).

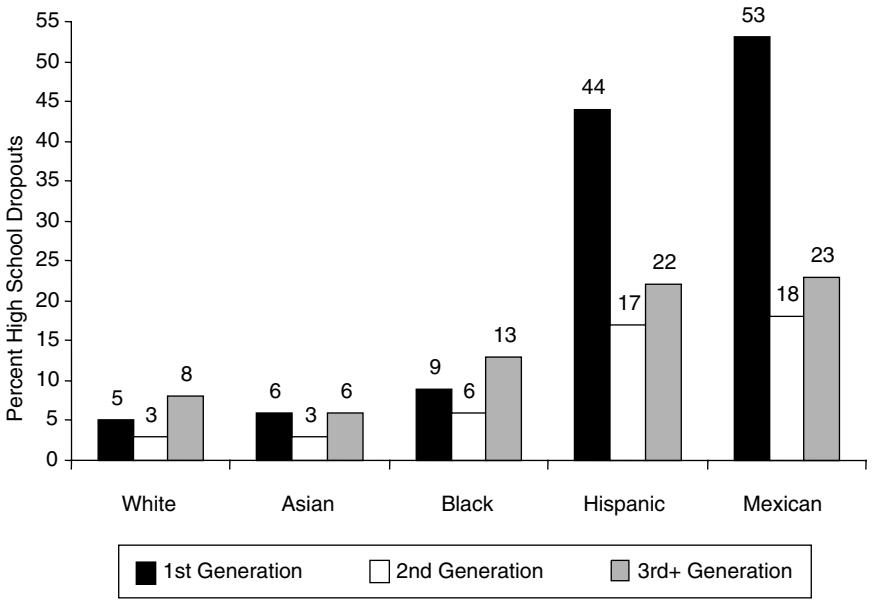

FIGURE 16 High school dropout rates by immigrant generation for persons ages 16-24: 1996. SOURCE: Current Population Surveys (1996).

school. This implicates immigration as an important correlate of racial and ethnic differences in educational attainment. That dropout rates of the third generation *remain* appreciably higher for Hispanics compared with their Asian, white, or black counterparts suggests that other factors besides immigrant status also contribute to the educational underachievement of Hispanic youth. For example, among third-generation Mexican-origin children whose parents are both U.S. born, nearly 1 in 4 fails to graduate from high school, yet only 6 percent of third-generation Asians discontinue their education before completing the 12th grade. Likewise, among black immigrants, less than 10 percent do not graduate from high school, while 13 percent of those with native-born parents fail to graduate. Clearly, immigration cannot be the entire story.

Overall, the "effect" of immigration on educational attainment appears to be driven more by parental socioeconomic standing than by foreign birth per se (Coleman, 1990; Mare, 1995; Kao and Tienda, 1995; Kao, Tienda, and Schneider, 1996). Elevated high school dropout rates do not bode well for the economic prospects of Hispanic students, not only because their labor market prospects are greatly compromised by their truncated educational careers, but also because failure to complete high school restricts access to college and good jobs (Carnevale, 1999; Trejo, 1997). Because the wage returns to college education rose appreciably after 1973, the constriction of the secondary and postsecondary educational pipeline has more deleterious socioeconomic consequences today than in the past (Levy, 1987; Danzinger and Gottschalk, 1993). That Hispanics are also the fastest-growing segment of the school-age population means that large numbers are likely to become and remain poor throughout their working lives unless strong measures are taken to improve their educational attainment (Carnevale, 1999). These circumstances, as well as the persistent black-white disparity in graduation rates, require strong and decisive corrective measures to unplug the educational pipeline for minorities from lower socioeconomic backgrounds in order to avoid deepening class divisions along racial and ethnic lines in the future. Such measures will not only reinforce the democratic foundations of our meritocracy, but also may render it color-blind.

POSTSECONDARY EDUCATIONAL TRENDS

Despite the persisting racial/ethnic gaps in high school completion, there is much progress to celebrate in higher education because college-going rates are at an all-time high for every racial and ethnic group and the number of postsecondary institutions available to promote this trend continues to grow. Institutional expansion is necessary for broadening educational opportunities, but it is not sufficient to ensure that postsec-

ondary educational outcomes and opportunities will be color-blind. As high-tech industries continue to proliferate and a growing number of jobs require a college education, the social cost of unequal outcomes in primary schooling may be very high.

Unfortunately, troubling signs shadow the promise of rising college enrollments. For example, Figure 17 shows that the college enrollment gap between Hispanics on one hand, and blacks and whites on the other hand, has widened. In other words, the trends in high school graduation are mirrored in college enrollment rates, which have risen by about 14 points for blacks and whites since the early 1970s, but only 7 percentage points for Hispanics. Although temporal data for Asians are less complete, their college enrollment rates are well above those of whites, which is one reason Asians have been dubbed the "model minority" (Kao, 1995).

In large measure, racial/ethnic differentials in college enrollment rates reflect socioeconomic disparities among white, black, Hispanic, and Asian youth, but they also reflect values that make educational attainment a priority for both parents and their children (Kao and Tienda, 1995, 1998). Figure 18 shows that even among families with low socioeconomic status,

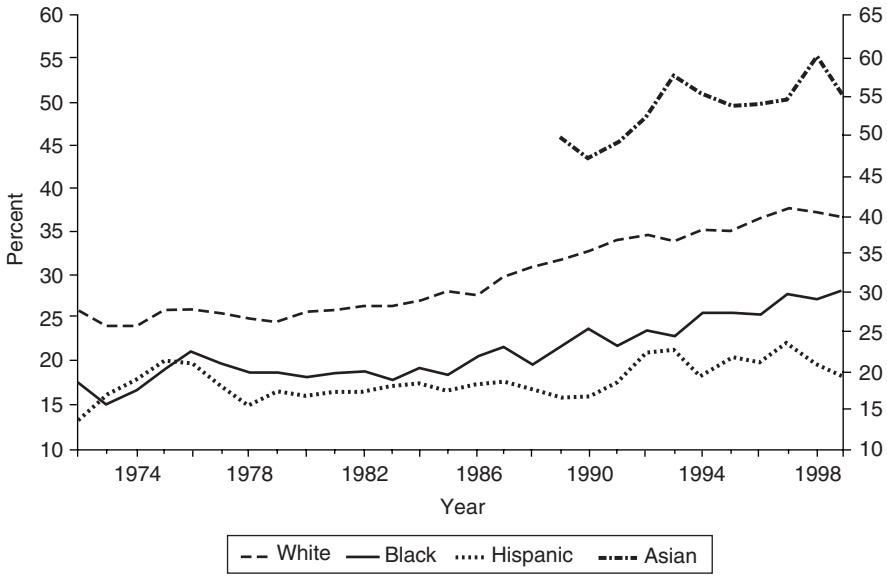

FIGURE 17 College enrollment rates of persons ages 18-24: 1972-1999. SOURCE: National Center for Educational Statistics (1999a); Current Population Surveys for 1989 to 1999.

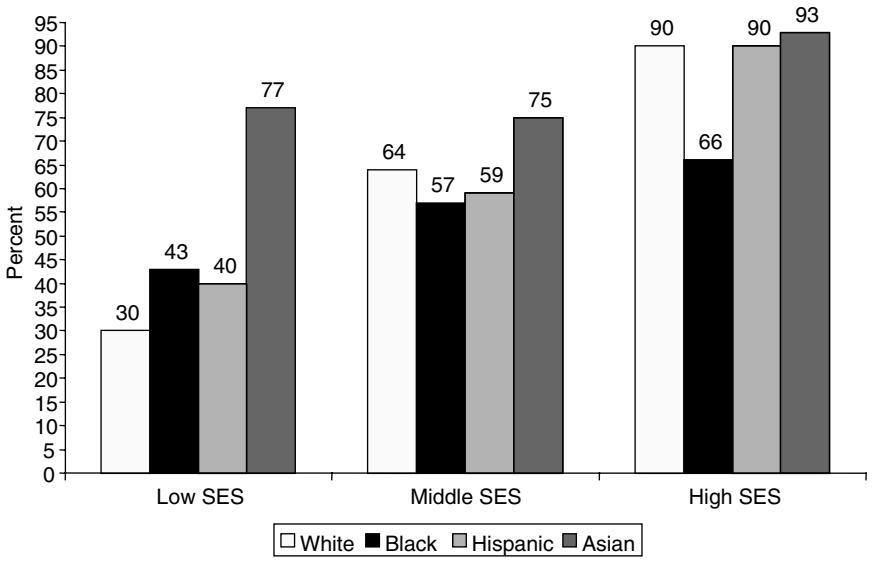

FIGURE 18 College enrollment rates of 20-year-olds by socioeconomic status (SES): 1994. SOURCE: National Center for Educational Statistics (1996a).

almost 80 percent of Asian youth enroll in college by the time they are 20, compared with about 30 to 40 percent of others. Clearly the large gap in college-going rates cannot be solely attributed to material resources and family background.

At the other extreme of the socioeconomic distribution, college enrollment is not differentiated among whites, Hispanics, and Asians, but blacks from families with high socioeconomic status are significantly less likely to enroll in college than their high-status racial and ethnic counterparts. Further research is required to understand why high-status blacks are less likely to attend college than white and Hispanic youth with similar backgrounds. However, these differentials suggest that corrective measures—such as race-sensitive admissions policies—may be necessary to narrow the college enrollment and graduation gaps of blacks and Hispanics vis-à-vis whites that appear in Figures 16 and 17. Moreover, the disparities among the status groups in Figure 18 suggest that a one-size-fits-all policy may not have uniform effects on blacks and Hispanics.

That Hispanic youth are more likely than Asians, blacks, or whites to reside with poorly educated parents (see Figures 8 and 9 above) significantly lowers their likelihood of college attendance because the norms and expectations of college education are largely, though not exclusively,

set by parental experiences (Coleman, 1990; Mare, 1995). We hope that as the number of college-educated Hispanics rises, so too will the postsecondary enrollment rates of subsequent generations, particularly if the expansion of four-year institutions continues. However, in light of the demographic and socioeconomic trends outlined above, the number of generations required for educational convergence does not provide hope for achieving a color-blind meritocracy any time soon. The demographic trends outlined in this paper so far are all the more problematic if immigration continues to increase the number of parents with low levels of completed schooling (National Research Council, 1997).

Furthermore, the college experience of minorities, especially Hispanics, is further differentiated by their unequal propensity to enroll in two-year rather than four-year colleges (National Center for Education Statistics, 1999a). By requiring another transition before college completion, this aspect of educational stratification in higher education contributes to lower rates of college graduation and also narrows the pipeline into graduate and professional schools. For example, the National Center for Education Statistics (1999a) reports that over half (56 percent) of Hispanic college students enrolled in two-year colleges, compared with 39 percent of Asians, 42 percent of blacks, and just 36 percent of whites. Although a large share of junior college students do transfer to four-year institutions, only tiny shares of transfer students make their way to the most competitive postsecondary institutions, particularly private and four-year liberal arts colleges. This can be shown using data from the 1994 wave of the National Education Longitudinal Study (National Center for Education Statistics, 1996b). Of all college goers, only 13 percent of Hispanic and black students attend highly competitive postsecondary institutions compared with 22 percent of their white and 36 percent of their Asian counterparts.[11]

Figure 19 demonstrates that of the small share of minority students who do enroll in highly competitive colleges, Hispanics and blacks are more likely than Asians or whites to hail from lower-status family backgrounds. Hispanics are also much more likely than other groups of students to be first-generation college goers. These are promising signs that the long-term educational prospects of Hispanics and blacks may improve in the future, presuming that socioeconomic status does not hinder access to higher education for financial reasons. However, this promise will be severely compromised if the elimination of race-sensitive admissions policies forecloses higher educational opportunity for talented students whose socioeconomic circumstances may otherwise restrict access to selective institutions.

Improvements in minority representation in higher education since the civil rights era notwithstanding, the differentials in college graduation

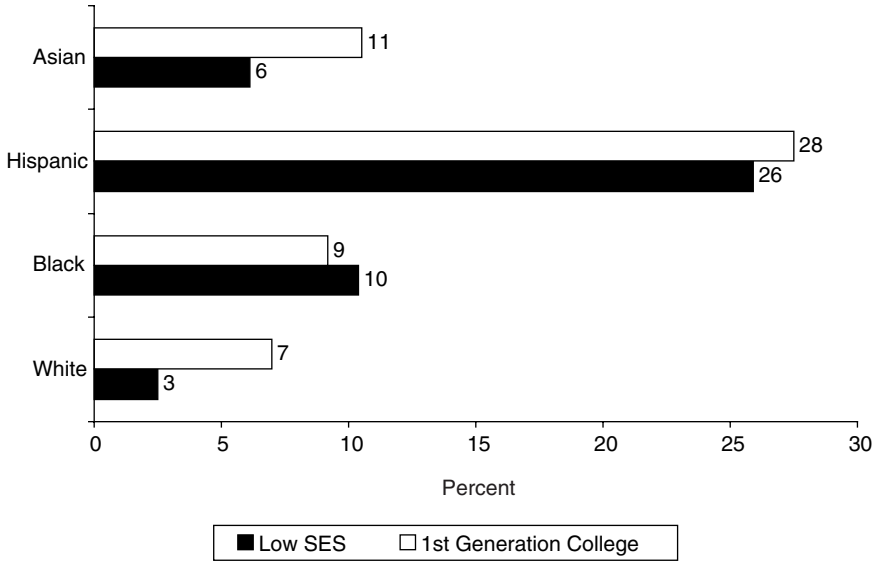

FIGURE 19 Enrollment in highly competitive colleges: 1994. SOURCE: National Center for Educational Statistics (1996b).

rates by group membership actually increased since 1970, which adds to the ledger of troubling signs. As Figure 20 reveals, this is because the rates of college attendance and graduation of whites rose faster than those of blacks. In 1971, 21 percent of white young adults graduated from college, compared with 8 and 5 percent of blacks and Hispanics, respectively. By 2000, 32 percent of whites ages 25 to 34 had graduated from college, twice that of blacks and nearly three times that of Hispanics. Asians are an exception, inasmuch as their college graduation rates have consistently surpassed those of whites since they were separately identified in statistical systems. That blacks and Hispanics must swim upstream faster to catch up with their white and Asian peers is a tall order, given the trends in scholastic performance and educational attainment documented above coupled with recent demographic trends. For Hispanics the challenge is even more formidable because they must do so as their numbers swell at the lower rungs of the socioeconomic distribution.

TRENDS AND PROSPECTS

Racial and ethnic disparities in educational attainment imply lifelong differences in socioeconomic welfare and underscore the urgency of equal-

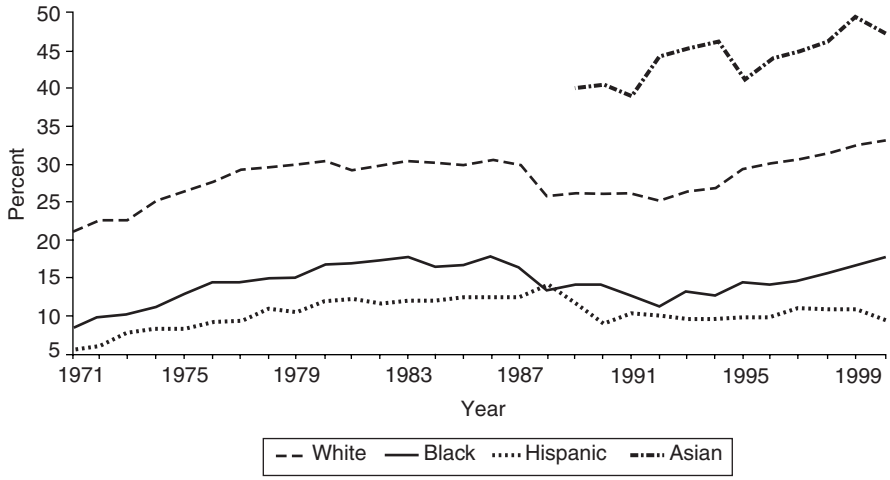

FIGURE 20 College graduation rates for persons ages 25-34: 1971-2000. SOURCE: Current Population Surveys for 1971 to 2000.

izing opportunity to reverse troubling trends that generate widening gaps among demographic groups. Parents' education often constructs a floor below which offspring are not likely to fall. However, for some minority populations with historically low levels of education, such as Hispanics and many recent immigrants from Latin America and some Asian nations, parents' education may also represent a ceiling that young people's scholastic achievements are unlikely to surpass. This circumstance underscores one of the great dilemmas of equal opportunity—namely, that family background remains decisive in shaping individual opportunity beyond what is objectively possible through economic prosperity alone (Coleman, 1990). If educational inequalities cannot be narrowed during prosperous times, they certainly will not improve during leaner years.

Another serious challenge for educational institutions is that intolerance for difference seems to have risen as the diversity of the U.S. population has increased (Tienda, 1999). This view finds support in the rise of antiimmigrant sentiment in many public and local debates and in the repeal of race-sensitive college admissions policies in three states with some of the most diverse populations—California, Texas, and Florida. The putative grounds for eliminating race-sensitive admission criteria is that, by giving unfair advantages to some applicants, preferential admission guidelines violate the very foundations of a meritocracy, which requires *fair* competition. This position ignores the fact that fair competition is only possible when starting lines are equal and the playing field is level.

But as demonstrated above, appreciable racial/ethnic differences in scholastic performance are already evident in kindergarten. Moreover, as minority youth progress through the educational hierarchy, their school enrollment rates decline, thereby narrowing the pool of students available for college. The legacy of disadvantage probably cannot be reconciled either with fair competition or a meritocracy.

The important educational challenge for the future, of course, is to ensure that diversity—broadly defined—is not the main correlate of rising inequality. Ironically, this has been occurring since the landmark Supreme Court decision that banned segregated schools as a step toward equalizing educational opportunities. Although discrimination has been legally outlawed, architects of the Great Society appreciated that more was required to create a just society. Affirmative action policies attempted to go beyond the simple prohibition of disparate treatment on the grounds of race, national origin, and sex by encouraging race-sensitive admissions to selective colleges and universities for groups that have historically experienced barriers in accessing higher education. The problem resides not in the philosophy or intent, but rather in the interpretation of what measures beyond outlawing discrimination are justified while protecting the meritocratic foundations of democratic institutions. As the debate about affirmative action gains momentum, colleges and universities will face additional challenges to maintaining a diverse educational pipeline because there is no consensus about what conditions must be equal for opportunity to be equal; there is no common understanding about the meaning of a "fair chance"; nor is there agreement about what solutions produce the fairest outcomes. Stated as questions: Whose freedom to choose must be compromised for whose opportunity? Is it possible to create a more just society without compromising someone else's freedom to choose?

Affirmative action programs represent society's past response to the dilemma of fair chance in an unequal society and, while imperfect, the various attempts to evaluate these initiatives indicate that the benefits may outweigh their costs. This is the conclusion reached by Holzer and Neumark (2000) in a comprehensive article in the *Journal of Economic Literature*; it is consistent with the main theme of Bowen and Bok's (1998) landmark study showing that black students who attend selective institutions outperform their statistical counterparts who attend less selective institutions. Based on the available empirical evidence, it appears that affirmative action may be both good social policy and good economic policy. It represents good social policy because it begins to reduce the class cleavages along racial/ethnic lines, and it represents good economic policy because it widens the pool of college-educated groups equipped with the skills needed in the high-tech economy of the future.

While we have not been able to address all of the important questions regarding the correlates of widening and narrowing educational differentials, the challenges we have identified are all the more urgent because the demographic trends outlined at the outset are projected to continue. Almost half of the school-age population will be minority by the year 2020 (U.S. Bureau of the Census, 2000). The youth of 2020 represent the children of the generation that is currently in college—one in which whites and Asians are greatly overrepresented relative to their population shares, while blacks and especially Hispanics are underrepresented. While high performance standards and merit-based rewards should remain important criteria in structuring college admissions, the legacy and persistence of urban residential segregation forecloses equal educational opportunity to students whose family circumstances cannot purchase access to quality elementary, middle, and high schools. Against a backdrop of rising inequality, the problem of diversity in a meritocracy becomes even more difficult. This is why policies that promote equal opportunity must continue to widen the educational pipeline at all schooling levels. The ultimate injustice in a meritocratic society is foreclosing educational opportunity.

NOTES

1. Please direct all correspondence to Kim M. Lloyd or Marta Tienda, Office of Population Research, Wallace Hall, Princeton University, Princeton, NJ 08544, kimlloyd@princeton.edu or tienda@princeton.edu.
2. This is not to say that discrimination in access to employment does not also operate to create economic disparities.
3. Throughout the text the term "dropout" refers to status dropout. Status dropout is defined as persons ages 16-24 who attain less than a high school diploma or equivalent and are not enrolled in school at the time of interview. For more information see National Center for Educational Statistics (2001b).
4. Unless otherwise specified, the term "school-age" refers to youth ages 5-24.
5. The baby boom period spans approximately 1948 to 1964.
6. Given states' disparate levels of minority concentration, it may not be a coincidence that the leading initiatives to eliminate race-sensitive admissions policies in colleges and universities first began in California and Texas.
7. To facilitate between-group comparisons, Figures 6, 14, 15, 17, and 20 do not show the zero point on the vertical axis.
8. Kao and Tienda argue that parents' optimism about their children's prospects is decisive in the educational achievement of both first- and second-generation youth, who comprise a very large share of the Asian population in America. They show that Asian youth who are high achievers have immigrant parents. For a discussion of the cultural and social correlates of Asians' high educational achievement, see Kao (1995).

9. For a detailed discussion of proficiency levels in reading and mathematics in all tested grades, see "Mathematics Framework for the 1996 and 2000 National Assessment of Educational Progress" (http://www.nagb.org/pubs/math96-2000.pdf) and "Reading Framework for the National Assessment of Educational Progress: 1992 – 2000" (www.nagb.org/pubs/read92-2000.pdf).
10. Although standard errors fluctuate slightly, the greatest variability in test performance occurs among Hispanics, followed by blacks, with whites having the lowest levels of variation. For instance, the average standard errors for reading scores on the National Assessment of Educational Progress are 3.3, 2.2, and 1.1 for Hispanics, blacks, and whites between 1971-1999, respectively (National Center for Educational Statistics, 1999b). The same general monotonic pattern by group membership is evident for math scores, although the average level of variability is somewhat lower.
11. Highly competitive postsecondary institutions are defined here in terms of Barron's institutional selectivity rating of "very competitive," "highly competitive," and "most competitive" (see Barron's Educational Series, 1992).

REFERENCES

Arum, R.
2000 Schools and communities: Ecological and institutional dimensions. *Annual Review of Sociology* 26:395-418.

Attewell, P., and J. Battle
1999 Home computers and school performance. *Information Society* 15(1):1-10.

Barron's Educational Series, I
1992 *Profiles of American Colleges.* Woodbury, NY: Barron's Educational Series, Inc.

Bartick, T.J.
2001 *Jobs for the Poor: Can Labor Demand Policies Help?* New York: Russell Sage Foundation.

Bean, F.D., and M. Tienda
1987 *The Hispanic Population of the United States.* New York: Russell Sage Foundation.

Blake, J.
1989 *Family Size and Achievement.* Berkeley: University of California Press.

Blank, R.M.
2000 Enhancing the opportunities, skills, and security of American workers. Pp. 105-123 in *A Working Nation: Workers, Work and Government in the New Economy*, D. Ellwood, R.M. Blank, J.Blasi, D.Kruse, W.A. Niskanen and K. Lynn-Dyson, eds. New York: Russell Sage Foundation.

Bobo, L., and J.R. Kluegel
1993 Opposition to race-targeting: Self-interest, stratification ideology, or racial attitudes? *American Sociological Review* 58(4): 443-464.

Bowen, W.G., and D. Bok
1998 *The Shape of the River: Long-Term Consequences of Considering Race in College and University Admissions.* Princeton, NJ: Princeton University Press.

Carnevale, A.P.
1999 *Education = Success: Empowering Hispanic Youth and Adults.* Princeton, NJ: Educational Testing Service for the Hispanic Association of Colleges and Universities.

Carnevale, A.P., and D.M. Desrochers
2000 Employer training: The high road, the low road, and the muddy middle path. Pp. 300-307 in *Back to Shared Prosperity*, R. Marshall, ed. Armonk, NY: M.E. Sharpe.

Coleman, J.S.
1990 *Equality and Achievement in Education.* Boulder, CO: Westview Press.

Current Population Surveys
1971 Machine-readable data files. Conducted by the Bureau of the Census for the Bureau of Labor Statistics. Santa Monica, CA: Unicon Research Corporation.
1996 Machine-readable data files. Conducted by the Bureau of the Census for the Bureau of Labor Statistics. Santa Monica, CA: Unicon Research Corporation.
1999 Machine-readable data files. Conducted by the Bureau of the Census for the Bureau of Labor Statistics. Santa Monica, CA: Unicon Research Corporation.
2000 Machine-readable data files. Conducted by the Bureau of the Census for the Bureau of Labor Statistics. Santa Monica, CA: Unicon Research Corporation.

Danzinger, S., and P. Gottschalk, eds.
1993 *Uneven Tides.* New York: Russell Sage Foundation.

Danzinger, S., and P. Gottschalk
1995 *America Unequal.* New York: Russell Sage Foundation.

Donahoe, D., and M. Tienda
2000 The transition from school to work: Is there a crisis and what can be done? Pp. 231-263 in *Securing the Future: Investing in Children from Birth to College*, S. Danziger and J. Waldfogel, eds. New York: Russell Sage Foundation.

Duncan, O.D., D.L. Featherman, and B. Duncan
1972 *Socioeconomic Background and Achievement.* New York: Seminar Press.

Farley, R.
1996 *The New American Reality: Who We Are, How We Got Here, Where We Are Going.* New York: Russell Sage Foundation.

Federal Interagency Forum on Child and Family Statistics.
1998 *America's Children: Key National Indicators of Well-Being*. Washington, DC: Federal Interagency Forum of Child and Family Statistics.
2000 Difficulty Speaking English: Children Age 5 to 17 Who Speak a Language Other than English at Home, and Who Are Reported to Have Difficulty Speaking English by Race, Hispanic Origin, and Region, Selected Years 1979-95. [Online]. Available: http://www.childstats.gov/ac2000/pop4.htm. [Accessed July 5, 2001].

Fuligni, A.J.
1997 The academic achievement of adolescents from immigrant families: The role of family background, attitudes and behavior. *Child Development* 68(2):351-362.

Hauser, R.M.
1971 *Socioeconomic Background and Education Performance.* Washington, DC: American Sociological Association.

Hirschman, C.
1988 Minorities in the labor market: Cyclical patterns and secular trends in joblessness. Pp. 63-86 in *Divided Opportunities: Minorities, Poverty and Social Policy*, G.D. Sandefur and M. Tienda, eds. New York: Plenum Press.

Holzer, H., and D. Neumark
2000 Assessing affirmative action. *Journal of Economic Literature* 38(3): 483-568.

Jones, L.V.
1984 White-black achievement differences: The narrowing gap. *American Psychologist* 39(11):1207-1213.

Kain, J.F., and K. Singleton
1996 Equality of educational opportunity revisited. *New England Economic Review* May/June:87-114.

Kao, G.
1995 Asian Americans as model minorities? A look at their academic performance. *American Journal of Education* 103:121-159.

Kao, G., and M. Tienda
1995 Optimism and achievement: The educational performance of immigrant youth. *Social Science Quarterly* 76(1):1-19.
1998 Educational aspirations of minority youth. *American Journal of Education* 106(3): 349-384.
Kao, G., M. Tienda, and B. Schneider
1996 Racial and ethnic variation in educational outcomes. *Research in Sociology of Education and Socialization* 11:263-297.
Kuklinski, J. H., P. M. Sniderman, K. Knight, T. Piazza, P. E. Tetlock, G. R. Lawrence, and B. Mellers
1997 Racial prejudice and attitudes toward affirmative action. *American Journal of Political Science* 41(2): 402-419.
Levy, F.
1987 *Dollars and Dreams: The Changing American Income Distribution.* New York: Russell Sage Foundation.
Lloyd, K.M.
1993 Equal Processes of Mobility? The Effects of Family Size on Whites', Blacks', and Hispanics' Educational Achievement. Paper presented at the 88th Annual Meetings of the American Sociological Association, Miami, Florida, August 5-9.
Long, L.E.
1988 *Migrations and Residential Mobility in the United States.* New York: Russell Sage Foundation.
Mare, R.D.
1995 Changes in educational attainment and school enrollment. In *State of the Union: America in the 1990s. Volume One: Economic Trends*, R. Farley, ed. New York: Russell Sage Foundation.
Marshall, R., ed.
2000 *Back to Shared Prosperity: The Growing Inequality of Wealth and Income in America.* Armonk, NY: M.E. Sharpe.
Massey, D.S., and N.A. Denton
1993 *American Apartheid: Segregation and the Making of the Underclass.* Cambridge, MA: Harvard University Press.
Mitchell, P.R.
1996 Stop the world—West Georgia is getting on. *Technos* 5(3):14-15,19-20.
National Center for Education Statistics
1996a Dropout Rates in the United States: 1994. [Online]. Available: http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=96863. [Accessed November 20, 2001].
1996b National Education Longitudinal Study: 1988-94. [Online]. Available: http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=96174. [Accessed November 20, 2001].
1997 NAEP 1996 Mathematics Report Card for the Nation and the States. [Online]. Available: http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=97488. [Accessed November 20, 2001].
1998a The NAEP 1998 Reading Report Card for the Nation and the States. [Online]. Available: http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=1999500. [Accessed November 20, 2001].
1998b The Condition of Education 1998. [Online]. Available: http://nces.ed.gov/pubs98/condition98/. [Accessed November 20, 2001].
1999a Digest of Education Statistics. [Online]. Available: http://nces.ed.gov/pubs2000/digest99. [Accessed November 20, 2001].

1999b NAEP 1999 Trends in Academic Progress: Three Decades of Student Performance. [Online]. Available: http://nces.ed.gov/nationsreportcard/pdf/main1999/2000469.pdf [Accessed November 20, 2001].

2000 The Condition of Education 2000. [Online]. Available: http://nces.ed.gov/pubs2000/coe2000/. [Accessed November 20, 2001].

2001a Condition of Education 2001. [Online]. Available: http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2001072. [Accessed November 20, 2001].

2001b Dropout Rates in the United States: 1999. [Online]. Available: http://nces.ed.gov/pubs2001/quarterly/winter/elementary/e_section3.html. [Accessed November 20, 2001].

National Research Council

1997 *The New Americans: Economic, Demographic, and Fiscal Effects of Immigration.* Panel on the Demographic and Economic Impacts of Immigration, J.P. Smith and B. Edmonston, eds. Division of Behavioral and Social Sciences and Education. Washington, DC: National Academy Press.

Newsweek

2000 America 2000: A map of the mix. September 18.

Olzak, S., S. Shanahan, and E. West

1994 School desegregation, interracial exposure, and antibusing activity in contemporary urban America. *American Journal of Sociology* 100(1):196-241.

Orfield, G., S.E. Eaton, and the Harvard Project on School Desegregation

1996 *Dismantling Desegregation: The Quiet Reversal of Brown v. Board of Education.* New York: New Press.

Portes, A. and R. Rumbaut

1996 *Immigrant America: A Portrait.* Berkeley: University of California Press.

2001 *Legacies: The Story of the Immigrant Second Generation.* Berkeley and New York: University of California and Russell Sage Foundation.

Powell, B., and L. Carr Steelman

1993 The educational benefits of being spaced out: Sibship density and educational progress. *American Sociological Review* 58(June):367-381.

Rumbaut, R.G.

1996 Origins and destinies: Immigration, race, and ethnicity in contemporary America. Pp. 21–42 in *Origins and Destinies: Immigration, Race, and Ethnicity in America*, S. Pedraza and R. G. Rumbaut, eds. Belmont, CA: Wadsworth Publishing Company.

Solow, R.

2000 What can macro policy do? Pp. 183-185 in *Back to Shared Prosperity*, R. Marshall, ed. Armonk, NY: M.E. Sharpe.

Stier, H., and M. Tienda

2001 *The Color of Opportunity: Pathways to Family, Work, and Welfare.* Chicago: University of Chicago Press.

Teachman, J.D., K. Paasch, and K. Carver

1997 Social capital and the generation of human capital. *Social Forces* 75(4): 1343-1359.

Thomson, E., T.L. Hanson, S.S. McLanahan

1994 Family structure and child well-being: Economic resources vs. parental behaviors. *Social Forces* 73(1):221-242.

Tienda, M.

1993 Puerto Ricans and the underclass debate. Pp. 122-136 in *The Ghetto Underclass: Social Science Perspectives*, W.J. Wilson, ed. Newbury Park, CA: Sage.

1995 Latinos and the American pie: Can Latinos achieve economic prosperity? *Hispanic Journal of Behavioral Sciences* 17(4):403-429..

1999 Immigration, opportunity and social cohesion. Pp. 129-146 in *Diversity and Its Discontents: Cultural Conflict and Common Ground in Contemporary American Society*, N.J. Smelser and J.C. Alexander, eds. Princeton, NJ: Princeton University Press.

Trejo, S.
1997 Why do Mexican Americans earn low wages? *Journal of Political Economy* 105:1235-1268.

U.S. Bureau of the Census
1950 *United States Census of Population: 1950.* Volume IV: Special Reports, Part 3. Washington, DC: U.S. Department of Commerce.
1960 *United States Census of Population: 1960.* Volume II: Subjects Reports, Part 1. Washington, DC: U.S. Department of Commerce.
1970 *United States Census of Population: 1970.* Volume II: Subject Reports, Part 1 and 4. Washington, DC: U.S. Department of Commerce.
1990 Tiger Mapping Service. [Online]. Available: http://tiger.census.gov/cgi-bin/mapgen?lon=98&lat=36&wid=58&ht=25&iwd=1000&iht=600&tlevel=counties&tvar=black&tmeth=q. [Accessed November 20, 2001].
1993 *We the American Hispanics.* Washington, DC: U.S. Department of Commerce.
1994 The Diverse Living Arrangements of Children: Summer 1991. Current Population Reports, Series P-70, No. 38. Washington, DC: U.S. Department of Commerce.
1998a Current Population Reports: Consumer Income and Poverty. (P60-201). [Online]. Available: http://www.census.gov/prod/www/abs/poverty.html. [Accessed November 20, 2001].
1998b Household and Family Characteristics: March 1998 (Update). [Online]. Available: http://www.census.gov/prod/3/98pubs/p20-515u.pdf. [Accessed November 20, 2001].
1999 Race and Hispanic Origin of the Population by Nativity: 1850 to 1990. [Online]. Available: http://www.census.gov/population/www/documentation/twps0029/tab08.html [Accessed November 20, 2001].
2000 National Population Projections: I. Summary Files. [Online]. Available: http://www.census.gov/population/www/projections/natsum-T3.html. [Accessed November 20, 2001].

Wojtkiewicz, R.A.
1992 Diversity in experiences of parental structure during childhood and adolescence. *Demography* 29:59-68.

Wojtkiewicz, R.A, S. McLanahan, and I. Garfinkel
1990 The growth of families headed by women: 1950-80. *Demography* 27:19-30.

Zhou, M.
2000 How Community Matters for the Education of Immigrant Children. Paper presented at the Notestein Seminar, Princeton University, Princeton, NJ, November 7.

Why Racial Integration and Other Policies Since Brown v. Board of Education Have Only Partially Succeeded at Narrowing the Achievement Gap

Ronald F. Ferguson with Jal Mehta[1]

Evidence from the middle of the 20th century provided little if any reason to expect that closing skill gaps in reading and math could substantially reduce inequality in black-white earnings (Cutright, 1972, 1974; Jencks et al., 1972). Today, at the beginning of the 21st century, conditions are different because the value of such skills to employers has grown, and racial barriers to employment have weakened (Murnane et al., 1995). By the late 1980s, disparities in reading and math skill predicted half or more of the hourly earnings gap between black and white young adults (Johnson and Neal, 1998; Ferguson, 1995).[2] Discrimination on the basis of race or ethnicity still affects who gets some jobs (e.g., Fix and Struyk, 1991). Indeed, reading and math scores are much stronger predictors of what people earn, once employed, than of whether they are employed. Nonetheless, because skills help to determine earnings, skill disparities among racial and ethnic groups help to perpetuate historical inequities in every aspect of life that depends on financial resources.

The good news is that achievement gaps among racial and ethnic groups in the United States are smaller than they were several decades ago. The reading-score gap between black and white 17-year-olds in the National Assessment of Education Progress (NAEP) was less than half as large in 1988 as in 1971, when the Educational Testing Service (ETS) first administered the NAEP Trend Assessment (also see Lloyd et al., this

volume). Similarly, the gap between Hispanics and whites was 40 percent smaller in 1990 than in 1975.[3] For both blacks and Hispanics, there were years around 1990 when the gap with whites in math scores was more than 40 percent narrower than in 1973. The bad news is that progress stopped around 1990.[4] In 1999, when the latest NAEP test was administered, large differences remained between average scores for blacks and Hispanics on one hand and whites and Asians on the other.[5]

Focusing on test-score disparities, this paper concerns what researchers have learned about equalizing educational opportunities and outcomes among racial groups, primarily blacks and whites, in the last half-century. While progress is evident and many milestones have been achieved, especially in civil rights, policy measures focused on rights, resources, and testing requirements for students have not achieved their full promise for raising achievement and narrowing gaps. Failure to foster high-quality instructional practices in all schools and classrooms and for all students is strongly implicated in these disappointing results. Now is a time to supplement other policies with a more determined, high-quality research-based emphasis on improving what happens in classrooms. We agree that the types of incentives being imposed by the current standards movement are important, but principals and teachers need help knowing how best to respond to them. Chapter 6 in this volume describes what progress might entail, by discussing instructional regimes that recent research has shown to be effective. It reports experience introducing those regimes into schools and classrooms and working to make them routine.

This paper provides some historical background with an emphasis on what research has shown about the effectiveness of past policies. We present a historical overview that touches on a number of topics related to rights, resources, and requirements in education reform over the past half-century. Then we focus in more detail on research about ways that desegregation, grouping and tracking practices, and class sizes relate to achievement disparities. We focus on these topics because of their interdependence with instructional quality and their historical and contemporary policy importance. For example, we ask, "Are grouping and tracking practices among the reasons that racial desegregation seems to produce only small achievement gains, and how does the answer relate to instructional quality?" And "Do we know enough about class size effects to justify strong claims about the advantages of class size reductions for raising achievement, compared with investments in instructional quality?" Our aim is to present an informed perspective on what research has established and what remains to be learned about a number of important questions.

HISTORICAL OVERVIEW

One hundred and five years ago, the U.S. Supreme Court upheld the doctrine of "separate but equal" in the case of *Plessy v. Ferguson*. Although the conflict was over passenger accommodations on the East Louisiana Railroad, the "separate but equal" doctrine that the Court's decision affirmed was codified in state laws governing schools and virtually all other types of public accommodations in the South, where the majority of black Americans lived. Representing an eight-person majority, Justice Henry Brown wrote: "The object of the [Fourteenth] Amendment was undoubtedly to enforce the absolute equality of the two races before the law, but in the nature of things it could not have been intended to abolish distinctions based upon color, or to enforce social, as distinguished from political equality, or a commingling of the two races upon terms unsatisfactory to either."

Half a century later, the doctrine of separate but equal still dominated the South, but the question being litigated was whether enforced segregation in public schools deprived black children of equal protection under the U.S. Constitution. On May 17, 1954, Chief Justice Earl Warren of the U.S. Supreme Court issued the court's decision in the case of *Brown v. Board of Education* (Martin, 1998). The Court's opinion granted that it might be possible with segregation to achieve equality of "tangible factors"—things that money can buy—but the Court rejected the idea that separate could be equal or that laws maintaining segregation could provide equal protection under the U.S. Constitution. Informed by the work of social scientists, including the black psychologist Kenneth Clark, the justices wrote the following about the harm that segregation was doing to black children: "To separate them from others of similar age and qualifications solely because of their race generates a feeling of inferiority as to their status in the community that may affect their hearts and minds in a way unlikely ever to be undone" (Martin, 1998). Thus, *Brown v. Board of Education* was not merely about equality of resources. It was also about children's "hearts and minds" and "status in the community." The decision struck down the doctrine of separate but equal. It was a landmark event.[6]

In challenging the separate but equal doctrine of the Jim Crow South, the plaintiffs in *Brown v. Board of Education* aimed to challenge white supremacist ideology and the moral injustice of forced segregation. In addition, they hoped that giving black children access to the schools and classrooms in which white children studied would help to equalize educational resources and academic outcomes. Unfortunately, implementation of the court order was exceedingly slow and limited (see below). Most of the school integration that actually happened in the South took place after the Civil Rights Act of 1964 and after other court orders took

effect in the late 1960s and early 1970s. Evidence regarding the impacts of desegregation on achievement and other outcomes when it finally happened is mixed (see below).

Parallel to the desegregation cases, there have been dozens of school finance cases in state and federal courts, with plaintiffs alleging that patterns of school funding violated state or federal constitutions (see Rebell, this volume). When successful, these cases have helped to increase spending in low-income districts (Evans et al., 1997, 1999).[7]

After the mid-1970s, forced integration was no longer the standard judicial remedy for segregation, and the desegregation cases came to resemble the school finance cases, especially in the North. They focused increasingly on state aid and compensatory education. James E. Ryan writes, "In sum, school desegregation and school finance litigation have converged around money. That poor and minority schools will remain separate from white and wealthier schools [because they are in different political jurisdictions] appears to be taken as a given, and, if anything, is reinforced by the fact that advocates are fighting not over integration but resources" (1999:272). Courts in the 1990s began releasing districts from desegregation orders issued in the 1970s. The likely result is that court-ordered desegregation will soon be only a memory.

Around the time that the Civil Rights Act of 1964 set the wheels in motion to enforce desegregation orders, the War on Poverty introduced the federal Head Start program (in 1965) in order to give children from disadvantaged homes a "head start" on school success. In addition, Chapter I (now Title I) of the Elementary and Secondary Education Act (ESEA) of 1965 was intended to supplement academic resources for low-income children who needed extra support in the early grades. Head Start and Title I were not explicitly race targeted, but a major motivation among supporters was to reduce racial inequities. Over the years, recipients of these services have included large numbers of poor minority children.

Title I is a funding stream to supplement school-level resources and is not a highly prescriptive intervention. Schools have great discretion in how the funds are used. Before reforms in 1994, federal legislation targeted Title I funds to the early elementary grades, with the intention that funds should assist only the students in those grades who were most in need of supplemental support. However, reforms passed in 1994 encouraged support for students across all grade levels, not only the early elementary years. They also encouraged whole-school reforms in high-poverty schools and an increased emphasis on accountability. Some critics of the reforms, including Farkas and Hall (2000), argue that the reforms of 1994 dilute the focus on high-need students by spreading funds across all grade levels and, furthermore, that whole-school programs encourage

substitution of Title I funds for local spending that would have happened anyway.[8]

Others (e.g., Slavin, 2001) applaud the reforms and argue that, with refinements, they offer the potential for broad-based improvements in high-poverty schools. Indeed, Slavin (2001:236) asserts, "Whatever the average effects of Title I resources may be, Title I is the crucial resource for reforming the education of students in high-poverty schools. Whenever an inner-city or poor rural school is found to be achieving outstanding results with its students by implementing innovative strategies, these innovations are almost invariably funded primarily by Title I." This includes the Success For All (SFA) Program, a whole-school reform designed and disseminated by Slavin and his associates at Johns Hopkins University. Success For All has been adopted in hundreds of schools across the nation.

Neither of the two large-scale evaluations of Title I has reached the conclusion that it substantially narrows achievement gaps between disadvantaged and middle-class students, as policy makers intended (Puma et al., 1997; Carter, 1983). Reanalyses by Borman et al. (2001) of the data from the study conducted by Puma et al. (1997) and a quantitative synthesis by Borman and D'Agustino (2001) of state-level studies produce somewhat more optimistic conclusions, but none of the studies finds effects that are impressively large.

To put these findings in proper perspective, it should be noted that all of the estimates depend on contestable decisions about how to estimate what would have happened to Title I student achievement in the absence of Title I support. Even if Title I has failed to narrow the achievement gap between disadvantaged and middle-class students, it might nonetheless have helped to keep the gap from widening, and to a degree that existing studies have no way to reliably estimate. The most definitive and defensible methodology for this purpose would be to randomly assign students to a treatment group that receives Title I support or to a control group that does not. There have been no such random assignment studies of Title I, probably because it would seem unfair to the control group. Again, the possibility exists that outcomes might have been worse in the absence of Title I, but existing studies have no way of establishing it because they have not used random assignment (or, alternatively, carefully executed quasi-experiments that use comparison instead of control group designs).

Findings on the effectiveness of Head Start are somewhat more positive than those for Title I. Specifically, most studies find that Head Start raises school readiness, as measured by achievement test scores (see the discussion of this point in Oden et al., 2000). However, most also find that the initial advantage fades during the elementary years, such that achieve-

ment scores among Head Start graduates eventually resemble those of nonparticipants from similar backgrounds. The most likely reason for the fade-out is that Head Start graduates attend inferior schools that fail to motivate them sufficiently and to build optimally on the skills they bring (Campbell and Frey, 1970; Lee and Loeb, 1995; Currie and Thomas, 1995). There is evidence (though not much) that, with favorable conditions, fade-out is not inevitable. For example, preschool programs, including Head Start, have sometimes shown sustained benefits (including but not limited to test scores) all the way into adulthood (Barnett, 1992; Oden et al., 2000). Increasing the long-term sustainability of the gains generated by Head Start depends almost surely on improving the primary and secondary schools that Head Start graduates attend, including those assisted by Title I.

While the federal government was introducing Head Start and Title I in 1965, local districts were continuing a century-long trend toward reducing class sizes for children of all backgrounds. Classes historically have been larger in schools that blacks have attended (Coleman et al., 1966; Boozer, Krueger and Wolkon, 1992). However, class-size reductions have been larger for blacks than for whites. By 1990, the national pupil/teacher ratio for all races and ethnicities in elementary school classrooms was only 70 percent of what it was in 1965 (18.9 pupils per teacher in 1990 versus 27.6 in 1965), and there was no clear remaining difference among racial groups.[9] Most of the reduction that took place after 1965 was complete by 1980 (Table 65, U.S. Department of Education, 2000). Debate continues about the effect on achievement, but there are reasons to believe that it was positive at the elementary school level, especially for blacks (see below).

The period from the mid-1960s to the early 1980s was also a time when schools went "back to basics." The back-to-basics movement spread rapidly during the 1970s in response to media attention to such things as falling SAT scores. It was driven to a substantial degree by parental concern that their children were not acquiring basic skills. It produced systemic and results-based accountability reforms that were precursors to those of today, raising many of the same issues about "teaching to the test" and diluting curricula. Jennifer O'Day and Marshall Smith write (1993:258):

> By and large the instruction, curriculum, and tests for many low-achieving children were mutually reinforcing during a substantial part of this two-decade period [1965-1985]. Many states instituted regulations requiring passage of minimum competency tests as a graduation requirement. These tests, like the reading and mathematics portions of standardized norm-referenced tests, emphasized recognition of facts, word

> analysis, mathematics computation skills, routine algorithmic problem solving, and little else.

By 1985, 35 states were mandating statewide minimum competency testing (MCT) and 11 required passing such tests as a prerequisite for graduation. Some also used the scores to determine eligibility for remedial programs and promotions.

O'Day and Smith believe that instruction focused heavily on basic skills in preparation for minimum competency tests was among the important reasons that black students' scores rose on the NAEP during the 1970s (for 9-year-olds) and during the 1980s (for 17-year-olds). However, analysts who have looked closely at the timing of the gains are skeptical for a number of reasons (Office of Technology Assessment, 1992: Chapter 1). First, scores rose on tests even in states without MCT. Second, scores began to rise before MCT could have had much of an impact. Third, all states were reporting performance of their students on nationally normed achievement tests above the national average, which is a statistical impossibility. Fourth, the degree to which NAEP and SAT scores rose varied from place to place in ways that seem inconsistent with MCT as the explanation. It seems most likely that MCT and rising scores were both products of the movement to strengthen basic skills, but that MCT was not a key causal factor in the rise in NAEP scores.

The critique that ultimately weakened the basic skills movement was that it did not focus enough on higher-order thinking. Students, it was argued, needed much more than basic skills. This meant they needed teachers who had more than basic skills themselves. Attention during the 1980s shifted to improving the quality of new teachers. Only 3 states required initial certification testing of new teachers in 1980, but 42 states did by 1990. States also adopted measures encouraging students, including minorities, to take more academically advanced courses (see the discussion and statistics in Ferguson, 2001b).

From the late 1980s to the present, the nation has searched actively at both state and federal levels for ways of improving whole schools and whole school systems. Ideas about "systemic reform" and "standards-based accountability" have been influential at every level of policy making.[10] A more extensive discussion of this latter period is beyond the scope of this chapter, but see the papers in Ravitch (2001).

Compared with 1954, much has changed and much has not. On one hand, segregation is still high and, as Gary Orfield mentioned at the conference, improving schools for the most disadvantaged children with current levels of segregation and isolation is a gargantuan task. On the other hand, political leaders at all levels of society are claiming public education as their number one concern, and they are talking publicly and opti-

mistically about prospects for improving outcomes for even the most disadvantaged children. That's progress from 1954, but there remains a long way to go.

DESEGREGATION

In 1955, the Supreme Court issued the implementation order for *Brown v. Board of Education*, known as *Brown II*. In it, the Court ordered Southern states to desegregate their schools with "all deliberate speed." However, it defined neither "desegregation" nor "all deliberate speed." Instead, the ruling left the interpretation and enforcement of *Brown II* to federal district courts in the South.[11] Under heavy pressure from local Southern politicians, schools remained heavily segregated, with only 1 out of 50 Southern black children attending integrated schools in 1964 (Orfield and Eaton, 1996:7). For roughly a decade, the decision in *Brown v. Board of Education* did little to raise achievement among Southern children, because it did little to affect the conditions of their schooling.

Southern patterns of segregation in public schools persisted until the Civil Rights Act of 1964 prohibited discrimination in all schools receiving federal dollars. Four years later, in another landmark decision, *Green v. County School Board*, the U.S. Supreme Court declared that segregated or dual systems of public education had to be dismantled "root and branch." The mandated desegregation applied to facilities, staff and faculty, extracurricular activities, and transportation. By 1970, Southern schools were less segregated than schools in any other region.

Desegregation in the North and the West faced a different set of challenges, because large-scale white suburbanization after World War II had left too few whites in cities to achieve meaningful integration without crossing city-suburb lines. Interdistrict desegregation plans sprung up in the wake of the civil rights legislation, and segregation decreased in the North. But there was a limit to how far this movement would go. In 1974 the Supreme Court in *Milliken v. Bradley* overruled a metropolitan-wide desegregation plan under which children from Detroit would have integrated with children from the mostly white suburbs. Absent a court finding that suburban districts had conspired to maintain segregation in Detroit schools, the Court ruled that there was no legal reason that the suburbs of Detroit should be part of the remedy.[12] This made it effectively impossible for Detroit to achieve extensive integration, since there were too few whites left in the city. Instead, in a companion case, *Milliken v. Bradley II*, the remedy approved by the Court required the state of Michigan to help fund remedial and compensatory education programs. Court rulings in the *Milliken* cases, combined with continuing outmigration from

cities to suburbs by the largely white middle class, effectively foreclosed the possibility of meaningful desegregation in the North and the West.

In recent years, segregation has begun to increase due to continuing suburbanization of whites and because courts are no longer writing and enforcing desegregation orders.

Achievement Impacts of the Desegregation Orders

A number of studies in the 1960s and 1970s evaluated the effects of the desegregation orders. Reviews of this literature have pooled estimates from multiple studies to reach summary conclusions. They suggest the following: (1) white achievement is entirely unaffected by desegregation;[13] (2) desegregation does not lead to an increase in black mathematics achievement; (3) desegregation does tend to raise black reading scores, but by relatively small amounts, probably between 0.06 and 0.26 standard deviations; and (4) gains are likely to be greatest among the youngest children (Cook, 1984; Schofield, 1995). These studies have been subject to a number of methodological criticisms, the most important of which is that the time frame for the majority of the studies is far too short (Crain and Mahard, 1983). Many studies estimate effects on achievement after only one year, and none estimates the effect of desegregation on the cumulative achievement of black students over a number of years (Jencks and Mayer, 1990). Another problem is that the studies rarely attend to the details of implementation, and thus the factors that create greater gains from integration in some schools than others are almost entirely unknown. Finally, it is unclear whether the effects of court-ordered plans from nearly three decades ago can be fairly generalized to today (Schofield, 1995).

Other Studies of Integration Effects

Beyond studies of court-ordered desegregation, a parallel literature seeks to understand whether natural variation in the level of school integration can explain differences in student achievement, controlling for family background factors. While these studies use nationally representative data for schools that are not operating under desegregation orders, they cannot overcome the possibility that selection bias has affected their findings. In this context, the selection bias issue is that black families who send their children to integrated schools may differ in unmeasured ways from black families that do not. Therefore, some of the estimated effects that studies attribute to integration might instead be the result of these unmeasured differences in families and children. For example, we know that, on average, more-advantaged blacks in nationally representative

data are the ones more likely to attend integrated schools. Some characteristics, such as parental ambition, are not accounted for in the research. Therefore, the positive effect of integration is likely to be overestimated if more ambitious black parents are the ones more likely to integrate (which seems likely).

With this caveat in mind, Jencks and Mayer (1990) in their review of the literature on the racial composition of schools suggest that the best evidence comes from the *Equality of Educational Opportunity* study (Coleman, 1966) and the National Longitudinal Survey (NLS, 1972). They show (by one achievement-score measure) that blacks who attended predominantly white Northern schools during the late 1960s and early 1970s scored 0.30 standard deviations higher than blacks who attended all-black Northern schools. Phillips (2001) analyzed the same issue using the Prospects data—a nationally representative sample collected in the early 1990s to study the effect of Title I. Phillips found effects of integrated schools on black reading achievement of about 13 percent of the black-white reading gap, but she found no effect on math achievement. She speculates that the repeated findings in the literature that reading, but not math achievement, is affected by integration, suggest that black students in integrated schools benefit not so much from better instruction or more advanced curricula as from interaction with teachers and peers who speak the mainstream dialect.

There has been some research on ways that integration affects other important outcomes besides test scores. The latter include rates of high school completion, college attendance and completion, and lower rates of delinquency and teen childbearing (Mayer, 1991). Authors who emphasize this longer list of impacts are careful to point out that the advantages of integration probably come less from racial mixing per se than from middle-class educational environments (Orfield and Eaton 1996:57):

> Unfortunately, the framing of the issue in racial terms often leads both Blacks and whites to conclude that desegregation plans assume that Black institutions are inferior and that Black gains are supposed to come from sitting next to whites in school. But the actual benefits come primarily from access to the resources and connections of institutions that have always received preferential treatment, and from the expectations, competition and values of successful middle-class educational institutions that routinely prepare students for college.

Consistent with this view, there is a considerable literature that documents the reduced opportunities available in schools that have extremely high concentrations of poverty. Schools in high-poverty areas are less likely to offer college preparatory classes, and they have much higher rates of teachers' teaching out of subject areas, greater teacher turnover, and lower test scores. Parents are less likely to be involved in school

affairs, less able to ensure high standards, and less likely to pressure administrators to fire or transfer bad teachers (Kahlenberg, 2001). While there has been considerable debate in the academic literature about how much these school-level factors affect achievement independent of student background, it is undeniably true that the interaction of poverty, segregation, and inadequate school resources heavily disadvantages the poor and minority students who attend high-poverty schools.

Accordingly, the most striking effects of integration have been measured in case studies of interdistrict programs in which a limited number of city children are bused to suburban schools. For example, Wells and Crain (1997) found that of the students who remained in the suburban schools they studied in the St. Louis metropolitan area, approximately 50 percent graduated from high school in 1994, compared with 24 percent of all students in central-city public schools. Of the suburban stayers, 68 percent of those who graduated from high school went on to college, about two-thirds entered four-year colleges and the rest two-year colleges. Of the much smaller proportion who graduated from city schools, about 50 percent went to college, with one-third of those attending four-year institutions. Rosenbaum's (1995; Rosenbaum et al., 1993) study of the Gautreaux program concerned a semirandomized program comparing families that moved to the Chicago suburbs with those who moved to other urban locations. Rosenbaum found greatly increased educational outcomes among suburban movers. Specifically, suburban students (who experienced both residential and school integration) were four times less likely to drop out of school, more than twice as likely to attend college, and almost seven times more likely to attend four-year colleges compared with city students (Rosenbaum et al., 1993:1533).

Unfortunately, there are methodological problems with both the St. Louis and the Chicago studies, so their findings are far from definitive. The Wells and Crain study compares the students who *stay* in suburban schools with mean values for city public schoolchildren, and there is substantial reason to think that this might be a source of selection bias. The Rosenbaum study may also suffer from selection bias, because the response rate for those whom they followed up was fairly low, raising the risk of self-selection.

With a more robust study design, the federally sponsored residential mobility program Moving To Opportunity (MTO) began operating in 1994 in Baltimore, Boston, Chicago, Los Angeles, and New York. Qualified households were low-income families with children living in public housing or Section 8 project-based housing in selected high-poverty census tracts. Families who volunteered were assigned randomly to one of three groups. The experimental group was offered rental subsidies that could be used only for private-market housing in census tracts with 1990

poverty rates under 10 percent. A "Section 8-only" comparison group received rental subsidies, but with no requirement to live in a low-poverty census tract. Members of the control group received no subsidy at all. Because of the random assignment design and careful implementation, this project is not subject to the same concerns about sample selection bias that plague other studies.

So far, only the Baltimore study of Moving To Opportunity has reported education findings. Ludwig et al. (2001) report that elementary schoolchildren in the experimental group scored higher than the control group by about a quarter of a standard deviation in both reading and math. Elementary schoolchildren in the Section 8-only group score higher than the controls in reading but not math. Achievement data for adolescents are too limited to draw specific conclusions about effects on test scores. There are, however, some general conclusions: "The teens in the experimental and Section 8-only groups experience a higher incidence of grade retentions than controls, and may experience more disciplinary actions and school dropout as well. These findings are generally robust to problems of missing data and to decisions about the specific estimation approach that is used" (Ludwig, 2001:4). There is no way to know at this time what the long-term effects will be.

All in all, evidence on the impacts of racial and income mixing varies from study to study. A tentative conclusion is that a combination of racial and socioeconomic mixing often improve outcomes—particularly nontest score outcomes—for nonwhite students who might otherwise attend low-income segregated schools. However, the research generally suffers from methodological problems that limit the ability to draw firm, confident conclusions.

As the decades-long struggle to achieve integration continues, supports and incentives for schools to maximize achievement outcomes for minority children after integration occurs need to be strengthened so that all children will be well served. The work that *Brown v. Board of Education* and other desegregation cases began remains undone as long as segregation remains as extensive as it is and as long as children's hearts and minds are not nurtured in ways that propel them toward their potential in whatever schools they attend. To maximize the value of mixing, colocation of students under the same school building roof is only the first step in a more elaborate process of social and academic adjustment.

INSTRUCTIONAL QUALITY, TRACKING, AND ABILITY GROUPING[14]

Why are the effects of integration so small? If integrated (especially middle-class) schools tend to be superior to segregated schools in their capacity to produce positive student outcomes *and* those capacities are

applied effectively to benefit all students who attend them, then we should expect to find more positive gains from integration than most studies show. Surely, there is more potential for a poor child to thrive in a school that is mixed by race, ethnicity, and socioeconomic status than in one in which teachers and administrators are overwhelmed by a high concentration of children who are poor and socially isolated from mainstream society. However, as reviewed above, research findings tell mixed stories about the degrees to which such potential has been harvested over the past several decades. One possibility is that when poor and minority children entering a school are systematically different in preparation and identity from the children that the school is accustomed to serving, integration without accommodation may yield far less than the full potential of the opportunity. The following passage is illustrative (Ladson-Billings, 1994:60-61):

> Because of a clerical error I ended up in a "basic" English class during the first grading period of my sophomore year. . . . I was excited about the opportunity to be in a class where African American students were the majority. In my previous English classes the emphasis was on literature and composition. We read Dickens, Hardy, and Shakespeare. But in this class we were drilled in grammar and spelling. Each time we took a spelling test. Each week I got 100. In fact, I got an A on every assignment given. Nevertheless, on the first report card my grade was a C. When I questioned the teacher about it, she smiled and said, "Why Gloria, a C is the highest possible grade in this class!" After a quick trip to my guidance counselor, . . . I was returned to my rightful place in the college preparatory English class. The basic English teacher told me she was sorry to see me go and wished me well. I left that class confused and hurt. Why hadn't the teacher recognized that I had the ability to move out of it? And more importantly why didn't my classmates know that no matter how hard they worked, their efforts would only be rewarded with mediocre grades?

The quotation is from Gloria Ladson-Billing's book, *Dreamkeepers: Successful Teachers of African American Children*. It reports an experience from the early 1960s. Even today, however, it remains true in racially integrated schools that black students are overrepresented in lower level-classes. It also seems to be common (or at least it remains a common perception) that lower level-classes are less well taught than those at higher levels.

Consequently, tracking and ability grouping are leading suspects for why integration has not produced greater benefits for minority children (Oakes, 1985; Braddock and Slavin, 1993). They provide means by which students attending the same schools may nevertheless have different instructional experiences. Because of differences in their family backgrounds and academic preparation (Phillips et al., 1998) and perhaps also because

of biases (see below), children are frequently grouped for instruction in combinations that are more homogeneous by race and socioeconomic background than the school is as a whole. However, as we posit below, grouping and tracking are not *necessary* in order for some children to be served less effectively than others, especially if schools do not accommodate well their instructional needs.

Ability grouping refers to elementary school practices that separate children for instruction either within or between classrooms, based on teachers' judgments. Ability grouping after elementary school often occurs in the context of what historically has been called tracking and what more recently has been called "leveling" because tracking has acquired a pejorative connotation associated with more rigid structures of the past (Loveless, 1998). Courses at higher levels cover more advanced material and may require more work. Currently, the standard arrangement is that no student is officially forbidden from entering a course at any level. Nonetheless, race, gender, and socioeconomic imbalances frequently develop. Explanations include differences in proficiency, in the advice received from parents, counselors, and teachers, and students' own preferences to be with their friends.[15]

For at least the past century, there have been recurrent debates among educators about whether ability grouping and tracking are helpful or harmful, especially for low achievers and minority students.[16] In its standard form, the debate confuses at least three questions, on which we comment in what follows. The first concerns whether groups at all levels receive the same quality of instruction and, if not, what the implications are for whether the grouping should continue. To the extent that research addresses the question, the most common conclusion is that children in lower ability groups (and tracks) receive a lower quality of instruction than those in higher ability groups (and tracks) and therefore that grouping and tracking hurt students at the lower levels (Oakes, 1985; Finley, 1984; Schwartz, 1981; Metz, 1978; Gamoran and Berends, 1987).

Authors who conclude that ability grouping hurts students in lower-level groups or tracks and that it should therefore be abandoned assume that the same students would receive superior instruction in more heterogeneous groups or classrooms. However, there is ample evidence that even in heterogeneous, mixed-ability classrooms, low-achieving students often receive inferior treatment. Thomas Good (1987) reviewed the literature comprising studies of classroom observations aimed at detecting teacher biases. Citing multiple studies for each item, he identified the following ways that teachers were found to treat "highs" and "lows" differently when they were in the same classroom. They did so by waiting less time for "lows" to answer; giving low achievers answers or calling on someone else rather than trying to improve their responses (by giving

clues or repeating or rephrasing questions); rewarding inappropriate behavior or incorrect answers by low achievers; criticizing low achievers more often for failure; praising low achievers less often than highs for success; failing to give feedback to the public responses of low achievers; paying less attention to low achievers or interacting with them less frequently; calling on low achievers less often to respond to questions; seating low achievers farther away from the teacher; demanding less from low achievers (e.g., teaching them less, accepting low-quality or even incorrect answers, providing unsolicited help); interacting with low achievers more privately than publicly and monitoring and structuring their activities more closely; grading tests or assignments in a different manner, in which the high achievers but not the low achievers are given the benefit of the doubt in borderline cases; having less friendly interaction with low achievers, including less smiling and fewer other nonverbal indicators of support; providing briefer and less informative feedback to the questions of low achievers; providing less eye contact and other nonverbal communication of attention and responsiveness; evidencing less use of effective but time-consuming instructional methods with low achievers when time is limited; evidencing less acceptance and use of low achievers' ideas.

We think researchers are correct when they conclude that instruction for lower-level tracks is routinely inferior to what higher-level tracks receive at middle school and high school levels. An analogous statement may apply for ability groups at the elementary school level. However, it does not follow directly that moving students into heterogeneously grouped arrangements will typically improve learning outcomes. As Good's list reminds us, even in heterogeneously grouped schools and classrooms, minority students in integrated schools may receive inferior instruction if they are overrepresented among low achievers (Phillips et al., 1998) or among students from whom not much is expected (Ferguson, 1998a).[17]

It is important to note here that lower-level groups and classrooms are sometimes not even exposed to important concepts that they need to know in order to preserve future learning options (such as more advanced math classes). Sometimes this is given as a reason to abolish ability grouping and tracking (or leveling). There are surely circumstances in which the only way to give students what they need academically is to move them to heterogeneously grouped classrooms. However, there are surely also situations in which enriching the curriculum and quality of instruction while remaining within the ability-grouped regime is the most academically responsible option. As Loveless (1998) suggests, the answer to what is best will depend on the specific circumstances of the schools and classrooms under consideration.

A second question to consider is whether ability grouping matters if

the curriculum and the quality of instruction are similar across different grouping arrangements. The best studies to address this question are experimental and quasi-experimental studies in which students are randomly assigned (or carefully matched) to be grouped by ability, or not. Kulik (1992) presents findings from a meta-analysis of many such studies. The studies find overwhelmingly that ability grouping makes no difference to learning if there is no tailoring of curriculum or instruction to fit the proficiency of the group. In other words, if what is taught is the same, classmates' proficiencies seem not to matter.[18]

Kulik's analysis also indicates that when students are placed in ways that match their proficiencies and instruction and curriculum are tailored to the needs of the students in the group, *students at all levels can benefit at least modestly from ability-grouped instruction*. Less time is wasted on material that is too elementary or too advanced for any given group member, and instruction that serves one student well is more likely to serve others well too. Furthermore, contrary to the belief that ability grouping harms the self-esteem of low achievers, Kulik's (1992) review found that ability grouping tends to lower self-esteem slightly among the high group and raise it slightly among the low group. Presumably, this is because compared with more heterogeneous arrangements, interpersonal comparisons within the high group are less favorable for the typical member and the opposite is true within the low group.

A final issue concerns whether students are placed in ways that match their proficiencies and potentials. Even if instruction is of high quality and tailored, some students may be misplaced. If teachers or guidance counselors use race, gender, or socioeconomic status as indicators of current or potential proficiency, there may be race, gender or socioeconomic bias in the placements. However, Ferguson's conclusion after reviewing the literature (Ferguson, 1998a, 1998b) is that most placements are predicted by measures of past performance (and sometimes parental education), leaving little independent explanatory power for race.[19]

Ultimately, our conclusion is that how children are grouped for instruction seems less important than how well they are taught. For example, in the classroom that Gloria Ladson-Billings described in the quotation above, it is not at all clear that merging the entire "basic" class with students from the higher-level section would have been the best option for Gloria's classmates. It extremely clear, however, that the basic class was being poorly taught. As summarized in Kulik's (1992) review, experimental and quasi-experimental studies indicate that tailoring instruction to student skill levels and being responsive to progress produces the best outcomes, assuming that all of the instruction is of high quality.[20] However, as Good's (1987) review shows, there are reasons to believe that students in regular classrooms who have weaker skills than their class-

mates (or who are racially different—Ferguson, 1998a) are often taught less effectively, even in heterogeneously grouped arrangements. The issues involved are complex, implicating racial and social class biases as well as problems with teachers' instructional skills.[21] Any simple, unidimensional, yes/no perspective with regard to ability grouping and tracking may be correct at some times, in some places, but it surely is wrong as a generalization.

The discussion of the past few pages is motivated by the question of why integration typically produces only meager achievement gains. It is impossible to make a reliable generalization based on the existing literature about whether disproportionate placements in lower-level ability groups and curriculum tracks are important to the answer. However, if nonwhite, non-Asian children in integrated schools are overrepresented among students who enter with less preparation than their peers, and if students with less preparation are taught less effectively in both ability-grouped and heterogeneously grouped classrooms, then the quality of instruction is part of the problem, no matter what the grouping arrangements may be. Racial biases in placement may be common as well, but the few studies that seek to measure this bias, controlling for scores and past performance, tend not to find it.[22]

CLASS SIZE

One of the most highly touted education policies of the Clinton presidency was a major class size reduction initiative that distributed $1.3 billion to help school districts recruit, hire, and train new teachers for the 2000-2001 school year. According to a progress report on the web site of the U.S. Department of Education (2000:1):

> The Class Size Reduction Initiative is an initiative to help schools improve student learning by hiring additional, highly qualified teachers so that children—especially those in the early elementary grades—can attend smaller classes. A growing body of research demonstrates that students attending smaller classes in the early grades make more rapid educational progress than students in larger classes, and that these achievement gains persist well after students move on to larger classes in later grades.

On December 22, 2000, Congress appropriated an additional $1.6 billion to cover the class size initiative during the 2001-2002 school year. However, President Bush was not persuaded that class size reductions should be a priority. Hence, the new Bush administration proposed to end the class size initiative and shift the funds toward efforts to improve teacher quality (Bush, 2001:12):

> [The Bush] proposal combines the funding of Federal education pro-

> grams, including the Class Size Reduction program and the Eisenhower Professional Development program, into performance-based grants to states and localities. Using these funds, they will have the support and flexibility necessary to improve academic achievement through such initiatives as providing high-quality training for teachers that is grounded in scientific research. In return, states will be held accountable for improving the quality of their teachers.

Below, we discuss the state of research on class size and consider implications with regard to investments in class size versus efforts to improve instructional quality.

Class Size Research

The Bush administration's deemphasis on class size was surely informed by the work of economist Erik Hanushek, based in part on the widely cited literature reviews that he has conducted over a period of two decades (e.g., Hanushek, 1986, 1997). Hanushek tabulates the findings from what economists call education production function studies. Education production functions use data on child, family, classroom, school, and community characteristics as predictors of academic outcomes such as test scores and graduation rates. In most such studies, the data have been generated for purposes unrelated to the study and seldom include all of the variables that the researcher's theory suggests should be included. Indeed, a host of problems with both data and methodology make many of the studies heavily flawed.

Nonetheless, for class sizes, expenditures, teacher experience, and teacher education (i.e., master's degrees), Hanushek's literature reviews tabulate estimates of the degree to which these education "inputs" affect academic outcomes. Because it counts the number of estimates in each category, the method is known as "vote counting." His well-known and widely quoted conclusion based on his reviews is that there is no consistent relationship between these school resources and school achievement. Instead, based on other work by himself and others (Rivkin et al., 2000; Sanders and Horn, 1995), he emphasizes that far and away the most important schooling input is teacher quality, but that teacher quality is difficult to measure with the types of data available for education production function analysis. The only possible exceptions, he has written, are direct measures of teachers' own academic skills (Hanushek, 1986; Ferguson, 2000), and even these are imprecise.

The first major challenge to Hanushek's summary of the literature came from statistician Larry Hedges and his colleagues. Hedges argued that Hanushek's technique for summarizing the literature was likely to produce misleading results because it can easily fail to detect real effects.

Hedges, Laine, and Greenwald use formal methods of meta-analysis, which have greater statistical power (see Hedges et al., 1994a, 1994b; Greenwald et al., 1996; Hedges and Greenwald, 1996). Analyzing most of the same studies as Hanushek, they find that several kinds of resources, including class size, have beneficial effects on student outcomes. In the debate that has ensued, each side has applied assumptions that, if correct, favor its own position. These assumptions are not testable, so there is an intellectual standoff.[23] Our own view is that the literature on educational production functions is sufficiently flawed, especially in the way that it treats class size, that neither method is very reliable.[24]

The latest and most effective challenge comes from economist Alan Krueger, who challenges the way that Hanushek selected estimates from the education production function literature to include in his summaries. For example, Hanushek's 1997 review included 277 estimates of class size effects from 59 different studies. Different numbers of estimates were taken from different studies. Two studies contributed 24 estimates each, and 17 studies contributed only one apiece.

Since each estimate counted equally in the analysis, some studies counted much more than others did in a manner that affected the findings. According to Krueger and Diane Whitmore (2001), "The number of estimates Hanushek extracted from a study is systematically related to the study's findings, with fewer estimates taken from studies that tend to find positive effects of smaller classes or greater expenditures per student" (p. 5). Krueger and Whitmore do not question Hanushek's motives, but they do question his judgment. Krueger (2000) offers three alternative ways to combine estimates from the 59 studies. He writes, "In sum, all three of these alternatives to Hanushek's weighting scheme produce results that point in the opposite direction of his findings: all three find that smaller class sizes are positively related to performance, and that the pattern of [positive] results in the 59 studies is unlikely to have arisen by chance" (p. 12).

Hanushek's (2000) response to Krueger's critique focuses on the differential quality of the studies from which he drew the estimates. Hanushek's preference is to give greater weight to the studies that he regards as higher quality, and he argues that Krueger's suggested schemes rely on "placing heavy weight on lower-quality and biased econometric estimates." For example, he thinks that Krueger's schemes give too much weight to studies that confound the effects of class size and other resources with unmeasured features of state-level policy regimes.

Hanushek's summary of the education production function literature should no longer be treated as the definitive word on what that literature shows. Like Hanushek, both Hedges and Krueger are highly respected researchers. There are genuine, legitimate differences of professional judg-

ment that lead these researchers to contradict one another in the conclusions they draw from the education production function literature. Our judgments are more similar to those of Krueger and Hedges than to Hanushek, but there are others who agree with Hanushek. In any case, when Hanushek's summary was the only one available it was regarded by many as definitive, but there is no research consensus today on what the education production function literature shows regarding the effectiveness of class size reductions.

The Tennessee Star Class Size Experiment

Consensus is growing among researchers, including all those cited directly above, that the only way to reliably estimate the effect of class size is by doing experimental studies that randomly assign otherwise similar students (and teachers as well) to classes of different sizes. Experimental studies avoid most of the methodological pitfalls of education production function studies and are less controversial to interpret. In a perfectly executed class size experiment, class size differences would be the only systematic source of differential achievement among students who get assigned to different class sizes.

Tennessee's Project Star, funded by the Tennessee state legislature in 1985, is the largest experimental study of class size ever conducted (see Word et al., 1990; Nye et al., 1993, 1994a, 1994b; Mosteller, 1995; Boyd-Zaharias, 1994). It randomly assigned 11,600 students *and teachers* to small classes (13 to 17 students) or large classes (22 to 25 students).[25] Students began with their assigned class sizes in kindergarten and continued through 3rd grade. A number of researchers have examined the Project Star data and all found that students in smaller classes outperformed those in the larger classes. Moreover, the effects were roughly twice as large for blacks as for whites. Black students in small classes in kindergarten through 3rd grade scored 7 to 10 percentile points higher than blacks in regular classes, while whites in small classes scored 3 to 4 percentile points higher than whites in regular classes (Finn and Achilles, 1990; Krueger and Whitmore, 2001). Krueger and Whitmore show that students from small classes kept their advantage in achievement all the way through high school (although in standardized units, it diminished) and they were also more likely to take ACT or SAT college admissions exams. For each outcome variable, the advantage of small classes was greater for blacks than for whites.

Students in small classes did not move into regular sized classes until after they completed the 3rd grade. The advantage of being in a small class measured in standardized units did not grow much after the first

year that a student was in a small class. This has led some, including Hanushek, to argue that the entire advantage accrues during the first year, and that the additional years probably are not necessary. A competing view is that students in small classes had to learn more each year than students in large classes to maintain the advantage that they did (as measured in standard deviation or percentile units). Since there was no arrangement to move some students into regular classes after only one or two years in small classes, there is no way to know who is right about the extra years' payoff.

There have also been questions raised about whether other imperfections in the way the experiment was executed might have biased the results. However, analyses that test the sensitivity of the results to implementation imperfections have found no evidence that they distorted the findings (Nye and Hedges, 2000; Krueger, 1999). Furthermore, Nye and Hedges point out that the magnitude of the estimated effects in Project Star are quite close to those that Glass and Smith (1979) estimated in their meta-analysis of small-scale class size experiments from before 1980.

Krueger and Whitmore present four additional sets of findings that are far from definitive but nonetheless worth mentioning. First, using the education production function literature, Krueger and Whitmore (2001) examine class size effects from studies that provide separate estimates by race, socioeconomic status, or achievement level. In general, just as in Project Star, effects appear to be larger for low achievers, minorities, and students from low socioeconomic status households. Second, Krueger and Whitmore show using the Tennessee Star data that blacks in majority white schools and whites in majority black schools experience gains similar to their classmates. This suggests that the average behaviors or instructional needs of classmates or the skills of teachers in different schools may be the key reasons that small-class effects are higher in schools in which more blacks attend.[26] Third, in a very basic cost-benefit calculation, Krueger (1999) shows that the discounted present value of expected future earnings gains due to small classes appears to be sufficient to cover the costs of reductions in class size.[27] The calculation is admittedly rather crude, but it responds to those who say categorically that class size reductions in the early grades are a bad investment.

Finally, Krueger and Whitmore (2001) use the elementary school pupil/teacher ratio to predict the black-white test score gap among 4th graders for the 1970s through the 1990s. Like Ferguson (1998b), they found that the relationship between falling class sizes and the narrowing of the black-white test score gap among 4th graders on the NAEP is very close to what one would have predicted based on class size effects estimated in Project Star (also see Grissmer et al., 1998; Grissmer et al., 2000). The

authors are appropriately cautious, however, acknowledging that there were many other forces aside from class size that could also have contributed to changes in the test score gap.

Other Recent Class Size Research

Recently, California and Wisconsin have joined Tennessee as sites for research on the importance of class size. The California class size initiative adopted in 1996 allocates additional funds per student to classes of 20 or fewer students. Evaluators report: "A small positive gain in achievement is associated with being in a reduced class size, and this gain is realized by all groups of students, regardless of their demographic characteristics" (Bohrnstedt, 2001:2). They acknowledge, however, that it is difficult to know for sure that these gains are due to the changes in class size, as opposed to other reforms in the same classrooms.

Schools serving low-income, minority and English language learning students have had difficulty competing for additional teachers and have suffered what Bohrnstedt (2001) says is "a far greater decline in the qualifications of teachers than other schools." They have also faced greater problems finding space for additional classrooms. Hence, they have been slower to implement the initiative and have received disproportionately less revenue for class size reduction (which accrues after class sizes are reduced). It is possible that disadvantaged students fortunate enough to be placed in smaller classes have benefited from this initiative, while those whose schools have been unable to implement it have suffered. To the degree that research shows that low-income and minority students benefit most from reduced class sizes, the California initiative seems poorly targeted. Other states should pay close attention to the California experience as they design their own initiatives, in order to avoid disadvantaging the students who most need the benefits of smaller class sizes.

In Wisconsin, the Student Achievement Guarantee in Education (SAGE) program is a five-year effort initiated by the Wisconsin Department of Public Instruction for the benefit of schools serving low-income students. It is being implemented in 80 schools across the state (Zahorik, 1999). The evaluation of the initiative involves 31 schools in 21 districts and researchers at the University of Wisconsin-Madision are conducting it. The study design is quasi-experimental, not random assignment. Specifically, the evaluators are comparing academic progress in schools in which class sizes are being reduced to 15 students per teacher in the early grades to similar schools that have regular class sizes. The black-white gap in baseline composite scores (for language arts, reading, and math) was roughly 0.75 standard deviation in both the SAGE and the comparison schools. (Other racial and ethnic groups represent such small percent-

ages of the students that their scores are not separately reported.) Average scores for blacks in the SAGE schools were roughly equal to those for blacks in the comparison schools at the time that the study began, and the same was true for whites.

The evidence from the SAGE project presented in Molnar et al. (2000) shows that most of the advantage of small classes was concentrated among black 1st graders. The effect size for the composite language arts, reading, and math score by the end of 1st grade was 0.58 for black students and 0.12 for white students, measured in baseline standard deviation units. By the end of 3rd grade, this had grown to 0.68 for blacks and it had not changed at all for whites.[28] The black-white gap in scores at the end of 3rd grade is smaller than at the baseline among students who attended small classes, but larger than at the baseline among students in regular-sized classes.

Our conclusion based on examining the data tables in Molnar et al. (2000) is the following: the main story in SAGE appears to be that black 1st graders in regular classes learn less than black or white children in small classes or white children in regular classes. This is the main source of differences by the end of 3rd grade. During the 2nd and 3rd grades, all groups learn similar amounts, but black children who were 1st graders in regular classes do not make up the deficit from having learned less in 1st grade. This in fact is similar to the results from Tennessee Project Star, in which most of the differential gain comparing small and larger classes was concentrated in the first year that a student spent in small classes, and the differential was roughly twice as large for blacks as for whites.

Similar to what we suggested above in the discussion of Tennessee's Project Star, there is a possibility in Wisconcin's SAGE that black children who spend 1st grade in small classes need to remain in small classes for 2nd and 3rd grades in order to retain the gains from the 1st-grade year. It is also possible, however, that they would have retained those gains even if they had moved into regular-sized classes. The only way to answer this question reliably is to randomly move some children from small to regular classes after the first year in small classes—which may be politically difficult to do.

In the end, the policy debate is not really among those who say that class size never matters for anyone and those who say it always matters for everyone. Most people, even Eric Hanushek, are in the middle. Hanushek (2000:42) writes, "Proposed class size reduction policies generally leave no room for localities to decide when and where reductions would be beneficial or detrimental. The existing evidence does not say that class size reductions are never worthwhile and that they should never be taken. It does say that uniform, across-the-board policies—such as those in the current policy debate—are unlikely to be effective." This is a

valid criticism of the California class size reduction policy that, as discussed above, applies equally to all elementary schools in the state.

Class Size Versus Instructional Quality: A Matter of Balance

Should policy makers focus more on instructional quality and less on reducing class size? In our view, until more extensive and definitive research on class size gets done, class sizes larger than the low 20s are probably ill-advised, especially in elementary schools in which students are disruptive or need lots of individualized attention. Because we lack definitive evidence from other sources, our judgment is based primarily on what teachers themselves report. As mentioned earlier, in surveys over the years by the Educational Research Service, there is a consistent shift in teachers' responses that class size is a minor problem to responses that it is a major problem at class sizes of 23 to 24 students (Robinson and Wittebods, 1986). (Recall that classrooms of 22 to 25 were the *large* ones in the Tennessee experiment.) However, based on both the Tennessee Star and the Wisconcin SAGE findings, class sizes in the neighborhood of 15 seem warranted for black kindergarten and 1st grade children in low-income schools (and probably for other disadvantaged children as well, though the research does not as clearly address them). Whether 2nd and 3rd grade children need classes as small as 15, and what the effects of class size might be in the later grades, have not been clearly established.

At the same time that class size should not be neglected, it would be wrongheaded not to make instructional quality the top priority. Researchers in project SAGE are studying the skills and practices that make some teachers more effective in small classrooms than others (Molnar et al., 2000).[29] There needs to be more research of this type to inform teacher training and professional development. There also needs to be greater effort to attract skilled people to the profession. Teacher quality matters. In most research that tries to study it, variation in teacher quality accounts for more of the variation in student achievement than any other schooling input, rivaling parental background in its importance. The evidence is clear. Studies that track the differential progress of students who have different teachers find very large teacher-to-teacher differences in effectiveness (Rivkin et al., 2000; Sanders and Horn, 1995). Teachers who score higher on standardized tests tend to produce students who score higher on achievement tests (Greenwald et al., 1996; Ferguson and Ladd, 1996), but schools attended by blacks and Hispanics often attract teachers with lower scores (Ferguson, 2000; Orfield et al., 1984). Concerns about teacher quality that began growing in the 1980s (as symbolized, for example, by the explosion during that decade in initial certification testing)[30] are entirely appropriate, indeed, necessary, if the society is serious about raising

standard levels of achievement among all groups of students. There are active debates under way about how to improve instruction. Some favor an emphasis on attracting more talent to the teaching profession (Ballou and Podgursky, 1999), while others work to refine teacher training and professional development (Darling-Hammond and Ball, 1998). We believe that both emphases are important to pursue and potentially quite consequential.

CONCLUSION

It seems clear that the nation's future depends fundamentally on the degree to which schools and communities can raise skill levels among children from all racial, ethnic, and socioeconomic backgrounds. Achievement disparities among today's students foreshadow socioeconomic disparities among tomorrow's families. Large socioeconomic disparities among families are morally objectionable and politically dangerous for the future of a society.

As we stated in the introduction, the United States has achieved substantial progress in narrowing gaps among racial groups since *Brown v. Board of Education* in 1954. At the same time, there have been missed opportunities and the gaps remain large. Integration came too slowly and then produced fewer benefits than it should have. Head Start failed to produce as many lasting benefits as it would have if the schools to which graduates matriculated had more often been strong enough to sustain the gains. Title I has been a disappointment, but still has lots of potential. Class size effects are only now beginning to be understood, although they might have been many years ago if there had been more support for experimental research in education. Small classes on the order of 15 students per classroom seem to produce benefits for black children in kindergarten and 1st grade. We ought to be acting on this knowledge while we await better evidence for later grades. In addition, we need much more information about which types of teacher training and professional development regimes produce the best outcomes for the children that trainees end up teaching. The fact that such information has not been developed using high-quality research standards and then widely shared represents an extremely important set of missed opportunities. Examples of underachieved policy potential constitute a very long list, including examples in the current standards movement, which this paper has not addressed (see Ravitch, 2001).

However, the nation's habit of missing opportunities to improve educational outcomes need not continue to such a degree. Recent assertions by political leaders regarding the need for more research-based practices and policy decisions are encouraging, especially if there is a focus on

improving classroom practices complemented by results-based accountability. If practitioners, political leaders, and researchers can make real the promise of current-day public discourse about the need to provide a high-quality education to all children, then the next 50 years may be more successful at finishing the long-term journey along which *Brown v. Board of Education* was a key milestone. We are guardedly optimistic and ready to work with others in getting it done. Other chapters in this volume describe some promising approaches to instructional improvement and thereby offer reasons to be hopeful.

NOTES

1. We are grateful to Alexandra (Sandy) Wigdor of the National Research Council for proposing that we should write this paper and to Timothy Ready, David Grissmer, Sara Stoutland and two anonymous reviewers for helpful comments.
2. By the time that young people are age 23, the relationship of hourly earnings to scores is clearly evident even within racial groups. This statement is based on our analysis of the National Longitudinal Survey of Youth (1979 cohort). It is a nationally representative sample of roughly 12,000 youth who were ages 14 to 21 in 1979. Ninety-five percent of the sample took the Armed Forces Qualification Test (AFQT) in 1980. See Ferguson (1995) for a discussion of the relationship of AFQT scores to earnings disparities both within and among racial groups, even after taking years of schooling and several family background measures into account.
3. The baseline date here for Hispanics is 1975 because they were not separately identified in NAEP reports before 1975.
4. Ferguson (2001b) has explored some possible reasons.
5. Of course, there are also large disparities within each group. And, there are many whites and Asians who do poorly and there are many blacks and Latinos who do quite well.
6. Southern whites were not ready to share their schools. Immediately following the decision, the Court provided for a "cooling off" period. As reported in the *Atlanta Constitution Daily Newspaper* on May 18, 1954, "Not until next autumn will [the Court] even begin to hear arguments from the attorneys general of the 17 states involved on how to implement the ruling. . . . It is not time to indulge the demagogues on either side nor to listen to those who always are ready to incite violence and hate." An article in the *Jackson Mississippi Daily News* was less open-minded. Entitled, "Bloodstains on White Marble Steps," it proclaimed, "Human blood may stain southern soil in many places because of this decision, but the dark red stains of that blood will be in the marble steps of the United States Supreme Court building. White and Negro children in the same schools will lead to miscegenation. Miscegenation leads to mixed marriages and mixed marriages lead to mongrelization of the human race."
7. The impact of the finance cases on achievement has not been extensively studied and would be difficult to estimate with much accuracy.
8. Farkas and Hall believe that well-trained tutors for students in the early elementary grades would be a much more efficient alternative use for Title I funds. Farkas and his associates have developed such a program, called Reading One-on-One. It has shown positive results and its designers have been frustrated at times by the refusal of some schools to adopt it, even where existing uses of Title I funds are clearly inefficient and ineffective.

9. Boozer and Rouse (1995) suggest that the data may be hiding remaining differences, if black and white students are in different types of classes. They point out that for each type of class, blacks may still on average be in larger classes.
10. Nowhere are they more apparent than in the blueprint entitled "No Child Left Behind," which President George W. Bush has introduced as a framework for making education the cornerstone of his administration. Key from the perspective of this paper are proposals to hold schools accountable for the achievement of every group. For example, states will receive incentives from the Bush administration to test every child annually in grades 3 through 8 and to require schools to report results separately by race, gender, English language proficiency, disability, and socioeconomic status.
11. In its Ruling on Relief issued on May 31, 1955, the Court wrote, "Traditionally, equity has been characterized by a practical flexibility in shaping its remedies and by a facility for adjusting and reconciling public and private needs." In judging whether states were moving "with all deliberate speed" to implement the ruling, the district courts were advised to consider a number of factors. These included "problems related to administration, arising from the physical condition of the school plant, the school transportation system, personnel, revision of school districts and attendance areas into compact units to achieve a system of determining admission to the public schools on a nonracial basis, and revision of local laws and regulations which may be necessary in solving the foregoing problems."
12. However, Orfield and Yun (1999) point out that there were "findings of intentional discrimination by both state and local officials, which intensified segregation in the metropolitan area."
13. Crain and Mahard (1978) say that all the studies agree on this point. However, Jencks and Mayer (1990) argue, on the basis of a reanalysis of the Coleman et al. (1966) data, that being in a more white school may have a positive effect on white students.
14. This discussion of tracking and ability grouping draws heavily on an expanded discussion in Ferguson (1998b).
15. For example, we often hear anecdotal reports about minority youth who forgo advanced courses because they would be one of only a few black or Hispanic students in the classroom (Fordham, 1996; Ferguson, 2001a). Initiatives to provide supports and incentives for students to take more advanced courses are high on the agenda of many schools and experience with them is developing. Efforts that provide tutorial assistance to help minority students move to more advanced levels in groups, rather than as individuals, are among the most promising.
16. See Kulik (1992) for a summary of how ability grouping has gone in and out of favor at various times during the 20th century.
17. The review in Ferguson (1998a, 1998b) finds generally that teachers have similar expectations of black and white students who have similar past patterns of performance. Ferguson (1998a) points out, however, that this says nothing about whether there are similar expectations (and treatment) of black and white students who have similar levels of latent, unexpressed potential. It is possible, perhaps even likely, that blacks and other relatively disadvantaged groups have past patterns of performance that understate their latent potential by larger margins than other, higher-performing groups.
18. See Tables 9-4 and 9-5 of Ferguson (1998b) for tabulations of effect size estimates from Kulik's study.
19. Any residual bias in placements seems more related to socioeconomic status than to race and more prevalent in the postelementary years. More highly educated parents push harder to get their children into higher ability sections (see references in Ferguson, 1998b, and in footnote below.) They may also have more wherewithal to support their children's success in such sections if it turns out that they struggle.

20. Currently, educators seem to be paying a great deal of attention to "differentiated instruction" as a collection of ways to accommodate different interests and proficiencies in the same classroom. The September 2000 issue of *Educational Leadership* (58:1) is dedicated to the topic of differentiated instruction. The future may bring random assignment studies that rigorously establish the effectiveness of these approaches.
21. There is a more extensive discussion of these issues and additional references in Ferguson (1998a, 1998b).
22. For ability grouping at the elementary school level, see Sorensen and Hallinan (1984), Pallas et al. (1994), Dreeben and Gamoran (1986), and Haller (1985). For tracking at the middle or high school level, see Garet and Delaney (1988), Gamoran and Mare (1989), and Argys et al. (1996). Using the nationally representative data set High School and Beyond, Lee and Bryk (1988) found no residual racial difference in course taking during the early 1980s after accounting for academic background and previous test scores. Also, Loveless (1998), using the National Education Longitudinal Study (NELS), which began with 8th graders in 1988 and followed them for several years afterward, reports that "once test scores are taken into account, a student's race has no bearing on track assignment."
23. Hedges et al. interpret their findings to mean that resources are used productively *in most schools*, but individual studies do not have enough statistical power to establish this using the technique of vote counting. Conversely, Hanushek asserts that what Hedges et al. have answered is the uninteresting question of whether resources "might matter somewhere." He points out that their results would be what they are even if resources were used effectively only *in a small minority of schools*—but a larger number than would occur merely by chance—which Hanushek believes is closer to the truth.
24. The data are often inadequate and the quality of available studies is variable. Typically, studies cannot compensate adequately for the fact that causation is sometimes reversed: districts may aim for smaller classes at schools where children are performing poorly, just as individual schools provide smaller classes for children whose past and expected levels of performance are low. Hence, classes are sometimes smaller precisely because the children in them have special needs for more individualized attention. Any tendency for lower class sizes to produce higher achievement can be obscured by this type of reverse causation, by data that are inadequate in other ways, and by the poor quality of many available studies.
25. Note that even these large classes may be smaller than the levels at which large class sizes harm performance the most. Some studies, such as Ferguson (1991) and Glass and Smith (1979), suggest that class size may have threshold effects. The existence of such effects has not been widely explored, however, and, like the rest of the literature on education production functions, problems with having the appropriate data make it difficult to be certain regarding the levels at which such thresholds might occur. Perhaps a more dependable method is to ask teachers. Repeated surveys over the years by the Educational Research Service have found that teachers report class size shifts from a minor to a more important problem at the point of 23 or 24 students per class (see Robinson and Wittebods, 1986). If this is the case, then the Tennessee experiment may have missed some of the effect.
26. See Lazear (1999) for a theoretical discussion about how the optimal class size depends on the probability of disruptions. If predominantly black schools are more likely to have classroom disruptions than predominantly white schools, perhaps because children are less well behaved or because they ask more questions, then Lazear's analysis suggests that the optimal class size will be smaller.
27. That higher test scores predict higher future earnings is a standard finding. See, for example, Johnson and Neal (1998).

28. These effect sizes are our calculations based on data in Tables 12 and 32 on pages 28 and 46 of Molnar (2000).
29. Also see Grissmer (1999) and other articles in the same issue of *Educational Evaluation and Policy Analysis*, all of which focus on class size.
30. As indicated earlier in the text, there were three states that used initial certification testing in 1980 and 42 by 1990 (U.S. Department of Education, 1996, Digest of Education Statistics).

REFERENCES

Argys, L.M., D.I. Rees, and D. Brewer
1996 Detracking America's Schools: Equity at Zero Cost? Working paper series #9501, Center for Research on Economic and Social Policy, University of Colorado, Denver.

Ballou, D., and M. Podgursky
1999 Teacher training and licensure: A layman's guide. [Online]. In *Better Teachers, Better Schools*, M. Kanstoroom and C.E. Finn, Jr., eds. Washington, DC: Thomas B. Fordham Foundation. Available: http://www.edexcellence.net/better/tchrs/teachers.html. [Accessed November 16, 2001].

Barnett, W.S.
1992 Benefits of compensatory preschool education. *The Journal of Human Resources* 27(2):279-312.

Bohrnstedt, G.
2001 Class Size Reduction in California: Early Findings Signal Promise and Concerns. [Online]. Available: http://www.air.org/projects/csr.htm. [Accessed November 16, 2001].

Boozer, M.A., A. Krueger, and S. Wolkon
1992 Race and School Quality Since *Brown v. Board of Education*. *Brookings Papers on Economic Activity, Microeconomics.* Washington, DC: Brookings Institution Press.

Boozer, M., and C. Rouse
1995 Intraschool Variation in Class Size: Patterns and Implications. Working Paper No. 5144. National Bureau of Economic Research, Cambridge, MA.

Borman, G.D., and J.V. D'Agostino
2001 Title I and student achievement: A quantitative synthesis. In *Title I: Compensatory Education at the Crossroads*, G.D. Borman, S.C. Stringfield, and R.E. Slavin, eds. Mahwah, NJ: Lawrence Erlbaum Associates.

Borman, G.D., K.K. Wong, L.V. Hedges, and J.V. D'Agostino
2001 Coordinating categorical and regular programs: Effects on Title I students' educational opportunities and outcomes. In *Title I: Compensatory Education at the Crossroads*, G.D. Borman, S.C. Stringfield, and R.E. Slavin, eds. Mahwah, NJ: Lawrence Erlbaum Associates.

Boyd-Zaharias, J., et al.
1994 Quality Schools Build on a Quality Start. Tennessee State University, Center of Excellence for Research in Basic Skills.

Braddock, J., and R.E. Slavin
1993 Why ability grouping must end: Achieving excellence and equity in American education. *Journal of Intergroup Relations* 20(2):51-64.

Bush, G.W.
2001 No Child Left Behind. [Online]. Available: http://www.ed.gov/inits/nclb/index.html. [Accessed November 16, 2001].

Campbell, D.T., and P.W. Frey
1970 The implications of learning theory for the fade-out of gains from compensatory education. Pp. 185-223 in *Compensatory Education: A National Debate, Vol. 3*, J. Hellmuth, ed. New York: Brunner/Mazel.

Carter, L.F.
1983 *A Study of Compensatory and Elementary Education: The Sustaining Effects Study.* Washington, DC: U.S. Department of Education, Office of Program Evaluation.

Coleman, J., et al.
1966 *Equality of Educational Opportunity*, Washington, DC: U.S. Office of Education.

Cook, T.
1984 *School Desegregation and Black Achievement.* Washington, DC: U.S Department of Education.

Crain, R.L., and R.E. Mahard
1978 Desegregation and black achievement: A review of the research. *Law and Contemporary Problems* 42(3):17-56.
1983 The effect of research methodology on desegregation-achievement studies: a meta-analysis. *American Journal of Sociology* 88(5):839-854.

Currie, J., and D. Thomas
1995 Does Subsequent School Quality Affect the Long-Term Gains from Head Start? Manuscript. University of California, Los Angeles.

Cutright, P.
1972 *Achievement, Mobility, and the Draft: Their Impact on the Earnings of Men.* DHEW (SSA) 73-11854. Washington, DC: U.S. Department of Health, Education, and Welfare.
1974 Academic achievement, schooling, and the earnings of white and black men. *Journal of Social and Behavioral Sciences* 20(3):1-18.

Darling-Hammond, L., and D. Loewenberg Ball
1998 Teaching for High Standards: What Policymakers Need to Know and Be Able to Do. National Commission on Teaching & America's Future and the Consortium for Policy Research in Education. [Online] Available: http://www.cpre.org/Publications/jre04.pdf [Accessed November 16, 2001].

Dreeben, R., and A. Gamoran
1986 Race, instructions, and learning. *American Sociological Review* 51:660-669.

Evans, W.N., S. Murray, and R. Schwab
1997 Schoolhouses, courthouses, and statehouses after *Serrano*. *Journal of Policy Analysis and Management* 16(1):10-31.
1999 The impact of court-mandated school finance reform. Pp. 72-98 in National Research Council, *Equity and Adequacy in Educational Finance: Issues and Perspectives*, H.F. Ladd, R. Chalk, and J.S. Hanson, eds. Commission on Behavioral and Social Sciences and Education. Washington, DC: National Academy Press.

Farkas, G., and L.S. Hall
2000 Can Title I attain its goal? In *Brookings Papers on Education Policy, 2000*, D. Ravitch, ed. Washington, DC: Brookings Institution Press.

Ferguson, R.F.
1991 Paying for public education: New evidence on how and why money matters. *Harvard Journal on Legislation* 28(2):465-498.
1995 Shifting challenges: 50 years of economic change toward black-white earnings equality. *Daedalus* 124.
1998a Teachers' perceptions and expectations and the black-white test score gap. In *The Black-White Test Score Gap*, C. Jencks and M. Phillips, eds. Washington, DC: Brookings Institution Press.

1998b Can schools narrow the black-white test score gap? In *The Black-White Test Score Gap*, C. Jencks and M. Phillips, eds. Washington, DC: Brookings Institution Press.

2000 Certification test scores, teacher quality and student achievement. In *Analytic Issues in the Assessment of Student Achievement*, D.W. Grissmer and J.M. Ross, eds. Washington, DC: National Center for Education Statistics.

2001a A diagnostic analysis of black-white GPA disparities in Shaker Heights, Ohio. In *Brookings Papers on Education Policy, 2001*, D. Ravitch, ed. Washington, DC: Brookings Institution Press.

2001b Test-score trends along racial lines 1971 to 1996: Popular culture and community academic standards. Pp. 348-390 in National Research Council, *America Becoming: Racial Trends and Their Consequences*, N. Smelser, W.J. Wilson, and F. Mitchell, eds. Commission on Behavioral and Social Sciences and Education. Washington, DC: National Academy Press.

Ferguson, R.F., and H.F. Ladd

1996 How and why money matters: An analysis of Alabama schools. In H.F. Ladd, ed., *Holding Schools Accountable Performance Based Reform in Education*, Washington, DC: Brookings Institution Press.

Finley, M. K.

1984 Teachers and tracking in a comprehensive high school. *Sociology of Education* 57:233-243.

Finn, J.D., and C.M. Achilles

1990 Answers and questions about class size: A statewide experiment. *American Educational Research Journal* 27(3):557-577.

Fix, M., and R. Struyk

1991 *Clear and Convincing Evidence, Measurement of Discrimination in America.* Washington, DC: The Urban Institute.

Fordham, S.

1996 *Blacked Out: Dilemmas of Race, Success and Identity at Capital High.* Chicago: University of Chicago Press.

Gamoran, A., and M. Berends

1987 The effects of stratification in secondary schools: Synthesis of survey and ethnographic research. *Review of Educational Research* 57(4):415-435.

Gamoran, A., and R. G. Mare

1989 Secondary school tracking and educational inequality: Compensation, reinforcement, or neutrality? *American Journal of Sociology* 94:1146-1183.

Garet, M.S., and B. Delaney

1988 Students, courses and stratification. *Sociology of Education* 61:61-77.

Glass, G.V., and M.E. Smith

1979 Meta-analysis of research on class size and achievement. *Educational Evaluation and Policy Analysis* 1:2-16.

Good, T.L.

1987 Two decades of research on teacher expectations: Findings and future directions. *Journal of Teacher Education* 38(4):32-47.

Greenwald, R., L.V. Hedges, and R.D. Laine

1996 The effect of school resources on student achievement. *Review of Educational Research* 66:361-96.

Grissmer, D.

1999 Class size effects: Assessing the evidence, its policy implications, and future research agenda. *Educational Evaluation and Policy Analysis* 21(2):231-248.

Grissmer, D., A. Flanagan, and S. Williamson
1998 Why did the black-white score gap narrow in the 1970s and 1980s? In *The Black-White Test Score Gap*, C. Jencks and M. Phillips, eds. Washington, DC: Brookings Institution Press.

Grissmer, D., A. Flanagan, J. Kawata, and S. Williamson
2000 *Improving Student Achievement: What State NAEP Test Scores Tell Us.* Santa Monica, CA: RAND Corporation.

Haller, E.J.
1985 Pupil race and elementary school ability grouping: Are teachers biased against black children? *American Educational Research Journal* 22(4):465-483.

Hanushek, E.A.
1986 The economics of schooling: Production efficiency in public schools. *Journal of Economic Literature* 24:1141-1177.
1997 Assessing the effects of school resources on student performance: An update. *Educational Evaluation and Policy Analysis* 19(2):141-164.
2000 Evidence, Politics, and the Class Size Debate (Response to Alan Krueger). Working Paper No. 121. October. The Economic Policy Institute, Washington, DC.

Hedges, L.V., and R. Greenwald
1996 Have times changed? The relation between school resources and student performance. Pp. 74-92 in *Does Money Matter? The Effect of School Resources on Student Achievement and Adult Success,* Gary Burtless, ed. Washington, DC: Brookings Institution Press.

Hedges, L.V., R.D. Laine, and R. Greenwald
1994a Does money matter? A meta-analysis of studies of the effects of differential inputs on student outcomes. *Educational Researcher* 23(4):5-14.
1994b Money does matter somewhere: A reply to Hanushek. *Educational Researcher* 23(4):9-10.

Jencks, C., et al.
1972 *Inequality: A Reassessment of the Effect of Family and Schooling in America.* New York: Basic Books.

Jencks, C., and S.E. Mayer
1990 The social consequences of growing up in a poor neighborhood. Pp. 111-186 in National Research Council, *Inner-City Poverty in the United States*, L. Lynn and M. McGeary, eds. Committee on National Urban Policy, Commission on Behavioral and Social Sciences and Education. Washington, DC: National Academy Press.

Johnson, W.R., and D. Neal
1998 Basic skills and the black-white earnings gap. In *The Black-White Test Score Gap*, C. Jencks and M. Phillips, eds. Washington, DC: Brookings Institution Press.

Kahlenberg, R.D.
2001 *All Together Now: Creating Middle-Class Schools Through Public School Choice.* Washington, DC: Brookings Institution Press.

Krueger, A.B.
1999 Experimental estimates of educational production functions. *Quarterly Journal of Economics* 114(2):497-532.
2000 Understanding the Magnitude and Effect of Class Size on Student Achievement. Working Paper No. 121. October. The Economic Policy Institute, Washington, DC.

Krueger, A.B., and D. Whitmore
2001 Would Smaller Classes Help Close the Black-White Achievement Gap? Paper presented at the Brookings Institution Conference, Closing the Gap: Promising Approaches to Reducing the Achievement Gap. January.

Kulik, J.A.
1992 An Analysis of the Research on Ability Grouping: Historical and Contemporary Perspectives. A publication of the National Center on the Gifted and Talented, University of Connecticut.
Ladson-Billings, G.
1994 *DreamKeepers: Successful Teachers of African-American Children.* San Francisco: Jossey-Bass Publishers.
Lazear, E.P.
1999 Education Production. Working Paper No. 7349. National Bureau of Economic Research, Cambridge, MA.
Lee, V.E., and A.S. Bryk
1988 Curriculum tracking as mediating the social distribution of high school achievement. *Sociology of Education* 61: 78-94.
Lee, V.E., and S. Loeb
1995 Where do Head Start attendees end up? One reason why Head Start effects fade out. *Educational Evaluation and Policy Analysis* 17(1):62-82.
Loveless, T.
1998 The Tracking and Ability Grouping Debate. [Online]. Available: http://www.edexcellence.net/library/track.html. [Accessed November 16, 2001]. Thomas B. Fordham Foundation.
Ludwig, J., H.F. Ladd, and G.J. Duncan
2001 Urban poverty and educational outcomes. In *Brookings-Wharton Papers on Urban Affairs 2001*, W.G. Gale and J.R. Pack, eds. Washington, DC: Brookings Institution Press.
Martin, W.E., ed.
1998 *Brown v. Board of Education: A Brief History With Documents.* Boston: Bedford/St. Martin's.
Mayer, S.E.
1991 How much does a high school's racial and socioeconomic mix affect graduation and teenage fertility rates? In *The Urban Underclass*, C. Jencks and P.E. Peterson, eds. Washington, DC: Brookings Institution Press.
Metz, M.H.
1978 *Classrooms and Corridors: The Crisis of Authority in Desegregated Secondary Schools.* Berkeley: University of California Press.
Molnar, A., P. Smith, and J. Zahorik
2000 1999-2000 Evaluation Results of the Student Achievement Guarantee in Education (SAGE) Program. [Online]. Available: http://www.uwm.edu/Dept/CERAI/sage.html. [Accessed November 19, 2001].
Mosteller, F.
1995 The Tennessee study of class size in the early school grades. *The Future of Children* 5(2):113-127.
Murnane, R.B., J.B. Willett, and F. Levy
1995 The growing importance of cognitive skills in wage determination. *Review of Economics and Statistics* 77(2):251-266.
Nye, B.A., et al.
1993 Tennessee's bold experiment: Using research to inform policy and practice. *Tennessee Education* 22(3):10-17.
1994a An Initial Evaluation of the Tennessee Department of Education "At-Risk" Student/Teacher Ratio Reduction Project in Sixteen Counties, 1990 Through 1993. Tennessee State University, Center of Excellence for Research in Basic Skills.

1994b The Lasting Benefits Study Seventh Grade: Executive Summary. Tennessee State University, Center of Excellence for Research in Basic Skills.

Nye, B., and L.V. Hedges
2000 The effects of small classes on academic achievement: The results of the Tennessee class size experiment. *American Educational Research Journal* 37:123-151.

Oakes, J.
1985 *Keeping Track: How Schools Structure Inequality.* New Haven: Yale University Press.

O'Day, J.A., and M.S. Smith
1993 Systemic reform and educational opportunity. In *Designing Coherent Education Policy: Improving the System*., S. Fuhrman, ed. San Francisco: Jossey-Bass Publishers.

Oden, S., L.J. Schweinhart, and D.P. Weikart
2000 *Into Adulthood: A Study of the Effects of Head Start.* Ypsilanti, MI: High/Scope Press.

Office of Technology Assessment
1992 *Testing in American Schools.* Washington, DC: U.S. Government Printing Office.

Orfield, G., and S.E. Eaton
1996 *Dismantling Desegregation: The Quiet Reversal of Brown v. Board of Education.* New York: The New Press.

Orfield, G., and J.T. Yun
1999 Resegregation in American Schools. The Civil Rights Project, Harvard University.

Orfield, G., H. Mitzel, T. Austin, R. Bentley, D. Bice, M. Dwyer, L. Gidlow, J. Herschensohn, B. Hibino, T. Kelly, A. Kuhns, M. Lee, C. Rabinowitz, J. Spoerl, A. Vosnos, and J. Wolf
1984 The Chicago Study of Access and Choice in Higher Education: A Report to the Illinois Senate Committee on Higher Education. University of Chicago, Committee on Public Policy Studies Research Project. Available on ERIC.

Pallas, A.M., D.R. Entwisle, K.L. Alexander, and M.F. Stluka
1994 Ability-group effects: Instructional, social, or institutional? *Sociology of Education* 67:27-46.

Phillips, M.
2001 Do African-American and Latino Children Learn More in Preedominantly White Schools? Unpublished paper, School of Public Policy and Social Research, UCLA.

Phillips, M., J. Brooks-Gunn, G.J. Duncan, P. Klebanov, and J. Crane
1998 Family background, parenting practices, and the black-white test score gap. In *The Black-White Test Score Gap*, C. Jencks and M. Phillips, eds. Washington, DC: Brookings Institution Press.

Puma, M.J., et al.
1997 *Prospects: Final Report on Student Outcomes.* Washington, DC: U.S. Department of Education, Planning and Evaluation Service, Office of the Undersecretary.

Ravitch, D., ed.
2001 *Brookings Papers on Education Policy, 2001.* Washington, DC: Brookings Institution Press.

Rivkin, S.G., E.A. Hanushek, and J.F. Kain
2000 Teachers, Schools, and Academic Achievement. Working Paper No. 6691 (revised). National Bureau of Economic Research, Cambridge, MA.

Robinson, G.E., and J.H. Wittebods
1986 *Class Size Research: A Related Cluster Analysis for Decision Making.* Research Brief. Arlington, VA: Educational Research Service.

Rosenbaum, J.E.

1995 Changing the geography of opportunity by expanding residential choice: Lessons from the Gautreaux Program. *Housing Policy Debate* 6:231-269.

Rosenbaum, J.E., N. Fishman, A. Brett, and P. Meaden
1993 Can the Kerner Commission's housing strategy improve employment, education, and social integration for low-income blacks? *North Carolina Law Review* 71:1519-1556.

Ryan, J.E.
1999 Schools, race and money. *Yale Law Journal* 109:249-316.

Sanders, W.L., and S.P. Horn
1995 The Tennessee Value-Added Assessment System (TVAA): Mixed model methodology in educational assessment. In *Teacher Evaluation: Guide to Effective Practice*, A.J. Shinkfield and D.L. Stufflebeam, eds. Boston: Kluwer Academic Publishers.

Schofield, J.W.
1995 Review of research on school desegregation's impact on elementary and secondary school students. Pp. 597-616 in *Handbook of Research on Multicultural Education*, J.A. Banks and C.A. McGee Banks, eds. New York: Macmillan.

Schwartz, F.
1981 Supporting or subverting learning: Peer group patterns in four tracked schools. *Anthropology and Education Quarterly* 12:99-121.

Slavin, R.E.
2001 How Title I Can Become the Engine of Reform in America's Schools. In *Title I: Compensatory Education at the Crossroads*, G.D. Borman, S.C. Stringfield and R.E. Slavin, eds. Mahwah, NJ: Lawrence Erlbaum Associates.

Sorensen, A.B., and M. Hallinan.
1984 Effects of race on assignment to ability groups. In *The Social Context of Instruction*, P. L. Peterson, L.C. Wilkinson, and M. Hallinan, eds. New York: Academic Press.

U.S. Department of Education
1996 *Digest of Education Statistics.* Washington, DC: U.S. Department of Education.
2000 *Digest of Education Statistics.* Washington, DC: U.S. Department of Education.

Wells, A.S., and R.L. Crain
1997 *Stepping Over the Color Line: African American Students in White Suburban Schools.* New Haven: Yale University Press.

Word, E., et al.
1990 *Student/Teacher Achievement Ratio (STAR) Tennessee's K-3 Class Size Study, Final Summary Report, 1985-1990.* Nashville, TN: Tennessee State Department of Education.

Zahorik, J.A.
1999 Reducing class size leads to individualized instruction. *Educational Leadership* 57(1):50-53.

Educational Adequacy, Democracy, and the Courts

Michael A. Rebell

The U.S. Supreme Court's 1973 holding in *San Antonio Independent School District v. Rodriguez*[1] that education was not a fundamental interest under the federal constitution has led to an unprecedented era of constitutional activity by the state courts in rectifying inequities in state education finance systems. Over the past three decades, litigations have been brought in 44 of the 50 states. This paper reviews the history of these litigations and focuses on the significance of the emergence in recent years of a core constitutional concept of students' right to the opportunity for an adequate education.

The emphasis on adequacy has involved the courts in a significant dialogue with state legislatures and state education departments. Emerging from this dialogue are reinvigorated claims for increased resources for students in underfunded school districts as well as a new focus on the purposes of education and the states' obligation to ensure that students actually develop the cognitive skills they need to succeed in the workplace and to be effective citizens in the modern world.

The paper begins with a brief retrospective review of *Rodriguez*. It then provides an overview of the state education finance cases. Although plaintiffs prevailed in the early litigations, by the early 1980s, defendants were winning most of these cases, primarily because the courts had great difficulty in devising solutions for the problems of funding inequities. Beginning in 1989, however, the pendulum again shifted: plaintiffs have won about two-thirds of the recent cases, mainly because the focus has shifted from equal protection claims to provisions of state constitutions

that guarantee some substantive level of adequate education to all students. Instead of dealing with equal funding concepts and complex property tax reforms, the adequacy approach allows courts to focus on the concrete issues of what resources are needed to provide the opportunity for an adequate education to all students and the extent to which those resources are actually being provided.

The third section analyzes the new state court adequacy litigations. It considers the link between the standards-based reform movement, which is now being implemented in virtually all of the states, and the courts' recent emphasis on adequacy. It describes how standards-based reforms have provided the courts with "judicially manageable" tools that allow them to devise effective remedial orders in these cases. It also discusses a core constitutional definition of adequacy that has emerged from these cases in recent years. Forged through an implicit standards dialogue with legislatures and state education departments, this core constitutional concept defines the purpose of an adequate education in terms of preparation for civic participation and for the competitive job market; emphasizes the importance of relating constitutional requirements to contemporary needs; is pegged at a "more than minimal level"; and guarantees educational opportunities rather than specific educational outcomes.

The final section considers the implications of this emerging definition of an adequate education for the education system—and for a democratic society. Describing testimony and evidence submitted in the recently completed trial in the New York adequacy litigation, it demonstrates the critical link between mastery of the skills required under standards-based reforms and the constitutional requirements for an adequate education. Consideration of the specific skills that students need to be effective voters and jurors and economic competitors—an issue that was finessed rather than faced in years past—demonstrates that the standards-based reform movement cannot be considered merely aspirational. Actual fulfillment of the stated goals of standards-based reform (the development of high-level cognitive skills in virtually *all* American high school students) may, in fact, be a sine qua non for the survival of American democracy in the 21st century.

RODRIGUEZ IN RETROSPECT

The significance of *Rodriguez* can be understood only in the context of the implementation of the U.S. Supreme Court's earlier landmark civil rights ruling, *Brown v. Board of Education*.[2] Emphasizing that today "it is doubtful that any child may reasonably be expected to succeed in life if he is denied the opportunity for an education,"[3] the Court held in *Brown* that "[s]eparate educational facilities are inherently unequal."[4] The Supreme

Court's dramatic declaration of the unconstitutionality of school segregation was followed, however, by a decade of minuscule progress in actually integrating Southern schools. During the 1963-1964 school year, barely 1 percent of black children attended school with white children in 11 Southern states.[5] It was not until the late 1960s, after the Supreme Court announced in *Green v. County School Board*[6] that Southern school boards must develop desegregation plans that promise "realistically to work *now*,"[7] that substantial desegregation began to take place. The *Green* ruling, together with the passage of the Civil Rights Act of 1964, which held out a credible threat of a loss of federal funds, finally led to a substantial dismantling in many parts of the South of "freedom of choice" plans and other devices that were intentionally created by state and local officials to limit progress toward desegregation. By 1972 over 90 percent of black students in the deep South and over 75 percent in the border states attended school with at least some whites.[8]

Two of the major Supreme Court decisions of the early 1970s, however, precluded the possibility of large numbers of black and other minority students attending integrated schools in the North and the West. In *Keyes v. School District No.1*,[9] the Court held that *Brown*'s mandate did not require desegregation of school systems that were segregated de facto because of housing patterns rather than intentional state actions. Then, in *Milliken v. Bradley*,[10] the Court held that predominantly white suburbs would not be required to participate in metropolitan-area desegregation schemes, in the absence of evidence that these districts had, in the past, intentionally discriminated against minority students. Taken together, these rulings meant that the vast majority of black and other minority students in the United States would continue to attend segregated schools with inadequate educational resources. Thus, at the present time, more than two-thirds of the black and Hispanic students in the United States attend segregated schools in which most students are also poor.[11]

Soon after the glow began to fade from *Brown*'s initial luster, education reformers saw the need to devise political and legal methods for ensuring the provision of adequate resources to the large numbers of poor and minority students who would continue to attend segregated schools. Funding for remedial education programs became a major component of desegregation decrees, especially in Northern and Western cities where metropolitan-area remedies could no longer be pursued or where opposition to busing was intense. Following the Supreme Court's reversal of its metropolitan-area desegregation remedy, for example, the U.S. District Court in Michigan approved a "Detroit only" remedial plan, which involved about $12 million worth of compensatory education programs, guidance and counseling programs, and inservice training programs for teachers.[12]

Reformers also noted early on that the core problem behind the lack of equal education opportunity for many poor and minority students was the inequitable system of education finance that existed in almost every state. Rooted in the traditional pattern of local control of schooling in America, most state systems required much of the funding for public schools to be obtained from local property taxes, a method that inherently disadvantaged students who attended schools in areas that had low property wealth. Responding to this problem, several legal scholars developed constitutional theories that sought to equalize the funding capacity of all local school districts.[13] These theories were tested in a number of state and federal litigations beginning in the late 1960s.

One of these cases, *Rodriguez v. San Antonio Independent School District*, which challenged the extreme inequities created by the Texas education finance system, reached the U.S. Supreme Court in 1973. It seemed at the time an ideal vehicle for establishing a new legal doctrine to make good on *Brown*'s promise of equal educational opportunity. Given the strong emphasis the Supreme Court had placed on the preeminent role of education in modern society in *Brown*,[14] and the prior precedent of the legislative reapportionment cases[15] that had invalidated differential opportunities for citizens of different political subdivisions of a state, there was much expectation among civil rights advocates that the Court would respond favorably to a case calling for reform of inequitable school funding formulae.[16]

Rodriguez was initiated by parents whose children attended elementary and secondary schools in the Edgewood Independent School District, one of seven public school districts in the metropolitan San Antonio area. Edgewood's students were approximately 90 percent Mexican-American and approximately 6 percent black. The district's average assessed property value per student was so low that even with a relatively high local tax rate and supplemental state and federal state education aid, the district had only $356 per student to support education programs. By way of contrast, neighboring Alamo Heights, a predominantly "Anglo" school district, had such high property wealth that it could tax itself at a rate 20 percent below that of its poorer neighbor and still have nearly $600 available to spend on each of its students. Even when the largely minority citizens in the Edgewood district taxed themselves at a substantially higher rate, they were able to provide their students only about half the resources that were available to the more advantaged students in Alamo Heights.

Although the three-judge district court had held that the Texas education finance system violated the federal equal protection clause,[17] the U.S. Supreme Court reversed.[18] Closely parsing each of the equal protection arguments put forward by the plaintiffs, the Court held that neither the

poverty of the plaintiffs nor the importance of education would justify applying strict scrutiny to its review of the Texas education finance system. Justice Powell's decision for the majority first dealt with the wealth discrimination issue by questioning whether in Texas or anywhere else "poor" persons necessarily lived in the poorest school districts. He also noted that the Supreme Court's previous wealth discrimination cases had dealt with situations involving an "absolute" deprivation of the right at issue, rather than the type of "relative" deprivation at issue here.[19] Next, although not denying the importance of education in modern society, the Court emphasized the absence of any specific reference to education in the federal constitution and rejected the argument that education is essential to the effective exercise of First Amendment freedoms like the right to vote. Justice Powell set forth a "slippery slope" argument, noting that if some level of education were to be considered a sine qua non for the exercise of political rights under the federal constitution, similar arguments could be made that "the ill-fed, ill-clothed, and ill-housed are among the most ineffective participants in the political process."[20]

Having denied the plaintiffs' calls for strict scrutiny based on the poverty of the plaintiffs and the fundamentality of education, the Court held that the Texas funding scheme was "rationally related" to the legitimate governmental interest of achieving a "large measure of participation in and control of each district's schools at the local level."[21] Rejecting the dissent's argument that lack of funding precluded poor districts from exercising any meaningful local control, the majority held that "some inequality" in the ability of local residents to make educational choices affecting their children "is not alone a sufficient basis for striking down the entire system."[22]

Justice Powell's decision was supported by only a 5-4 majority. Justice Marshall was the most vociferous of the four dissenters. He rebuked the majority for setting aside the district court's finding that poor and minority group members tend to live in property-poor districts on the basis of a law review note of doubtful methodological validity.[23] Justice Marshall also argued that the "close nexus between education and our established constitutional values with respect to freedom of speech and participation in the political process"[24] compelled the Court to recognize that education and participation in the political process constitute a fundamental constitutional interest.

Justice Powell, writing for the majority, accepted this constitutional connection between education and political participation:

> Exercise of the franchise, it is contended, cannot be divorced from the educational foundation of the voter. The electoral process, if reality is to conform to the democratic ideal, depends on an informed electorate: a

> voter cannot cast his ballot intelligently unless his reading skills and thought processes have been adequately developed.
>
> We need not dispute any of these propositions.[25]

Justice Powell ruled, however, that the Court did not have to fully consider the implications of this constitutional connection in the present case because:

> The State repeatedly asserted in its briefs . . . that it now assures "every child in every school district an adequate education." No proof was offered at trial persuasively discrediting or refuting the State's assertion.
>
> Even if it were conceded that some identifiable quantum of education is a constitutionally protected prerequisite to the meaningful exercise of either right, we have no indication that the present levels of educational expenditure in Texas provide an education that falls short. . . . [No] charge fairly could be made [in the present case] that the system fails to provide each child with an opportunity to acquire the basic minimal skills necessary for the enjoyment of the rights of speech and of full participation in the political process.[26]

Thus, the majority decision implicitly left open the possibility of reconsidering this issue and taking some remedial action if, in a future case, it were to be established that students were being deprived of the type of "basic minimum" education the Court assumed that every Texas child was receiving. In fact, the Court went out of its way to reiterate this point in a later case when it stated that it still had not "definitively settled the questions whether a minimally adequate education is a fundamental right and whether a statute alleged to discriminatorily infringe that right should be accorded heightened equal protection review."[27]

Despite its denial of relief to the plaintiffs in *Rodriguez*, the majority also noted the apparent need for reform of an education finance system that "may well have relied too long and too heavily on the local property tax," and it went out of its way to state that "this Court's action today is not to be viewed as placing its judicial imprimatur on the status quo."[28] The Court clearly hoped that both scholars "and the legislatures in the various states" would come up with "ultimate solutions"[29] to these complex problems.

Justice Powell's evident sympathy for the plaintiffs' plight and the majority's implicit recognition that *Brown*'s vision of equal educational opportunity could not be realized without fundamental reform of the education funding system raise the question of why the Court did not remand the case for a trial to determine whether Texas was, in fact, providing a minimally adequate education to the plaintiff children under the challenged funding scheme. The Court's quick acceptance of the state's

passing reference to the adequacy of the current system without any proof being presented on this critical issue leads one to speculate that other implicit concerns may have led one or more of the justices who sided with the majority to conclude that, despite the gravity of the plaintiffs' claims, fiscal equity reform was not a feasible reform route for the Court to pursue at that time.

Justice Powell, in fact, seemed to allude to such underlying concerns when he stated that upholding the lower court's decision for the plaintiffs would lead to "an unparalleled upheaval in public education" and that there was no way of predicting "the consequences of massive change in the financing and control of public education.[30] He and the other members of the Court majority were apparently deeply concerned about the dearth of clear solutions and the lack of judicially manageable standards for navigating this rough policy terrain:

> This case also involves the most persistent and difficult questions of educational policy, another area in which this Court's lack of specialized knowledge and experience counsels against premature interference with the informed judgment made at the state and local levels. . . . On even the most basic questions in this area the scholars and educational experts are divided. . . . Equally unsettled [is the] controversy as to the proper goals of the system of public education. . . . In such circumstances, the judiciary is well advised to refrain from imposing on the States inflexible constitutional restraints that could circumscribe or handicap the continued research and experimentation so vital to finding even partial solutions to educational problems and to keeping abreast of ever-changing conditions.[31]

The Court's awareness of the difficulties of formulating judicially manageable standards in this area did not, in fact, originate with *Rodriguez*. Four years earlier, it had reviewed a fiscal equity litigation involving disadvantaged urban students in *McInnis v. Shapiro*.[32] Plaintiffs in that case had argued that the state's education finance system, based on a minimum foundation level of $400 per student, was inadequate to meet their educational needs. They argued that there was a federal constitutional right to a "financing system which apportions public funds according to the educational needs of the students. . . ."[33] The lower court dismissed their complaint, holding that the controversy was nonjusticiable because "there are no discoverable and manageable standards by which a court can determine when the Constitution is satisfied and when it is violated."[34]

The *McInnis* plaintiffs seemed unable to help the court out of this dilemma. They suggested two alternative remedies: either that all students receive the same dollar appropriation or that the state, in effect,

eliminate all variations in local property values while allowing districts to establish their own tax rates.[35] As the court noted, however, neither one of these remedies would respond to plaintiff's own claim that education funding should be directly related to student needs. The U.S. Supreme Court affirmed this holding, without opinion.[36] *McInnis*'s strong emphasis on the lack of "discoverable and manageable standards" no doubt formed an important backdrop for the later Supreme Court decision in *Rodriguez*.

Legal reformers in subsequent cases sought to meet this difficulty. Plaintiffs in *Serrano v. Priest*[37] adopted a "fiscal neutrality" approach developed by John Coons and his colleagues at the Berkeley Law School.[38] Avoiding entirely the difficulties involved in responding to students' differing needs, this principle put forth a simple contention: that the level of resources available to students in each school district should not be a function of wealth, other than the wealth of the state as a whole. In other words, the fiscal neutrality principle holds that the state has a constitutional obligation to equalize the value of the taxable wealth in each district, so that equal tax efforts will yield equal resources.

In *Serrano*, the California Supreme Court ruled in the plaintiffs' favor and adopted the fiscal neutrality principle as a judicially manageable standard that avoided the "nebulous concept of educational needs" raised by *McInnis*.[39] Although the fiscal neutrality principle provided courts with a clear benchmark for determining whether disparities in available wealth have been eliminated, it finessed the critical issue of educational need. Since the fiscal neutrality approach allowed local districts to retain broad discretion to set their own tax rates, this principle in no way guaranteed that districts would, in fact, set sufficiently high tax rates or utilize their resources in a manner that would ensure that all students were actually provided an opportunity for an adequate education. In other words, the fiscal neutrality principle provided a judicially manageable standard only because it avoided dealing with the complexities at the core of the issue—how to ensure an adequate level of education for all students and especially for those with distinctive educational needs.

Although the fiscal neutrality principle was not accepted as a constitutional doctrine by the Supreme Court in its *Rodriguez* ruling,[40] a number of state courts, following the *Serrano* precedent, did issue rulings that invalidated their state education finance systems on these grounds in the years following *Rodriguez*. By the mid-1980s, however, most of the state supreme courts that faced this problem tended to rule in the defendants' favor, often citing *Rodriguez* as the prime precedent. Beginning in 1989, however, the pendulum swung back in the plaintiffs' favor, in large part, it seems, because the problems of judicially manageable standards, first

raised in *McInnis* and *Rodriguez*, began to be overcome by new legal and educational developments.

CONSTITUTIONAL INITIATIVES IN THE STATE COURTS

The Equity Decisions

Since most state courts have lacked a tradition of extensive constitutional adjudication, the state courts were "long shots for plaintiffs challenging discrimination in school finance systems."[41] Nevertheless, armed with the California Supreme Court's favorable initial ruling in *Serrano*—and seeing a fertile legal argument in the U.S. Supreme Court's distinction between the role of education in federal and state constitutions—legal reformers in the mid-1970s initiated challenges to state education finance systems in a number of state courts. Several of the major rulings in these initial cases found for the plaintiffs, inspiring a plethora of follow-up litigations, and in the years since *Rodriguez*, constitutional challenges to state education finance systems have been launched in 44 of the 50 states. Thus, over the past 25 years, the development of constitutional doctrine concerning fiscal equity in education—and the quest for judicially manageable standards—have become matters of state rather than federal constitutional law.

Most of the state courts that initially found for the plaintiffs in the years following *Rodriguez* accepted the basic equal protection arguments that had been rejected by the U.S. Supreme Court. Thus the California Supreme Court, reconsidering its initial *Serrano* ruling in the wake of *Rodriguez*, unequivocally held that even if education is not a fundamental right under the federal constitution, it clearly was so under the California equal protection clause.[42] The Connecticut[43] and the Wyoming supreme courts[44] also found that education was a fundamental interest under their state equal protection clauses. The Arkansas Supreme Court adopted the same "rational relationship" equal protection standard as the U.S. Supreme Court, but, in contrast it determined that the state's reliance on local property taxes had "no rational bearing on the educational needs of the districts."[45]

The orders issued by these courts tended to direct the state legislatures to eliminate the inequities of the old system, but they provided little specific guidance on precisely how they should do so. Following the fiscal neutrality principle, some state legislatures adopted district power equalizing plans (DPE)[46] which guaranteed each local district a specific amount of revenue for a given local tax rate, sometimes by "recapturing" the extra revenues generated by property-rich districts and redistributing them to property-poor districts. District power equalizing soon proved problem-

atic, however, because "…the variability of local tax rates proved troublesome from several different perspectives. For example, some districts raised spending very little, taking almost all of the aid in the form of local tax relief. At the other extreme, some districts were hyper-stimulated because they received large subsidies from the state for each dollar of local educational taxes."[47] Moreover, recapture procedures involved in DPE schemes raised stiff opposition from wealthy districts, causing substantial legislative resistance to remedies in fiscal equity cases.[48]

Difficulties with district power equalizing led some courts to focus on reducing disparities in educational expenditures. Thus, in the second round of the *Serrano* litigation, the trial judge held that wealth-related disparities among school districts (apart from categorical special needs programs) must be reduced to "insignificant differences," which he defined as "amounts considerably less than $100 dollars per pupil."[49] Unfortunately, this equalization mandate, combined with a constitutional cap on increases in local property taxes—known as Proposition 13, which had been adopted by California's voters at the time—resulted in a dramatic leveling down of education expenditures: whereas California had ranked 5th in the nation in per pupil spending in 1964-1965, by 1994-1995 it had fallen to 42nd.[50]

In short, the call for equality through the fiscal neutrality principle had a powerful initial appeal, but in practice the quest for fiscal equality has proved elusive. Although judicial intervention has apparently narrowed the funding disparities somewhat among school districts,[51] the core issues raised in *Rodriguez*—determining an adequate level of education and ensuring that all students have a fair opportunity to achieve it—were not satisfactorily addressed by these fiscal equity concepts. As Peter Enrich concluded: "Equalizing tax capacity does not by itself equalize education. The educationally relevant disparities not only reflect the tax base inequalities, but local political and administrative choices as well, not to mention the impact of preexisting differences in the students and their milieus."[52]

The difficulties of actually achieving equal educational opportunity through the fiscal neutrality principle, as well as political resistance to judicial attempts to enforce court orders in the initial fiscal equity cases, seem to have dissuaded other state courts from venturing down this path. Despite an initial flurry of pro-plaintiff decisions in the mid-1970s, by the mid-1980s, the pendulum had decisively swung the other way: plaintiffs won only two decisions in the early 1980s, and, as of 1988, 15 years after *Rodriguez*, 15 of the state supreme courts had denied any relief to the plaintiffs—essentially for reasons similar to those articulated by the U.S. Supreme Court in *Rodriguez*—compared with the seven states in which plaintiffs had prevailed.[53]

The Adequacy Decisions

In light of the U.S. Supreme Court's rejection of plaintiffs' claims in *Rodriguez* and the difficulties experienced by the state courts that issued remedial decrees in the early years, it is remarkable that advocates and state court judges continued to seek new ways to ensure fair funding and meaningful educational opportunities for poor and minority students. Even more extraordinary is the fact that in the last decade there has been a strong reversal in the outcomes of state court litigations: plaintiffs have, in fact, prevailed in almost two-thirds (18 of 28) of the major decisions of the state highest courts since 1989.[54]

What is the explanation for the new willingness of state courts—which have historically been reluctant to innovate in areas of constitutional adjudication—to uphold challenges to state education finance systems? One answer might be the receptivity of the state courts to a powerful democratic imperative at the core of the American political tradition.[55] By the mid 1980s, civil rights advocates were being battered not only by defeats in state court fiscal equity decisions, but also by judicial retrenchment in federal school desegregation cases.[56] Although some might have expected these setbacks to extinguish the ardor of civil rights advocacy, the growing realization that more than 40 years after *Brown v. Board of Education*, large numbers of children were still being denied an adequate education and the awareness of the accelerating income gaps between the haves and have-nots had the opposite effect.[57] The blatant inconsistency between the gnawing reality of continued denial of equal educational opportunity and the nation's democratic ethos inspired plaintiff attorneys to devise new legal theories and galvanized the courts to considering them.

The sensitivities engendered by a focus on the democratic imperative would not, however, have resulted in a dramatic turnaround in plaintiffs' fortunes in these cases unless the courts felt that they had effective methods for remedying the educational inadequacies that were being brought to their attention. The standards-based reform movement, which responded to a widespread sentiment that the American education system was in serious trouble in the late 1980s, provided the tools that courts needed to deal with complex education issues.[58] The courts' assumption in *Rodriguez* and other early cases that virtually all students were receiving an adequate education was now turned on its head: it appeared now that a large number—maybe even a majority—of America's students were not receiving an education adequate to compete in the global economy. The extensive education reform initiatives most states adopted to meet this challenge provided the courts workable criteria for developing the "judicially manageable standards" that were necessary to craft practical remedies in these litigations.

ADEQUACY AND STANDARDS-BASED REFORM

The Standards-Based Reform Movement

In the mid-1980s a slew of commission reports had warned of a "rising tide of mediocrity"[59] in American education that was undermining the nation's ability to compete in the global economy. Comparative international assessments revealed poor performance by American students, especially in science and mathematics,[60] and U.S. Department of Education assessments indicated that few American students "show the capacity for complex reasoning and problem solving."[61]

The first response to these reports was the enactment in most states of extensive reforms imposing more rigorous academic requirements. For example, between 1980 and 1986, 45 states increased their requirements for earning a standard high school diploma.[62] It soon became clear, however, that simply raising requirements, without clarifying systemic goals and providing resources and techniques for reaching those goals, would not be effective. Consequently, commencing with the 1989 National Education Summit convened by President Bush and attended by all 50 governors, the nation's governors, business leaders, and educators began to work with the federal government to articulate specific national academic goals.[63] Continued focus on the need for comprehensive, effective reforms geared to specific goals led to enactment of the federal Goals 2000 act,[64] to an increasing emphasis on thoroughgoing standards and assessments in other federal laws and regulations,[65] and to the development of an extensive state-level standards-based approach to reform. Because education remains primarily a state and local responsibility in the United States, and most of the federal laws and regulations are geared to promoting the development of standards at the state rather than the national level, the state standards-based reform movement has, in recent years, become the primary arena for these reform initiatives.

Standards-based reform is built around substantive content standards in English, mathematics, social studies, and other major subject areas. These content standards are usually set at sufficiently high cognitive levels to meet the competitive standards of the global economy, and they are premised on the assumption that virtually all students can meet these high expectations, if given sufficient opportunities and resources.[66] Once the content standards have been established, every other aspect of the education system—including teacher training, teacher certification, curriculum frameworks, textbooks and other instructional materials, and student assessments—is revamped to conform to these standards. The aim is to create a seamless web of teacher preparation, curriculum implementation, and student testing, all coming together to create a coherent system

that will result in significant improvements in achievement for all students.[67]

Adequacy's Appeal to the Courts

Standards-based reform substantially enhanced the fledgling educational adequacy notions alluded to in *Rodriguez* and the other early fiscal equity cases. "Adequate education" was no longer a vague notion that could be assumed almost in passing to describe any state education system. The concept now had substantive content, and its underlying message was that most state education systems—and certainly school districts that served predominantly poor and minority students—were probably below, and not above, the level of substantive expectations.

Standards-based reform also put into focus the fundamental goals and purposes of the nation's system of public education. In the judicial arena, it inspired increased attention to the intent of the 18- and 19-century drafters of the clauses in most state constitutions that established a public education system and to the contemporary significance of these provisions. In addition, the new state standards provided the courts with practical tools for developing judicially manageable approaches for implementing effective remedies.

Not surprisingly, therefore, the marked trend toward plaintiff victories in the challenges to state systems for financing public education since 1989 can be directly correlated to a greater reliance by plaintiffs in these cases on claims of a denial of basic educational opportunities guaranteed by the applicable state constitution, in contrast to the earlier practice of pleading equal protection claims based on disparities in the level of education funding. Specifically, 17 of the 18 plaintiff victories in the past 11 years have involved substantial or partial adequacy considerations.[68] Moreover, even most of the state courts that have denied relief to plaintiffs seeking to invalidate state education finance systems have indicated that the result might have been otherwise if they had raised educational adequacy rather than classical "equity" claims.[69]

Adequacy has become the predominant theme of the recent wave of state court decisions because the adequacy approach resolves many of the legal problems that had arisen in the early fiscal equity cases and because it provides the courts with judicially manageable standards for implementing effective remedies. As a matter of legal doctrine, adequacy avoids the slippery slope problem that concerned the U.S. Supreme Court in *Rodriguez*.[70] Invalidating a state education finance system on the basis of the state constitution's education clause establishes no direct precedent for other areas of social policy reform, as might be the case with a claim grounded in equal protection. Moreover, adequacy does not threaten the

concept of local control of education, the main rationale for most court decisions that had held for defendants in the past, because it does not necessarily undermine the prerogative of local communities to set their own tax rates and "because locals would remain free to augment their programs above th[e] state-mandated minimum."[71] To the extent that the emphasis on statewide standards is inconsistent with local control, those centralizing tendencies were already created by the regulatory framework of the standards-based reform movement.

Adequacy also tends to invoke less political resistance at the remedial stage because rather than raising fears of "leveling down" educational opportunities currently available to affluent students, it gives promise of "leveling up" academic expectations for all other students. Although standards-based reforms would most dramatically improve the performance of the lowest achieving students, the reforms are comprehensive and intended to provide benefits to almost all students. Instead of threatening to shift money from rich districts to poor districts, therefore, adequacy offers the possibility of increasing the size of the pie for all.

The appeal of the adequacy approach is reflected in the emerging consensus among the courts, the other branches of government and—sometimes—the public-at-large[72] that all students should be provided a reasonable opportunity to obtain an "adequate" education. This consensus is reflected in the recent report of a Task Force of the National Conference of State Legislatures, which stated that "state policy makers and the courts should apply the test of 'adequacy' as a primary criterion in examining the effectiveness of any existing or proposed state school finance system."[73] The task force then set forth basic principles for building an adequate education system that emphasized (1) articulating "clear and measurable educational goals, or objectives," (2) identifying "the conditions and tools that . . . provide . . . every student a reasonable opportunity to achieve expected educational goals or objectives," and (3) ensuring that "sufficient funding is made available and used to establish and maintain these conditions and tools."[74]

THE CONSTITUTIONAL CONCEPT OF ADEQUACY

Despite the widespread support for the general concept of adequacy, however, there has been much uncertainty about precisely how such an adequate education should be defined—or how it should be achieved.[75] In the early stages of the adequacy movement the focus was on clarifying student entitlements in relation to gross denials of educational opportunities and bringing to the fore the fallacy of the assumption in *Rodriguez* and many of the early state cases that all or almost all students were receiving an adequate education. As Peter Enrich has noted, "In many states, the

conditions in the worst off school are so poor and the resources available to them so meager that the courts can reasonably be asked to find a dereliction of the state's educational obligations without the need to articulate or apply a determinate standard of adequacy."[76] Now, however, as courts and state legislators and state education departments are increasingly facing the realities of actually implementing adequacy standards, the need to focus on substantive definitions of adequacy and effective methods for funding and implementing them has come to the fore.[77] It has become increasingly clear that "the right to an adequate education . . . is meaningless without a workable, and hence enforceable, standard to measure adequacy."[78]

Specific definitions of education adequacy are, of course, created by particular state constitutional provisions, statutes, and regulations, which vary from state to state. Nevertheless, a growing number of judicial interpretations of adequacy concepts in state constitutions—forged at times through a creative dialogue with state legislatures and state education departments—has resulted in recent years in an emerging consensus on a core constitutional concept of adequacy, based on general principles that establish the parameters for legislative and executive actions. This section provides an overview of the major court decisions dealing with adequacy definitions and sets forth the specific elements of this core constitutional concept.

Education Adequacy Clauses in State Constitutions

The education clauses of almost all of the state constitutions require the establishment of a "system of free common schools," and through such a system to provide students with a "thorough and efficient" education, "an adequate public education,"[79] or an "ample" education.[80] These provisions generally were incorporated into the state constitutions as part of the common school movement of the mid-19th century, which created statewide systems for public education and attempted to inculcate democratic values by bringing together under one roof students from all classes and all ethnic backgrounds.[81] Compulsory schooling, which became prevalent in most states by the beginning of the 20th century, added an additional rationale for the emphasis on education in the state constitutions.[82]

The Early Cases

Although the major wave of state court adequacy decisions has occurred over the past decade, a few state courts began to articulate adequacy concepts right after the U.S. Supreme Court's ruling in *Rodriguez*.

While most court decisions at the time were focused on equal protection precepts, the highest courts of three states—New Jersey, Washington, and West Virginia—relied on the state constitution's adequacy clauses to strike down the state education finance systems.

The New Jersey Supreme Court based its 1973 ruling in *Robinson v. Cahill*[83] on the constitution's "thorough and efficient" education clause. The court defined the constitutional requirement as "that educational opportunity which is needed in the contemporary setting to equip a child for his role as a citizen and as a competitor in the labor market."[84] It recounted the history of the thorough and efficient clause in the context of a 19th century concern for ensuring that a free public education be extended to all students in the state in order to secure "the common rights of all."[85]

The Washington Supreme Court also defined the state's constitutional duty to "make ample provision for the education of all children"[86] in terms of the "educational opportunities needed in the contemporary setting to equip children for their role as citizens and as potential competitors in today's market as well as in the marketplace of ideas."[87] West Virginia's analysis of the purpose of its state constitution's "thorough and efficient" clause was similar: it defined the core adequacy requirement in terms of preparation for "useful and happy occupations, recreation and citizenship."[88]

In sum, then, the three state supreme courts that first attempted to define adequacy in the early years articulated a similar concept of "adequate education," drawn from basic notions of a citizen's role in a democracy and the obligations of the state's compulsory education system to prepare the child for competitive employment. These early attempts to ground funding reform litigations in the adequacy clauses of the state constitutions, however, did not prove fully successful. The New Jersey Supreme Court upheld "on its face" the Public School Education Act of 1975, which articulated general goals for a "thorough and efficient education," but delegated the development of actual standards and assessments to the local school districts and the state commissioner of education.[89] Years later, finding that the quality of education in poorer urban districts was significantly inferior to other school districts in the state, the court held that "as applied" to the 28 poorest urban districts, the act was unconstitutional.[90] The West Virginia courts issued very detailed guidelines[91] and standards,[92] which were, however, largely ignored by the legislature.[93] The Washington Supreme Court remanded to the legislature the responsibility for defining "a basic education" without providing specific guidelines on how to do so.[94] The Basic Education Act passed by the Washington legislature in 1977[95] initially was quite promising, but not being tied to any substantive adequacy goals, it failed to take account of

changing needs and developments. Within a decade it had become clear that the new system was not meeting the educational requirements of the state's neediest children.[96]

The Recent Decisions

The difficulties experienced by the New Jersey, Washington, and West Virginia supreme courts in implementing their decrees undoubtedly discouraged other state courts from focusing on their constitution's education clause. It was not until 1989—a decade after the last of these initial attempts—that any state supreme court again considered the concept of an adequate education. The first to do so was the Kentucky Supreme Court in *Rose v. Council for Better Education*.[97] The Kentucky case was decided the same year as the first National Education Summit, and the decision clearly reflects the influence of the standards-based reform environment.

Although *Rose* had been brought on behalf of poor school districts seeking more equitable funding for their students, the Kentucky Supreme Court went further and invalidated the entire state system of education, because it was "inadequate and well below the national effort."[98] The court then went on to hold that an "efficient" education is one that has as its goal the development in each and every child of the following seven capacities:

(i) sufficient oral and written communication skills to enable students to function in a complex and rapidly changing civilization;

(ii) sufficient knowledge of economic, social and political systems to enable the student to make informed choices;

(iii) sufficient understanding of governmental processes to enable the student to understand the issues that affect his or her community, state, and nation;

(iv) sufficient self-knowledge and knowledge of his or her mental and physical wellness;

(v) sufficient grounding in the arts to enable each student to appreciate his or her cultural and historical heritage;

(vi) sufficient training or preparation for advanced training in either academic or vocational fields so as to enable each child to choose and pursue life work intelligently; and

(vii) sufficient levels of academic or vocational skills to enable public school students to compete favorably with their counterparts in surrounding states, in academics or in the job market.[99]

Thus, the Kentucky court went beyond the earlier New Jersey and Washington courts in articulating the types of basic skills that students

would need to develop in order to participate effectively as citizens in a democratic society and to be prepared to compete in the contemporary economy. In contrast to the West Virginia court, however, it did not describe the skills or the manner in which they should be developed in explicit detail. In essence, the court outlined the goals for a standards-based education system and then left to the legislative and executive branches its further development and implementation.[100]

In formulating these specific educational goals, the Kentucky court did not draw solely on previous judicial precedents or legal sources. Extensive expert testimony and a posttrial brief filed by a citizens' education advocacy group, the Prichard Committee, had brought to the trial judge's attention the significant national initiatives in education reform, including the emphasis on educational standards. In fact, after issuing his liability decision, the trial court judge stayed his decision on the appropriate remedy for six months. During that time, a select committee he had appointed held five hearings around the state—one of which was attended by the governor and all of which were covered extensively by the press—and then enumerated five student outcomes that it believed would constitute an adequate education.[101] The select committee's recommendations were substantially adopted by the trial court, and their key elements were also included in the final decision of the state Supreme Court.

The Kentucky court's formulation of the goals of an adequate education system aptly reflected the essential aims of the developing state standards-based reform movement. The *Rose* decision can, in essence, be viewed as the starting point in what has become a significant dialogue among the public, the courts, and the legislature on standards-based reform. It articulated the basic goals of a standards-based reform system, but left it to the legislative and executive branches to determine the specific structure and content of an "efficient" education system. The Kentucky Education Reform Act enacted by the legislature to comply with the court order has become a national model for implementing standards-based reforms.[102]

The Kentucky Supreme Court's statement of educational goals has been directly adopted as the operative definition of adequacy by two other state supreme courts,[103] and it has served as the acknowledged inspiration for substantive definitions of constitutional definitions of adequacy by other courts. For example, citing *Rose*, the Supreme Court of North Carolina has defined the constitutional concept of a "sound basic education" in the following terms:

> [A] "sound basic education" is one that will provide the student with at least: (1) sufficient ability to read, write, and speak the English language and a sufficient knowledge of fundamental mathematics and physical science to enable the student to function in a complex and rapidly chang-

> ing society; (2) sufficient fundamental knowledge of geography, history, and basic economic and political systems to enable the student to make informed choices with regard to issues that affect the student personally or affect the student's community, state, and nation; (3) sufficient academic and vocational skills to enable the student to successfully engage in post-secondary education or vocational training; and (4) sufficient academic and vocational skills to enable the student to compete on an equal basis with others in further formal education or gainful employment in contemporary society.[104]

In recent years, the state courts have begun to focus even more directly on the relationship between the newly adopted state academic standards and constitutional requirements. The Idaho Supreme Court, for example, reviewed the existing state educational standards, approved them, and directly incorporated them into its constitutional definition, thereby making their effective implementation the hallmark of constitutional compliance. Thus, the court stated, in defining the requirements for a "thorough" education, that:

> Balancing our constitutional duty to define the meaning of the thoroughness requirement of art. 9 § 1 . . . with the political difficulties of the task has been made simpler for this Court because the executive branch of government has already promulgated educational standards pursuant to the legislature's directive. . . .We have examined the standards and now hold that, under art.9, s. 1 [of the constitution] the requirements for school facilities, instructional programs and textbooks, and transportation systems as contained in those regulations presently in effect, are consistent with our view of thoroughness.[105]

Similarly, in *Edgewood Independent School District v. Kirby*, the Texas Supreme Court held in 1995 that the state's standards-based accountability system met constitutional adequacy requirements.[106] In New Hampshire, the state supreme court rejected an adequacy definition promulgated by the state education department, which had been upheld by the lower court, holding that it "is the legislature's obligation, not that of individual members of the board of education, to establish educational standards that comply with constitutional requirements."[107] It then pointed to the seven specific criteria articulated by the Kentucky Supreme Court as guidelines to the legislature for defining educational adequacy.[108]

In 1997, the New Jersey Supreme Court upheld a set of content standards that, it noted, had been adopted by the New Jersey legislature consistent with the national trend "in favor of a standards-based approach to the improvement of public education."[109] Although it concluded that the standards "are facially adequate as a reasonable legislative definition of a constitutional thorough and efficient education,"[110] the court never-

theless also found that the funding system and the funding levels provided to implement the standards were insufficient to provide a thorough and efficient education to students in the poor urban districts.[111]

In New York, a trial court, under remand directions from the state Court of Appeals to gather evidence on the meaning of the constitutional right to "the opportunity for a sound basic education, "[112] closely analyzed the extensive set of learning standards that had been issued by the state's Board of Regents over the course of a lengthy seven-month trial. Although indicating that a constitutional standard cannot be synonymous with a specific set of state regulations,[113] the court nevertheless equated the standards' core, high-level cognitive skills with the requirements for a sound basic education. Specifically, it held that certain of the standards, such as the graduation-level standard for English language arts, which, among other things, requires students to demonstrate the ability to "discover relationships, concepts and generalizations, [and] . . . interpret and analyze complex informational texts"[114] falls well within the constitutional requirements for a sound basic education.[115] Other standards, like the graduation-level science requirements in physics, which, inter alia, call on students to "compare energy relationships within an atom's nucleus to those outside the nucleus,"[116] the court deemed to exceed a sound basic education.[117]

A similar conclusion was reached in a recent North Carolina ruling, which also was based on a detailed analysis of the new state standards. There, the court held that the state standards were "sufficient to provide North Carolina students with the opportunity for a sound basic education if properly implemented in the classroom…".[118] Because the standards included areas such as art, physical education, and second languages, which went beyond the list of core academic skills that constitute a sound basic education, the court further held that the current North Carolina standards "are more than sufficient."[119]

In *CFE v. State*, the New York court explicitly rejected defendants' argument that reading, writing, and mathematics skills at an 8th to 9th grade level—the former state competency standard that the regents were replacing with their more demanding learning standards—would meet constitutional requirements.[120] Instead, the court held that sound basic education requires the "foundational skills that students need to become productive citizens capable of civic engagement and sustaining competitive employment."[121] Civic engagement the court defined to include acting as a knowledgeable voter who has the "intellectual tools to evaluate complex issues, such as campaign finance reform, tax policy, and global warming" and serving as a capable juror who may be called on to "determine questions of fact concerning DNA evidence, statistical analyses, and

convoluted financial fraud."[122] Preparation for competitive employment involves "higher levels of skills and knowledge,"[123] and not preparation for "low level service jobs."[124]

Clearly, what is occurring in the recent educational adequacy cases is " a multi-faceted dialogue between state courts and legislatures"[125] on the critical question of how to define an adequate education. These dialogues take a variety of forms. A number of courts have, for example, placed greater emphasis on providing explicit guidelines to the legislature on how an adequate education system should be developed. Thus, the Ohio Supreme Court declared in broad terms that children must be "educated adequately so that they are able to participate fully in society."[126] It then declared the current school foundation program unconstitutional and directed the state legislature to "create an entirely new school financing system" in accordance with certain basic guidelines laid down by the court. These included eliminating the emphasis on the local property tax and ensuring that the system include an appropriate "student-teacher ratio, . . . and sufficient computers"[127] as well as "facilities in good repair and the supplies, materials and funds necessary to maintain these facilities in a safe manner."[128]

The Wyoming Supreme Court went even further in providing substantive instructions to the legislature on how it should go about defining the specific elements of an adequate education. It held that:

> To fulfill the constitutional command . . . the legislature must state and describe what a "proper education" is for a Wyoming child. The constitution requires that it be the *best* that we can do. The legislature, in fulfilling its constitutional duty, must define and specify what that is. Trial testimony indicated aspects of a quality education will include:
>
> 1. Small schools, small class size, low student/teacher ratios, textbooks, low student/personal computer ratios.
>
> 2. Integrated, substantially uniform substantive curriculum.
>
> 3. Ample, appropriate provision for at-risk students, special problem students, talented students.
>
> 4. Setting of meaningful standards for course content and knowledge attainment intended to achieve the legislative goal of equipping all students for entry to the University of Wyoming and Wyoming Community Colleges or which will achieve the other purposes of education.
>
> 5. Timely and meaningful assessment of all students' progress in core curriculum and core skills.[129]

Finally, an especially interesting variation of the interbranch dialogue was the recent enactment of a new adequacy clause to the Florida Constitution. In 1996, the Florida Supreme Court, in a close plurality decision,

had determined that the prior constitutional language did not provide any "judicially discoverable and manageable standards" for determining adequacy.[130] Two years later, the voters, through a 71 percent favorable referendum vote, amended the state constitution to include the following provision, which was largely influenced by the adequacy perspective of the dissenting and concurring judges in the previous case:[131]

> The education of children is a fundamental value of the people of the State of Florida. It is, therefore, a paramount duty of the state to make adequate provision for the education of all children residing within its borders. Adequate provision shall be made by law for a uniform, efficient, safe, secure, and high quality system of free public schools that allows students to obtain a high quality education and for the establishment, maintenance, and operation of institutions of higher learning and other public education programs that the needs of the people may require.[132]

The Emerging Core Constitutional Concept

Constitutional doctrine in the state courts regarding student rights to an adequate education clearly has resulted in recent years in a growing convergence on certain core concepts. This constitutional core emphasizes that an adequate education must (1) prepare students to be citizens and economic participants in a democratic society; (2) relate to contemporary, not archaic educational needs; (3) be pegged to a "more than a minimal" level; and (4) focus on opportunity, rather than outcome.

Democratic Purposes

As discussed above, most state constitution education clauses were written in the 19th century and reflect the democratic ideals of the common school movement, as well as the employment preparation orientation of the compulsory education movement. In interpreting the adequacy requirements of these clauses, the courts have, therefore, been strongly influenced by this original intent. Thus, there is widespread agreement that an adequate system of education is one that "ensures that a child is equipped to participate in political affairs and compete with his or her peers in the labor market."[133]

The overwhelming majority of state highest courts that have defined an adequate education have used some variation of this central focus on preparing students to be effective citizens and competitive participants in the economy. For example, the Vermont Supreme Court, in its recent decision in *Brigham v. State*, 692 A.2 at 680, declared that the state's right to

education clause "guarantees political and civil rights" and preparation "to live in today's global marketplace." Similarly, the Wisconsin Supreme Court, although finding for defendants in its recent fiscal equity decision, stated that "a sound basic education is one that will equip students for their roles as citizens and enable them to succeed economically and personally."[134]

Relation to Contemporary Needs

Although grounded in 19th century democracy and work preparation concepts, the court decisions emphasize the need to relate these concepts to contemporary needs. The constitutional text and the constitutional precedents establish basic parameters for a concept of adequacy that is substantive yet evolving. Courts have specifically held that "that which may have been 'ample' in 1889 may be wholly unsuited for children confronted with contemporary demands."[135] For example, although a high school education was not an attribute of a thorough and efficient education in 1895, it clearly is today.[136] As the Wyoming Supreme Court put it, "the definition of a proper education is not static and necessarily will change."[137]

In this context, the courts' implicit dialogue with the other branches of government on standards-based reform concepts has been particularly instructive. The standards-based reforms have made clear that to be effective citizens and productive workers in contemporary society, students need to develop higher-order cognitive skills. The constitutional requirements set forth in many of the recent cases reflect an awareness of the need to prepare students to compete in the global society of the 21st century.[138] Courts have specifically stated that contemporary adequacy standards must be pegged well above a 19th century reading, writing, and arithmetic level.[139] In essence, the emerging constitutional concept of adequacy is a prudent judgment concerning the basic educational opportunities that a child will need to take his or her place as a functioning adult in contemporary society. As the level of educational skills necessary to participate as a citizen and as a wage-earner in society rise, expectations for an adequate education will also necessarily rise.

More Than a Minimal Level

Consistent with their understanding of contemporary needs as articulated by the standards-based reform movement, the courts deciding recent adequacy cases have implicitly rejected the "minimalist standard of adequacy set in *Rodriguez*" and have called instead for an education

system that is at more than a minimal level.[140] This "high minimum approach focuses on what would be needed to assure that all children have access to those educational opportunities that are necessary to gain a level of learning and skills that are now required, say, to obtain a good job in our increasingly technologically complex society and to participate effectively in our ever more complicated political process."[141]

The policy statement of the 1996 National Education Summit, endorsed by President Clinton, 41 governors and 48 leaders of major American corporations, specifically described the type of cognitive skills students need for the contemporary job market:

> In addition to basic skills, all individuals must be able to think their way through the workday, analyzing problems, proposing solutions, communicating, working collaboratively and managing resources such as time and materials.
>
> * * * *
>
> Today's economy demands that all high school graduates, whether they are continuing their education or are moving directly into the workforce, have higher levels of skills and knowledge.[142]

Accordingly, some of the cases have specified that an adequate education must include, in addition to traditional reading and mathematical skills, knowledge of the physical sciences and "a fundamental knowledge of economic, social, and political systems, and of history and governmental processes [and] academic and vocational skills."[143] The repeated emphasis in the liability findings in these cases is on the relative inability of poor districts to provide their students with the type of appropriate contemporary education that is available to residents in the affluent districts:

> High-wealth districts are able to provide for their students broader educational experiences including more extensive curricula, more up-to-date technological equipment, better libraries and library personnel, teacher aides, counseling services, lower student-teacher ratios, better facilities, parental involvement programs, and drop-out prevention programs.[144]

The Montana Supreme Court was explicit in articulating the implications of these comparisons. After contrasting the offerings in a number of poor and rich districts, it stated that "the wealthier school districts are not funding frills."[145] In short, it is clear that "the concept of an adequate education emerging from state courts invalidating school finance systems goes well beyond a basic or minimum educational program that was considered the acceptable standard two decades ago."[146] The Florida constitutional referendum, reflecting these contemporary trends, specifically defined an adequate education as one that "allows students to obtain a high quality education."[147]

Opportunity, Not Outcome

State educational standards provide courts with useful tools for ensuring that all students are actually provided the level of education guaranteed by the state constitution. In articulating the core requirements of their state education clauses, the judges' thinking has clearly been informed by the contemporary needs and values that have impelled the national standards-based reform movement.[148] At the remedial stage, state standards provide courts with effective tools for assessing the extent to which educational opportunities are being made available to meet the needs of all students. In contrast to the *McInnis* courts' perplexity about how to define and deal with educational needs,[149] courts in the recent adequacy cases have felt confident in asserting that students in high need, low resource districts are not currently receiving a constitutionally adequate education because their education "fall[s] short of the very educational standards that the state . . . has determined are basic to providing its school children with minimally adequate educational opportunities."[150]

In formulating remedial criteria, the courts do not, however, apply the state standards in a wooden way. Thus, although many state accountability systems, especially in states that have adopted "high-stakes" testing programs, emphasize student achievement scores as the basic determinants of whether students are obtaining an appropriate education, the constitutional criterion for determining the level of educational services that must be provided for an adequate education tends to emphasize educational opportunity, not educational results.[151] Output measures are considered important guideposts for determining whether an education system is functioning well and whether further scrutiny is warranted, but they are not seen as constituent elements of a constitutional definition of adequacy.[152]

Courts tend to enforce students' rights to an adequate education, therefore, by seeking to ensure the availability of essential resources, such as decent facilities, a safe environment, qualified teachers, and up-to-date textbooks,[153] or by providing feasible additional support for students with special needs or at risk of educational failure that will give all students the opportunity to develop necessary academic skills.[154] They do not, however, guarantee that all students will fully meet demanding state standards or that unlimited resources must be made available to overcome all impediments to equal educational outcomes.

The emerging core constitutional concept of adequacy has enhanced the courts' ability to frame workable remedies and to enter into dialogues with state legislatures and state education departments on methods for actually providing a meaningful opportunity for an adequate education to all students. Although evidence presented in many of these cases has

demonstrated to the courts' satisfaction that educational resources, if effectively utilized, can result in impressive learning gains by at-risk students, the fact remains that these demonstrations have not yet been brought to scale because sufficient resources have never been made available in large urban school districts or other systems with large numbers of such students. Restructuring state education finance systems and obtaining sufficient resources to implement standards-based reforms and workable accountability systems remain formidable challenges. The critical importance for the future of American education—and for the future of American democracy—of fully meeting these challenges and actually providing the opportunity for an adequate education to all students is the subject of the concluding section of this paper.

ADEQUACY'S IMPLICATIONS

The previous section has described the emerging core constitutional concept of adequacy in terms of providing all students a reasonable opportunity, at "more than a minimal level," to become effective citizens and economic competitors, in accordance with contemporary needs. On first impression, this emerging constitutional concept may seem rather unexceptional; much of it appears to be merely restating in contemporary terms historical understandings regarding the links between education and democracy. Thomas Jefferson pointed out early in the nation's history that "some degree of education is necessary to prepare citizens to participate effectively and intelligently in our open political system if we are to preserve freedom and independence,"[155] and de Toqueville recognized almost 150 years ago that "in the United States the instruction of the people powerfully contributes to the support of the democratic republic."[156]

This historical vision was, however, actually quite myopic. The link between democracy and an educated electorate recognized by Jefferson and de Toqueville was articulated at a time when the scope of public discussion was limited and when both the right to vote and access to education were limited largely to upper-income white males. Throughout most of America's history, women, blacks and other minorities, and lower-class workers who did not own property were excluded from the franchise and from exercising most of the other rights of citizenship.[157]

As discussed above, the U.S. Supreme Court acknowledged in *Rodriguez* that the nation's democracy "depends on an informed electorate: a voter cannot cast his ballot intelligently unless his reading skills and thought processes have been adequately developed."[158] This concept of an informed electorate composed of citizens who intelligently consider and analyze issues before voting was, however, a relatively recent phe-

nomenon; it emerged during the Progressive Era at the beginning of the 20th century. Michael Schudson, after analyzing the history of American civic life from colonial days to the present, concluded that the kind of knowledge the electorate required has, in fact changed dramatically over time:

> In an age of gentlemen, the citizen's relatively rare entrances into public discussion or controversy could be guided by his knowledge of social position; in the era of rule by majorities, the citizens' voting could be led by the enthusiasm and rhetoric of parties and their most active partisans; in the era of experts and bureaucracies, the citizens had increasingly to learn to trust their own canvass of newspapers, interest groups, parties and other sources of knowledge.[159]

In short, the combination of a vastly expanded electorate encompassing individuals of both genders and of all classes, races, and ethnic groups, with expectations that a citizen's role is to rationally analyze issues and make individual electoral decisions, is a recent development, the implications of which have yet to be fully explored.

An Adequate Education for Citizenship

Even though democratic theory in the United States in recent decades has extolled the concept of the informed citizen,[160] there has, in fact, been little discussion, let alone analysis, of the specific skills individuals need to carry out the functions of such a citizen. The standards-based reform movement has now put this question into focus, and, at the same time, it has provided specific tools for determining the extent to which the schools are actually producing students who can effectively carry out their presumed societal responsibilities.

For example, the Council on Curriculum and Assessment, which developed the Board of Regents' learning standards for New York State,[161] specifically considered the analytical skills that would allow students to read the kinds of texts that they would encounter in carrying out their duties as citizens, equip them to participate and deliberate in civic discussions, and provide them specific knowledge about the functioning of the U.S. governmental system.[162] The goals for a constitutionally acceptable education system articulated by the highest courts in Kentucky, Massachusetts, New Hampshire, and North Carolina similarly included specific references to developing "sufficient understanding of governmental processes to enable the student to understand the issues that affect his or her community, state, and nation."[163]

With these new state standards, courts are now in a position to probe unanalyzed past assumptions about students' preparation to function as

productive citizens. The trial court in *CFE v. State of New York* did exactly that during the seven-month trial that concluded in July 2000. In order to develop a trial record that would fully evaluate the Court of Appeals' "template" concept that a sound basic education must provide the skills students need to "function productively as civic participants capable of voting and serving on a jury,"[164] Justice Leland DeGrasse first instructed the parties to have their expert witnesses analyze a charter referendum proposal that was actually on the ballot in New York City at the time the trial was in progress. The specific question posed was whether graduates of New York high schools would have the skills needed to comprehend that document. The witnesses were also asked to conduct a similar analysis of the jury charges and of certain documents put into evidence in two complex civil cases that had recently been tried in state and federal courts.

Linda Darling-Hammond, a professor from Teachers College, Columbia University, was the primary expert witness for the plaintiffs on these issues. She first closely reviewed the charter revision proposal and identified the specific reading and analytical skills that an individual would need in order to understand that document. She then related these skills to particular standards set forth in the Regents' learning standards in English language arts, social studies, and mathematics and sciences.[165]

Darling-Hammond also described the types of skills a juror would need to comprehend and apply concepts like "the preponderance of the evidence" in terms of being able to "understand how to weigh the evidence, how to decide what the preponderance of the evidence might mean, what kind of testimony is credible and how to use the evidence in drawing an opinion."[166] The specific types of skills needed to undertake this complex reasoning process are also cultivated by the learning standards, according to Darling-Hammond.[167] She further explained how such skills as the ability to analyze statistical tables and graphs, understand economic concepts like "opportunity costs," and comprehend scientific studies are developed by the mathematics, science, and social studies standards.[168] In sum, the types of cognitive skills imparted by the Regents' learning standards are, according to Darling-Hammond, precisely the types of skills that the New York Court of Appeals had previously indicated that citizens need in order to perform adequately as jurors.[169]

The defendants' primary expert on the ballot comprehension issue was Christine Rossell, a political science professor from Boston University. Rossell did not testify about the specific skills a student would need to be an effective voter. Instead, she introduced polling data showing that the vast majority of American voters obtain their information from radio and television news and make up their minds on how to vote for candidates and propositions before they enter the voting booth.[170] Her implicit argument was that comprehending radio and television news does not

require higher-level cognitive skills, and since most voters make up their minds without actually reading ballot propositions, the level of skills necessary to comprehend such documents is not a significant issue.

Herbert Walberg, an education professor from the University of Illinois-Chicago, also testified for the defendants in the CFE trial. He undertook a computerized "readability analysis" of various newspaper articles dealing with electoral issues and of some of the jury documents that had been analyzed by the plaintiffs' experts. He concluded that only a 7th or 8th grade level of reading skills was needed to comprehend these materials.[171] Walberg also indicated that dialogue among members of the jury can substitute for a lack of understanding on the part of some of the individual jurors.[172]

Overall, then, the implied premise of the defendants' position was that citizens do not actually need to function at a high level of skill, and that they need not be capable of comprehending complex written material, so long as the subjects dealt with in the material are regularly discussed in the mass media, or so long as they can obtain assistance from other citizens in carrying out their civic responsibilities. Justice De Grasse's decision resoundingly rejected this position. He held:

> An engaged, capable voter needs the intellectual tools to evaluate complex issues, such as campaign finance reform, tax policy, and global warming, to name only a few. Ballot propositions in New York City, such as the charter reform proposal that was on the ballot in November 1999, can require a close reading and a familiarity with the structure of local government.
>
> Similarly, a capable and productive citizen doesn't simply show up for jury service. Rather she is capable of serving impartially on trials that may require learning unfamiliar facts and concepts and new ways to communicate and reach decisions with her fellow jurors. To be sure, the jury is in some respects an anti-elitist institution where life experience and practical intelligence can be more important than formal education. Nonetheless, jurors may be called on to decide complex matters that require the verbal, reasoning, math, science, and socialization skills that should be imparted in public schools. Jurors today must determine questions of fact concerning DNA evidence, statistical analyses, and convoluted financial fraud, to name only three topics.[173]

Although society may have unreflectively accepted a wide gap between its democratic ideal and the actual functioning level of its citizens participants in the past, now that the issue has come to the fore, it is difficult to conceive of our society knowingly perpetuating a state of affairs in which voters cannot comprehend the ballot materials about which they are voting and jurors cannot understand legal instructions or major evidentiary submissions in the cases they are deciding. In order to func-

tion productively in today's complex world, citizens need a broad range of cognitive skills that will allow them to function capably and knowledgeably, not only as voters and jurors, but also in petitioning their representatives, asserting their rights as individuals, engaging in deliberations with other citizens, and otherwise taking part in the broad range of interchanges and relationships involved in the concept of civic engagement.[174]

Implications of the Skills Gap

The focus on the citizenship and employment purposes of public education in state constitutional provisions combined with the analytic tools provided by state standards have now dramatically put the spotlight on the jarring gap between the skills students need to function effectively as productive civic participants and the actual level at which large numbers of high school graduates perform. This gap has two basic consequences: (1) large numbers of American citizens currently do not vote or they prefer not to serve on juries because they feel incapable of carrying out these civic functions[175]; and (2) large numbers are voting or serving inappropriately and inadequately. Both of these possibilities are philosophically and politically unacceptable. Accordingly, the notion that all students can learn at a reasonably high cognitive level, which is the premise of standards-based education reform, must also become a political imperative for a well-functioning contemporary democratic society.

The possibility of actually excluding those with inadequate cognitive skills from civic responsibilities has, in fact been seriously debated in recent years as a growing number of complex litigations in areas like product liability, antitrust, and environmental regulation have raised critical questions regarding the capacity of juries to deal with the problems posed by contemporary litigation. Serious issues have arisen concerning the ability of contemporary juries to understand complex statistical, scientific, and technical data,[176] and there is widespread concern about their capability to understand legal instructions.[177]

In 1979, the former chief justice of the U.S. Supreme Court, Warren E. Burger, stated that contemporary jurors are not capable of comprehending technical evidence in complex cases.[178] He said that "Jefferson would be appalled at the prospect of a dozen of his yeomen and artisans trying to cope with some of today's complex litigation in a trial lasting many weeks or months."[179] A fiery debate then ensued among legal scholars and federal judges on whether juries in complex cases should be limited to college graduates,[180] or whether the Seventh Amendment right to a trial by jury should be reinterpreted to exclude complex cases.[181]

This call for elite juries actually amounted to a return to the historical practice of convening blue ribbon juries in important cases that had been

prevalent throughout the United States prior to the passage of the federal Jury Selection and Service Act in 1968,[182] and a series of Supreme Court cases that banned practices that led to the systematic exclusion of women and minorities from jury panels.[183] The incompatibility of such blue ribbon panels with basic democratic principles was scathingly set forth by U.S. Supreme Court Justice Frank Murphy, dissenting in a 1948 case that upheld the verdict of a blue ribbon jury operating in accordance with a New York state statute—since repealed—that permitted such elite jury panels:

> The vice lies in the very concept of "blue ribbon" panels—the systematic and intentional exclusion of all but the "best" or the most learned or intelligent of the general jurors. Such panels are completely at war with the democratic theory of our jury system, a theory formulated out of the experience of generations. One is constitutionally entitled to be judged by a fair sampling of all one's neighbors who are qualified, not merely those with superior intelligence or learning. . . . Any method that permits only the "best" of these to be selected opens the way to grave abuses. The jury is then in danger of losing its democratic flavor and becoming the instrument of the select few.[184]

The outcome of the scholarly and judicial debate on the use of juries in complex cases has largely reaffirmed the importance of jurors being representative of the broad community and has rejected the proposals for elite juries.[185] There remain, however, persistent concerns about the ability of juries to function effectively, especially in complex civil cases. Although empirical studies of jury functioning in the past had shown that "the jury does by and large understand the facts and get the case straight,"[186] many contemporary studies "buttress the contention of lay jury incompetence in complex cases."[187]

The recent literature on jury functioning, therefore, bears out Darling-Hammond's testimony in the CFE litigation that students need to develop higher-level cognitive skills if they are to function productively as civic participants in today's complex society. The widespread rejection of the suggestion that blue ribbon juries be reinstated in complex cases makes clear that in this age of broadened civil rights' assertion, restriction of the franchise and denial of the right to a jury representing a full cross-section of the community do not constitute viable options. The nation can no longer tolerate a state of affairs in which the graduates of many high schools lack the cognitive skills to be civically engaged and to sustain competitive employment in the 21st century. In the end, then, the stated goal of the standards-based reform movement cannot be merely aspirational. There really is no alternative to actual fulfillment of the vision that today the schools must ensure that virtually *all* students meet high expectations and develop higher-level cognitive skills.

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NOTES

1. 411 U.S. 1 (1973).
2. 347 U.S. 483 (1954).
3. *Id.* at 493.
4. *Id.* at 495.
5. See *United States v. Jefferson County Board of Education*, 372 F.2d 836, 854 (5th Cir. 1966).
6. 391 U.S. 430 (1968).
7. *Id.* at 439 (emphasis added).
8. GERALD N. ROSENBERG, THE HOLLOW HOPE: CAN COURTS BRING ABOUT SOCIAL CHANGE? 50 (1991).
9. 413 U.S. 189 (1973).
10. 418 U.S. 717 (1974).
11. Jay P. Heubert, *Six Law-Driven School Reforms: Developments, Lessons and Prospects*, in LAW & SCHOOL REFORM 1, 2 (Jay P. Heubert ed., 1999). [hereinafter, LAW & SCHOOL REFORM]
12. The Supreme Court upheld this approach in *Milliken v. Bradley*, 433 U.S. 267, 287 (1977) ("Milliken II") as being "aptly tailored to remedy the consequences of the constitutional violation." The Court's optimistic expectations have not, however, been realized. A recent report, noting the continuing pattern of low achievement of Detroit's students, found that although "the Milliken programs may have some positive effect, . . . the programs simply did not prove to be the systemic remedy needed by urban Detroit." GARY ORFIELD ET AL., DISMANTLING DESEGREGATION: THE QUIET REVERSAL OF *BROWN V. BOARD OF EDUCATION* 155 (1996) (1996).
13. *See* JOHN E. COONS ET AL., PRIVATE WEALTH AND PUBLIC EDUCATION (1970); John E. Coons et al., *Educational Opportunity; A Workable Constitutional Test for State Financial Structures*, 57 Cal. L. Rev. 305 (1969); ARTHUR E. WISE, RICH SCHOOLS, POOR SCHOOLS: THE PROMISE OF EQUAL EDUCATIONAL OPPORTUNITY (1972); *also* Paul A. Minorini and Stephen D. Sugarman, *School Finance Litigation in the Name of Educational Equity: Its Evolution, Impact and Future*, 34, 36-37 in EQUITY AND ADEQUACY IN EDUCATION FINANCE: ISSUES AND PERSPECTIVES. (Helen F. Ladd et al. eds., 1999). [hereafter, EDUCATION FINANCE]
14. 347 U.S. at 483, 493 (1957). "Today, education is perhaps the most important function of state and local governments. Compulsory school attendance laws and the great expenditures for education both demonstrate our recognition of the importance of education to our democratic society. It is required in the performance of our most basic public responsibilities, even service in the armed forces. It is the very foundation of good citizenship. Today it is a principal instrument in awakening the child to cultural values, in preparing him for later professional training, and in helping him to adjust normally to his environment. In these days, it is doubtful that any child may reasonably be expected to succeed in life if he is denied the opportunity of an education."

15. *See, e.g., Baker v. Carr,* 369 U.S. 186 (1962); *Reynolds v. Sims,* 377 U.S. 533 (1964).
16. As one commentator has noted: "Given the Court's strong intimations in the desegregation cases of the constitutional significance of the right to education, and given the additional presence in the education context of the wealth dimension, which was generally absent from the apportionment cases, extension of the [legislative reapportionment] equal protection argument to the field of education finance appeared virtually unstoppable." Peter Enrich, *Leaving Equality Behind: New Directions in School Finance Reform*, 48 VAND. L. REV. 101, 120-121 (1995).
17. *Rodriguez v. San Antonio Indep. Sch. Dist.,* 337 F.Supp. 280 (W.D. Tex. 1971).
18. 411 U.S. 1 (1973).
19. *Id.* at 19. The main precedents, *Griffin v. Illinois*, 351 U.S. 12 (1956), and *Williams v. Illinois*, 399 U.S. 235 (1970), dealt with poor criminal defendants' access to transcripts for preparing an appeal or their incarceration because of inability to pay a fine.
20. 411 U.S. at 37. This concern with the expansive precedential impact that a favorable ruling for plaintiffs in *Rodriguez* might have on other equal protection areas indicated that the Court was using this case to signal the end of the dynamic expansion of the equal protection doctrine of the Warren Court era.
21. *Id.* at 49.
22. *Id.* at 51.
23. *Id.* at 95 n.56. The Yale Law Journal Note at issue discussed the demographics of urban districts in Connecticut. For a scathing critique of the methodology of this note, see W. Norton Grubb & Stephen Michelson, *Public School Finance in a Post-Serrano World*, 8 HARV. C.R.-C.L. L. REV. 550, 554-559 (1973).
24. 411 U.S. at 115 n.74. Justice Marshall also stated that the majority's insistence that the precedents dealing with discrimination against the poor dealt with absolute and not relative deprivations ignored the powerful precedent of the legislative reapportionment cases that involved relative, rather than absolute, deprivations of political representation. *Id.* at 119.
25. *Id.* at 35-36 (citations omitted).
26. *Id.* at 24, 36-37. Justice Powell specifically noted that under the Texas minimum foundation program, "Funds are distributed to assure that there will be one teacher—compensated at the state-supported minimum salary—for every 25 students. Each school district's other supportive personnel are provided for: one principal for every 30 teachers; one 'special service' teacher—librarian, nurse, doctor etc.—for every 20 teachers; superintendents, vocational instructors, counselors and educators for exceptional children are also provided. Additional funds are earmarked for current operating expenses, for student transportation, and for free textbooks." *Id.* at 45 (citations omitted). He also stated that the system ensures "a basic education for every child in the State." *Id.* at 49.
27. *Papasan v. Allain,* 478 U.S. 265, 285 (1986); *See also Kadrmas v. Dickinson Pub. Sch.,* 487 U.S. 450, 467 n.1 (1988) (Marshall, J., dissenting, stating that whether a denial of a minimally adequate education would violate a fundamental right "remains open today.") Note also that in *Plyler v. Doe*, 457 U.S. 202 (1982), the Court applied "intermediate level" scrutiny to an equal protection challenge to Texas's denial of access to education for children of undocumented aliens because of "the importance of education in maintaining our basic institutions." *Id.* at 221. In that case, none of the justifications the state offered for its policy was deemed to constitute a "substantial goal" for the complete denial of education for these children and the Texas plan was, therefore, held invalid.
28. 411 U.S. at 58.
29. *Id.* at 58-59.

30. *Id.* at 56.
31. 411 U.S. at 42-43. *See generally* Betsy Levin, *The Court's Congress and Educational Adequacy; The Equal Protection Predicament*. 39 MD. L. REV. 187, 190 (1979) ("The Supreme Court's reluctance to find that education is a fundamental right entitled to special protection was at least in part due to the Court's fear that there are no judicially manageable standards for determining what amount of education is constitutionally guaranteed"); Deborah A. Verstegen & Terry Whitney, *From Courthouses to Schoolhouses: Emerging Judicial Theories of Adequacy and Equity*, in 11 EDUC. POL'Y, 330, 331 (1991) ("The first wave of court challenges was largely unsuccessful because of the lack of a "justiciable standard" and culminated with [*Rodriguez*]). 411 U.S. at 89. Justice Marshall's dissent in *Rodriguez* also noted the significance of the lack of judicially manageable standards, but he felt that it was the defendants' rather than the plaintiffs' burden to propose such standards: "Neither the majority nor appellants inform us how judicially manageable standards are to be derived for determining how much education is 'enough' to excuse constitutional discrimination. One would think that the majority would heed its own fervent affirmation of judicial self-restraint before undertaking the complex task of determining at large what level of education is constitutionally sufficient." 411 U.S. at 89.
32. 293 F. Supp. 327 (N.D. Ill. 1968).
33. *Id.* at 331.
34. *Id.* at 335.
35. *Id.* at 331-332.
36. *McInnis v. Ogilvie,* 394 U.S. 322 (1969). *See also Burruss v. Wilkerson,* 310 F.Supp. 572 (W.D. Va. 1969), *aff'd per curiam*, 397 U.S. 44 (1970).
37. 487 P.2d 1241 (Cal. 1971).
38. *See* n.14 *supra*.
39. 487 P.2d at 1265.
40. The three-judge district court in *Rodriguez* had specifically held for the plaintiffs on the basis of the fiscal neutrality principle, distinguishing *McInnis* on this ground. 337 F.Supp. 280, 284 (W.D. Tex. 1981).
41. David C. Long, Rodriguez: *The State Courts' Response*, 64 PHI DELTA KAPPAN 481, 482 (1983).
42. *Serrano v. Priest,* ("Serrano II") 557 P.2d 929, 949-952 (Cal. 1976).
43. *Horton v. Meskill,* 376 A.2d 359 (Conn. 1977).
44. *Washakie County Sch. Dist. No. 1 v. Herschler,* 606 P.2d 310 (Wyo. 1980).
45. *Dupree v. Alma Sch. Dist. No. 30,* 651 S.W.2d 90, 93 (Ark. 1983).
46. Under a DPE system, every school district that imposed a particular tax rate was guaranteed a particular amount of revenue per child. If a district's actual tax rules yielded an amount greater than the established per student expenditure level, the difference would be forfeited to the state; if the actual tax receipts were less, the state would make up the difference.
47. William H. Clune, *New Answers to Hard Questions Posed by Rodriguez; Ending the Separation of School Finance and Educational Policy by Bridging the Gap Between Wrong and Remedy*, 24 CONN. L. REV. 721, 729 (1992).
48. *Id.* at 731, noting that DPE has proven to be "the single greatest practical problem with judicial decrees of fiscal neutrality . . . [w]ealthier districts have proven the most determined foes of fiscal neutrality in constitutional litigation. Much of the delay and uncertainty in reaching stable legislative solutions has revolved around rich districts."
49. *Serrano v. Priest,* 557 P.2d at 940 fn 21.
50. Mark Schaur and Steve Durbin, *"Protecting" School Funding*, SACRAMENTO BEE, June 28, 1993 at B14. William A. Fischel argued in *Did Serrano Cause Proposition 13?* 42 NAT'L

TAX J. 465 (1989), that *Serrano* removed any incentive for residents in affluent districts to oppose Proposition 13. Fischel has recently broadened his thesis to argue more generally that court orders that increase the level of education funding dampen voter support for public education. William A. Fishel, *How Judges are Making Public Schools Worse*, CITY JOURNAL 30 (Summer, 1998). Richard Briffault rejects this contention, stating that the significance of local control lies in opportunities for accountability and participation; he also argues that an overemphasis on local funding for education distorts fiscal support for education as school districts seek to minimize tax rates in order to attract or keep wealthy property owners. Richard Briffault, *The Role of Local Control in School Finance Reform*, 24 CONN. L. REV. 773 (1992).

51. *See, e.g.*, William N. Evans et al., *The Impact of Court-Mandated Finance Reform*, in EQUITY AND ADEQUACY IN EDUCATION FINANCE: ISSUES AND PERSPECTIVES. (Helen F. Ladd et al. eds., 1999) (study of 10,000 school districts from 1972-1992 finding that court-ordered reform levels up disparities and increases overall spending on education); Alan G. Hickrod et al., *The Effect of Constitutional Litigation on Educational Finance; A Preliminary Analysis*. 18 J. EDUC. FIN. 180 (1992) (finding inter alia reduced disparities in states where litigation has occurred, regardless of whether plaintiffs have prevailed); Bradley W. Joondeph, *The Good, the Bad and the Ugly; An Empirical Analysis of Litigation Prompted School Finance Reform*. 35 SANTA CLARA L. REV. 763 (1995) (Study of six school districts finding narrowing of disparities in education expenditures, but lowering of rate of overall increase in expenditures for education); *cf.* Michael Heise, *State Constitutional Litigation, Educational Finance and Legal Impact*, 63 U. CIN. L. REV. 1735, 1752 (1995) (criticizing Hickrod methodology).
52. Enrich, *Leaving Equality Behind*, *supra* note 17 at 147. (Citations omitted). Molly McUsic also points out that states that equalize education spending through greater state assumption of funding responsibility tend to spend less than the national average per student. Molly S. McUsic, *The Law's Role in the Distribution of Education: The Promises and Pitfalls of School Finance Litigation*, in LAW AND SCHOOL REFORM: SIX STRATEGIES FOR PROMOTING EDUCATIONAL EQUITY 88, 114 (Jay Heubert ed., 1999).
53. The States in which defendants prevailed were: Arizona (*Shofstall v. Hollins,* 515 P.2d 590 (Ariz. 1973)); Illinois (*Blase v. State,* 302 N.E.2d 46 (Ill. 1973)); Michigan (*Milliken v. Green*, 212 N.W.2d 711 (Mich. 1973)); Montana (*Woodahl v. Straub,* 520 P.2d 776 (Mont. 1974)); Idaho (*Thompson v. Engelking,* 537 P.2d 635 (Idaho 1975)); Oregon (*Olsen v. State,* 554 P.2d 139 (Or. 1976)); Pennsylvania (*Danson v. Casey,* 399 A.2d 360 (Pa. 1979)); Ohio (*Board of Educ. (Cincinnati) v. Walter,* 390 N.E.2d 813 (Ohio 1979)); Georgia (*McDaniel v. Thomas,* 285 S.E.2d 156, 167 (Ga. 1981)); New York (*Board of Educ. (Levittown Union Free Sch. Dist.) v. Nyquist*, 439 N.E.2d 359 (N.Y. 1982); Colorado (*Lujan v. Board of Educ.,* 649 P.2d 1005 (Colo. 1982); Maryland (*Hornbeck v. Board of Educ.,* 458 A.2d 758 (Md. 1983)); Oklahoma (*Fair Sch. Finance Council of Okla., Inc. v. State,* 746 P.2d 1135 (Okla. 1987)); North Carolina (*Britt v. North Carolina State Bd. of Educ.,* 357 S.E.2d 432, *aff' d mem.*, 361 S.E.2d 71 (N.C. 1987)); and South Carolina (*Richland County v. Campbell,* 364 S.E.2d 470 (S.C. 1988)). Plaintiff victories occurred during that period in New Jersey (*Robinson v. Cahill,* 303 A.2d 273 (N.J. 1973)); California (*Serrano v. Priest,* 557 P.2d 929 (Cal. 1977)); Connecticut (*Horton v. Meskill,* 376 A.2d 359 (Conn. 1977)); Washington (*Seattle Sch. Dist. No. 1 v. State,* 585 P.2d 71 (Wash. 1978)); West Virginia (*Pauley v. Kelly,* 255 S.E.2d 859 (W.Va. 1979)); Wyoming (*Washakie County Sch. Dist. No. 1 v. Herschler,* 606 P.2d 310 (Wyo. 1980)); and Arkansas (*Dupree v. Alma Sch. Dist. No 30,* 651 S.W.2d 90 (Ark. 1983)).
54. Specifically, plaintiffs have prevailed in major decisions of the highest state courts or final trial court actions in the following 18 states: Kentucky (*Rose v. Council for Better Educ.,* 790 S.W.2d 186 (Ky. 1989); Montana (*Helena Elementary Sch. Dist. No. 1 v. State,*

769 P.2d 684 (Mont. 1989)); Texas (*Edgewood Indep. Sch. Dist. v. Kirby*, 777 S.W.2d 391 (Tex. 1989)); Alabama (*Harper v. Hunt*, Appendix to the Opinion of the Justices, 624 So.2d 107 (Ala. 1993) (unappealed trial court decision)); Idaho (*Idaho Sch. for Equal Educ. Opportunity v. Evans*, 850 P.2d 724 (Idaho, 1993) and Idaho Sch. for Equal Educ. Opportunity, 976 P.2d 913 (Idaho, 1998)); Massachusetts (*McDuffy v. Secretary*, 615 N.E.2d 516 (Mass. 1993)); Tennessee *(Small Sch. Sys. v. McWherter*, 851 S.W.2d 139 (Tenn. 1993)); Arizona (*Roosevelt Elementary Sch. Dist. v. Bishop*, 877 P.2d 806 (Ariz. 1994)); Kansas (*Mock v. Kansas*, No.91-CV-1009 (Shawnee Co. Dist. Ct. 1991) (Preliminary trial court decision, leading to settlement); Missouri (*Committee for Educ. Equal. v. State*, 878 S.W.2d 446 (Mo. 1994) (final trial court decision; appeal dismissed on procedural grounds)); New York (*Campaign for Fiscal Equity, Inc. v. State* 655 N.E.2d 661 (N.Y. 1995)); Wyoming (*Campbell County Sch. Dist. v. State*, 907 P.2d 1238 (Wyo. 1995)); Arkansas (*Tucker v. Lake View Sch. Dist No. 25*, 917 S.W.2d 530 (Ark. 1996)); *see also Lake View Sch. Dist. No. 25 v. Huckabee*, 10 S.W.3d 892 (Ark. 2000) (pending appeal claims from prior case mooted by enactment of new funding statute); North Carolina (*Leandro v. State*, 488 S.E.2d 249 (N.C. 1997)); Vermont (*Brigham v. State*, 692 A.2d 384 (Vt. 1997)); New Hampshire (*Claremont Sch. Dist. v. Governor*, 703 A.2d 1353 (N.H. 1997)); Ohio (*DeRolph v. State*, 677 N.E.2d 733 (Ohio 1997)); and South Carolina (*Abbeville County Sch. Dist. v. State*, 515 S.E.2d 535 (S.C. 1999)). A number of these cases involved reconsideration (generally based on new legal theories) of challenges to state education finance systems by courts that had previously held for defendants. During the same time period, defendants have prevailed in the following 10 states: Wisconsin (*Kukor v. Grover*, 436 N.W.2d 568 (Wis. 1989)) and *Vincent v. Voight*, 614 N.W.2d 388 (Wis. 2000); Minnesota (*Skeen v. State*, 505 N.W.2d 299 (Minn. 1993)); Nebraska (*Gould v. Orr*, 506 N.W.2d 349 (Neb.1993)); Virginia (*Scott v. Commonwealth*, 443 S.E.2d 138 (Va. 1994)); Maine (*School Admin. Dist. No. 1 v. Commissioner*, 659 A.2d 854 (Me. 1995)); Rhode Island (*City of Pawtucket v. Sundlun*, 662 A.2d 40 (R.I. 1995)); Florida (*Coalition for Adequacy and Fairness in Sch. Funding, Inc. v. Chiles*, 680 So.2d 400 (Fla. 1996)); Illinois (*Committee for Educ. Rights v. Edgar*, 672 N.E.2d 1178 (Ill. 1996) and *Lewis E. v. Spagnolo*, 710 N.E.2d 798 (Ill. 1999); Louisiana (*Charlet v. State*, 713 So.2d 1199 (La. Ct. App.), *cert. denied*, 730 So.2d 934 (La. 1998)); and Pennsylvania (*Pennsylvania Ass'n of Rural and Small Sch. v. Ridge* 737 A.2d 246 (Pa. 1999)). The 1994 decision of the North Dakota Supreme Court (*Bismarck Public Sch. Dist. No. 1 v. State*, 511 N.W.2d 247 (N.D. 1994)) held that the state's education finance system was unconstitutional but not by the requisite "super majority" vote; the 1997 decision of the Alaska Supreme Court in *Matanuska-Susitna Borough Sch. Dist. v. State*, 931 P.2d 391 (Alaska 1997), denied plaintiffs relief regarding two technical aspects of the state's funding system, but did not involve a fundamental challenge to the system itself.

55. This point is discussed at length in Michael A. Rebell, *Fiscal Equity Litigation and the Democratic Imperative*, 24 J. EDUC. FIN 23 (1998).
56. *See Oklahoma City Pub. Sch. v. Dowell*, 498 U.S. 237 (1991); *Freeman v. Pitts*, 503 U.S. 467 (1992); *Missouri v. Jenkins*, 515 U.S. 70 (1995)(Jenkins II). In sum, these cases and other "[d]evelopments in federal desegregation jurisprudence in the early 1990s . . . suggest that the litigation era reaching back to *Brown v. Board of Education* is now drawing to a close. [*Dowell*, *Pitts* and *Jenkins*] essentially relaxed the standard that applied to school districts which had previously discriminated, had implemented a judicially approved remedy, and were now seeking to end federal court involvement in their affairs." Paul A. Minorini & Stephen D. Sugarman, *Educational Adequacy and the Courts: The Promise and Problems of Moving to a New Paradigm*, in EDUCATION FINANCE *supra* n. 14 at 175, 187 [hereinafter *Educational Adequacy and the Courts*.] Gary Orfield sees in the recent deseg-

regation cases a "pattern of rushing toward resegregation" by conservative federal judges who have terminated desegregation plans without holding full evidentiary hearings, and without fairly assessing the educational ramifications of these terminations. *See* GARY ORFIELD, *Conservative Activists and the Rush Toward Resegregation*, in LAW AND SCHOOL REFORM *supra* n. 12 at 39, 41. *See also*, James E. Ryan, *The Influence of Race in School Finance Reform*, 98 MICH L. REV. 432 (1999) (arguing that loss of desegregation funds will eliminate current relative funding advantages of many predominantly minority school districts.)

57. Between 1977 and 1999, the share of all income earned by the bottom 20 percent of all household groups fell from 5.7 percent to 4.2 percent, while the share of the highest 20 percent rose from 44.2 percent to 50.4 percent. During the same time period, the share of the richest 1 percent rose from 7.3 percent to 12.9 percent. Congressional Budget Office data quoted in David Cay Johnston, "*Gap Between Rich and Poor Found Substantially Wider*," N.Y. TIMES (September 5, 1999) at A-14. *See also* Robert B. Reich, *"Foreword"* to RICHARD B. FREEDMAN, THE NEW INEQUALITY: CREATING SOLUTIONS FOR POOR AMERICA (1999) (describing how growing disparities between haves and have-nots may sever the bonds that allow a democratic society to function). For a compelling portrayal of the continuing brutal impact of the denial of educational opportunities to urban minority schoolchildren, see JONATHAN KOZOL, SAVAGE INEQUALITIES: CHILDREN IN AMERICA'S SCHOOLS (1991).
58. Standards-based reform, by emphasizing the need to provide adequate educational opportunities to *all* children, also gave promise of rectifying the apparent tendency of the fiscal equity cases to provide effective remedies for small, largely white school districts, but not for largely minority urban districts. See Ryan, *supra*, note 57. The shift to adequacy has spurred extensive new litigation on behalf of students in largely minority urban districts such as New York, Philadelphia, and Baltimore.
59. NATIONAL COMMISSION ON EXCELLENCE IN EDUCATION, A NATION AT RISK: THE IMPERATIVE FOR EDUCATIONAL REFORM 5 (1983); *see also* CARNEGIE FORUM ON EDUCATION AND THE ECONOMY, TASK FORCE ON TEACHING AS A PROFESSION, A NATION PREPARED: TEACHERS FOR THE 21ST CENTURY (1986); THEODORE SIZER, HORACE'S COMPROMISE: THE DILEMMA OF THE AMERICAN HIGH SCHOOL (1989).
60. NATIONAL ASSESSMENT OF EDUCATIONAL PROGRAMS, AMERICA'S CHALLENGE: ACCELERATED ACADEMIC ACHIEVEMENT (1990); *see also* Robert L. Linn & Stephen B. Dunbar, *The Nation's Report Card: Good News and Bad About Trends in Achievement*, 72 PHI DELTA KAPPAN 127, 131 (1990)
61. INA V.S. MULLIS ET AL., NATIONAL ASSESSMENT OF EDUCATIONAL PROGRESS 1992 TRENDS IN ACADEMIC PROGRESS 4-5 (1994); *see also* U.S. DEPARTMENT OF EDUCATION, AMERICA 2000: AN EDUCATION STRATEGY (1991) (finding that America's schools are not developing the skills and knowledge that students need today to compete in a globally competitive economy).
62. Charles F. Faber, *Is Local Control of the Schools Still a Viable Option?* 14 HARV. J. L. & PUB. POL'Y 447, 450 (1991).
63. Two additional national summits were held in 1996 and 1999; the President, most of the nation's governors, and chief executive officers of major corporations, as well as commissioners of education from most of the states attended these events. Following the first national summit, a consortium known as the New Standards Project was formed to spearhead research and development of academic standards and assessments. A total of 17 states and 10 large urban school districts soon joined the project. Following the 1996 summit, a new organization, Achieve, Inc., with a board of directors consisting of 6 governors and 6 business leaders was formed to further promote the standards movement. For a discussion of the origin of the national standards move-

ment, see MARC S. TUCKER & JUDY B. CODDING, STANDARDS FOR OUR SCHOOLS 40-43 (1998) [hereinafter, STANDARDS FOR OUR SCHOOLS], and DIANE RAVITCH, NATIONAL STANDARDS IN AMERICAN EDUCATION (1995).

64. Goals 2000: Educate America Act, 20 U.S.C. §§ 5801-5871 (1994). The act sets forth eight national goals involving school readiness, high school graduation rates, school safety, teacher professional development, etc., and procedures for promoting the development of academic standards and programs designed to achieve them by the states. When initially enacted in 1994, the act provided a process for assisting and certifying state efforts to develop content, performance, and "opportunity to learn" standards. Many of these provisions were, however, eliminated by Congress in 1996. Nevertheless, Goals 2000 funding still provides a system of grants that promote the development of state standards and local school improvement plans to meet the national goals.
65. Recent revisions to Title I of the Elementary and Secondary Education Act, 20 U.S.C. § 6301 *et seq.*, the Individuals With Disabilities Education Act, 20 U.S.C. § 1401 *et seq.*, and the Carl D. Perkins Vocational and Applied Technology Education Act, 20 U.S.C. § 2301 *et seq.*, and their implementing regulations all require program recipients to actively promote standards-based reforms. For a detailed discussion of the standards-oriented provisions of these laws, see Paul Weckstein, *School Reform and Enforceable Rights to Quality Education*, in LAW AND SCHOOL REFORM, *supra* note 12.
66. "All children can learn; and we can change our system of public elementary, middle, and secondary education to ensure that all children do learn at world-class levels." NEW YORK STATE BOARD OF REGENTS, ALL CHILDREN CAN LEARN: A PLAN FOR REFORM OF STATE AID TO SCHOOLS (1993); *see also* NATIONAL RESEARCH COUNCIL, INSTITUTE OF MEDICINE, FROM NEURON TO NEIGHBORHOODS: THE SCIENCE OF EARLY CHILDHOOD DEVELOPMENT (Jack P. Shonkoff & Deborah A. Phillips eds., 2000) (discussing recent brain development research indicating that experiential catalysts can positively impact brain development in the early years and throughout the life cycle); JOHN T. BRUER, SCHOOLS FOR THOUGHT; A SCIENCE OF LEARNING IN THE CLASSROOM (1993) (describing techniques of cognitive science that enable all students to develop higher order reasoning and learning skills.)
67. For general descriptions of the standards-based reform approach, see SUSAN H. FUHRMAN, DESIGN OF COHERENT EDUCATION POLICY: IMPROVING THE SYSTEM (1993); STANDARDS FOR OUR SCHOOLS, *supra* note 64, ROBERT ROTHMAN, MEASURING UP: STANDARDS, ASSESSMENT AND SCHOOL REFORM (1995). For detailed up-dates on progress toward implementing this comprehensive ideal, see EDUCATION WEEK, *Quality Counts 2000* (January 13, 2000); EDUCATION WEEK, *Quality Counts 2001* (January 11, 2001).
68. Adequacy concerns were major factors in the highest state court or final trial court decisions in Kentucky (1989), Alabama (1993), Idaho (1993), Massachusetts (1993), Tennessee (1993), Arizona (1994), New York (1995), Wyoming (1995), North Carolina (1997), Ohio (1997), New Hampshire (1997),Vermont (1997), and South Carolina (1999). Adequacy considerations were also significant in the remedies ordered by the state supreme courts in Missouri (1993), New Jersey (1990, 1995, 1998), and Texas (1995) and in the settlement entered into in Kansas in 1992.
69. *See Skeen v. State,* 505 N.W.2d 299, 303 (Minn. 1993) ("[U]nlike many cases in other states, this case never involved a challenge to the adequacy of education in Minnesota"); *Kukor v. Grover,* 436 N.W.2d 568, 578 (Wis. 1989) ("The appellants have not asserted that . . . their districts are unable to meet these [legislative] standards . . ."); *Scott v. Commonwealth,* 443 S.E.2d 138, 142 (Va. 1994) ("[T]he students do not contend that the manner of funding prevents their schools from meeting the standards of quality"); *School Admin. Dist. No. 1 v. Commissioner,* 659 A.2d 854, 857 (Me. 1995) (Plaintiffs

"presented no evidence at trial that any disparities in funding resulted in their students receiving an inadequate education").

70. *See* discussion, *supra*, at 8.
71. Molly McUsic, *The Use of Education Clauses in Litigation*, 28 HARV. J. ON LEGIS. 307, 328 (1991); *see also* Michael Heise, *State Constitutions, School Finance Litigations, and the "Third Wave": From Equity to Adequacy*, 68 TEMPLE L. REV. 1151, 1175 (1995) ("[A]dequacy decisions do not pose a direct and immediate threat to local control of schools.") For more detailed discussions of the strategic advantages of the adequacy approach, see Enrich, *Leaving Equality Behind*, *supra* note 17 at 166-170, and Molly S. McUsic, *supra* note 53. For general discussions of the shift from "equity" to "adequacy" holdings in the recent cases, see Allen W. Hubsch, *The Emerging Right to Education Under State Constitutional Law*, 65 TEMPLE L. REV. 1325 (1992); Richard J. Stark, *Education Reform: Judicial Interpretations of State Constitutions' Education Finance Provisions—Education vs. Equality* 1991 ANN. SURV. AM. L. 609; William Thro, *Note, To Render Them Safe: The Analysis of State Constitutional Provisions in Public School Finance Reform*, 75 VA. L. REV. 1639 (1989); Alexandra Natapoff, *1993: The Year of Living Dangerously: State Courts Expand the Right to Education*, 92 WEST EDUC. L. REP 755 (1994), and Verstegen and Whitney, *supra* note 32.
72. In many of the states where there have been effective remedies, the productive interchange among the branches has been accompanied by significant public engagement processes. For example, in Kentucky, the remedial principles developed by the Select Committee and adopted by the Kentucky Supreme Court were strongly influenced by an extensive round of statewide dialogues—including a 20,000 person televised town meeting—which the Prichard Committee had initiated years before the court's decision. The legislature's quick enactment of far-reaching reform legislation, and the state education department's aggressive implementation of the new law have also been aided by the ongoing public dialogues of the Prichard Committee and a number of other citizen groups. The Campaign for Fiscal Equity, Inc., has instituted a statewide public engagement process in New York in conjunction with its ongoing adequacy litigation. For a detailed analysis of the use of public engagement in the remedial phase of institutional reform litigations, see Michael A. Rebell & Robert L. Hughes, *Efficacy and Engagement: The Remedies Problem Posed by* Sheff v. O'Neill*—and a Proposed Solution*, 29 Conn. L. Rev. 1115 (1997).
73. NATIONAL CONFERENCE OF STATE LEGISLATURES, EDUCATIONAL ADEQUACY: BUILDING AN ADEQUATE SCHOOL FINANCE SYSTEM 5 (1998).
74. *Id.* at 10-18. Additional principles set forth in the task force report relate to the capacity of state education departments to support the conditions for essential learning and the establishment of an appropriate accountability system.
75. There is also, of course, substantial concern and controversy about how to ensure sufficient funding to provide all students a genuine opportunity for an adequate education. *See, e.g., Tomblin v. Gainer,* C.A. No 75-1268 (Circuit Ct, Kanawha Co. W. Va., Aug., 2000) (stipulating implementation of standards-based reforms in long-standing West Virginia litigation, but leaving open outstanding funding issues.) A proposal concerning specific mechanisms for ensuring sufficient funding to provide a genuine opportunity for an adequate education for all students will be the subject of a future article by the author.
76. Enrich, *supra* note 17 at 173.
77. Initially, some courts and commentators tended to define adequacy in comparative terms based on the assumption that "[a]n educational system that precluded the students of poorer districts from competing in the same market and society as their peers could not, by definition, be providing an adequate education." McUsic, *Promises and*

Pitfalls, *supra* note 53 at 116-117; *see also* Allan Odden and William H. Clune *School Finance Systems: Aging Structures in Need of Renovation*, 20 EDUC. EVAL. & POL'Y ANALYSIS 157, 158 (discussing use of the median district spending level as a standard for establishing the foundation level for a state aid system).

78. Note, *Manageable Adequacy Standards in Education Reform Litigation*, 74 WASH. U.L.Q. 1193, 1203 (1996).
79. The general language requiring the legislature to maintain and support a "system of free common schools" has also been interpreted to require some level of substantively adequate education. *See, e.g., Tennessee Small Sch. Syst. v. McWherter,* 851 S.W.2d 139, 150-51 (Tenn. 1993) (the education clause requires a system that "generally prepare[s] students intellectually for a mature life"); *Fair Sch. Fin. Council of Okla. v. State,* 746 P.2d 1135, 1149 (Okla. 1987) (the education clause requires "a basic, adequate education"); *Campaign for Fiscal Equity v. State,* 655 N.E.2d 661, 665 (N.Y. 1995) (the education clause requires "a sound basic education"); *Abbeville County Sch. Dist. v. State,* 515 S.E.2d 535, 540 (S.C. 1999) (the education clause requires "a minimally adequate education").
80. For a summary overview of the education clauses in the state constitutions, discussed in terms of four basic categories related to the relative "strength" of the educational clauses, see William E. Thro, *The Role of Language of the State Education Clauses in School Finance Litigation*, 79 EDUC. L. REP. 19 (1993). *See also* Molly McUsic, *supra* note 72. Thro's categorization of the education clauses in the state constitutions in terms of the strength of the language and his predictions regarding the likely outcome of court cases based on his categorizations have been belied by the actual decisions. For example, based on Thro's categorization, plaintiffs should have won the recent cases in Maine, Rhode Island, and Illinois, which they lost, and lost the recent decisions in New York, North Carolina, and Vermont, which they won.
81. *See generally* LAWRENCE CREMIN, AMERICAN EDUCATION: THE NATIONAL EXPERIENCE 1783-1876 (1980); C. KAESTLE, PILLARS OF THE REPUBLIC: COMMON SCHOOLS AND AMERICAN SOCIETY 1780-1860 (1983). Several of the state constitutions' education clauses were enacted in the 18th century and contained phrases concerning the duty of the legislature to "cherish public schools," Mass. Const. Part 2, C. 5 §2, which courts have interpreted to mandate "an adequate education." *McDuffy v. Secretary of Educ.,* 615 N.E. 2d 516, 545 (Mass. 1993). *Accord Claremont Sch. Dist. v. Governor,* 635 A. 2d 1375, 1381 (N.H. 1993); *see also Brigham v. State,* 692 A.2d 384, 675 (Vt. 1997) (drafters of the Vermont constitution sought to foster "republican values or public 'virtue'").
82. *Cf. Serrano v. Priest* 487 P.2d 1241, 1259 (1971) ("Education is so important that the state made it compulsory"). In *Yoder v. Wisconsin*, 406 U.S. 205 (1972), the U.S. Supreme Court analyzed in detail the purposes of compulsory education before allowing the Amish plaintiffs a limited exemption from it. In doing so, the Court accepted the state's twofold justification for compulsory education, i.e., preparation of citizens "to participate effectively and intelligently in our open political system" and preparation of individuals "to be self-reliant and self-sufficient participants in society." *Id.* at 221; *see also* Betsy Levin, *Education as a Constitutional Entitlement: A Proposed Judicial Standard for Determining How Much Is Enough*, 3 WASH. U.L.Q. 703, 712 (1979). For historical discussions of the purposes of compulsory education and its relation to the common school movement of the 19th century see LAWRENCE KOTIN AND WILLIAM F. AIKMAN, LEGAL FOUNDATIONS OF COMPULSORY SCHOOL ATTENDANCE (1980); LAWRENCE CREMIN, *supra* note 82, and CARL F. KAESTLE, *supra* note 82.
83. 303 A.2d 273 (N.J. 1973), *cert. denied*, *sub nom Dickey v. Robinson,* 414 U.S. 976 (1973).
84. *Robinson v. Cahill,* 303 A.2d at 295.
85. *Id.* New Jersey's "thorough and efficient" clause was added to the Constitution of 1844 by amendments adopted in 1875. *Id.* at 287.

86. WASH. CONST., Art. 9, §1
87. *Seattle Sch. Dist. No. 1 v. State,* 585 P.2d 71, 94 (Wash. 1978).
88. *Pauley v. Kelly,* 255 S.E.2d 859, 877 (W. Va. 1979)
89. *Robinson v. Cahill,* 355 A.2d 129 (1976).
90. *Abbott v. Burke,* 575 A.2d 359 (N.J. 1990). Noting that the system of delegated responsibility resulted in district-level goals but no statewide "commonly accepted educational standards," Id at 374, the court utilized comparative data regarding expenditures and performance in the poor and rich districts to reach its result *Id* at 375. For a discussion of a trend toward increasing reliance on equity approaches in the remedial phase of the New Jersey litigation see Enrich, *supra* note 17 at 131-135. The New Jersey legislature's attempt to develop process standards and problems that developed in their implementation are discussed in Margaret E. Goertz & Malek Edwards, *In Search of Excellence for All: The Courts and New Jersey School Finance Reform*, 25 J. EDUC. FIN. 5 (1999).
91. In *Pauley v. Kelly*, 255 S.E.2d 859, 877 (W.Va. 1979), the West Virginia Supreme Court defined the goals of a constitutionally acceptable education system in terms of literacy, ability to add, subtract, multiply and divide, knowledge of government, work training, interest in creative arts, and "social ethics."
92. The trial court then developed the goals articulated by the state Supreme Court into detailed standards in a 238-page decision. For example, the standards for early childhood education required, among other things, a maximum student teacher ratio of 1 to 20, plus support personnel, including a nurse two days a week; a facility containing at least 50 square feet per child, and furniture that "permits easy reorganization of the room." *Pauley v. Bailey,* No. 7-1268, 24-25 (Kanawha Co. Cir. Ct., 1982). This order was supplemented by a 356-page master plan for its implementation drafted by an advisory committee appointed by the state superintendent of schools and incorporated into a later court order.
93. The state Supreme Court of Appeals took no active steps to enforce the trial court's order. *Pauley v. Bailey,* 324 S.E.2d 128 (W. Va. 1984). For discussions of the lack of effective implementation after this ruling, see Jack L. Flannagan, *West Virginia's Financial Dilemma: The Ideal School System in the Real World*, 15 J. EDUC. FIN. 229 (1989) and Margaret D. Smith & Perry A. Zirkel, Pauley v. Kelley: *School Finances and Facilities in West Virginia*, 13 J. EDUC. FIN. 264 (1988).
94. *Seattle Sch. Dist. No. 1 v. State,* 585 P.2d 71 at 95 (Wash., 1978). The plaintiffs had asked the court to mandate explicit standards for defining the state's constitutional obligations in terms of student/teacher ratios, requirements for special education, and other elements of an educational program. The court rejected this request, but it did instruct the legislature to utilize "dependable and regular tax sources" and stated that "the state's constitutional duty goes beyond mere reading, writing and arithmetic." *See* JAY G. CHAMBERS, THE ISSUE OF ADEQUACY IN THE FINANCING OF PUBLIC EDUCATION: HOW MUCH IS ENOUGH? 55 (1982).
95. 1977 ex. s. c359 § 1. The act defined "basic education" in terms of broad educational goals and specified the minimum hours, days, and instructional programs that school districts were required to offer. The state assumed the responsibility for fully funding the newly defined basic education through an allocation formula based on a ratio of students to certificated staff, with additional compensation for books, supplies, utilities, and other specified costs. For details of the Washington legislation, see DIANE W. CIPOLLONE (CAMPAIGN FOR FISCAL EQUITY INC.), DEFINING A BASIC EDUCATION; EQUITY AND ADEQUACY LITIGATION IN THE STATE OF WASHINGTON, 10-11(1998).
96. Between 1976-1977 and 1989-1990, the share of state and local revenues received by districts educating the highest percentage of students eligible for free or reduced

lunches fell 4.9 percent, while the share of districts with the lowest percentage of such students rose 2.5 percent. Neil D. Theobald & Faith Hannah, *Ample Provision for Home? The Evolution of State Control Over School Finance in Washington*, 17 J. EDUC. FIN., 7, 222-225 (1991). The trial court, in a decision that was not appealed to the state Supreme Court, had at one point expanded the definition of "basic education" to include special education, and transitional bilingual, vocational, and remedial programs, as well as pupil transportation, but did not guarantee a specific level of funding. For a discussion of the implementation of the Basic Education Act, see Cippolone, *supra* note 96 at 17-21.

97. 790 S.W.2d 186 (Ky. 1989).
98. *Id.* at 197.
99. *Id.* at 212.
100. *Id.* at 212-213. The court also held, inter alia, that the state education system must be monitored by the legislature to ensure that there is no waste or mismanagement, and that the "General Assembly shall provide funding which is sufficient to provide each child in Kentucky an adequate education."
101. For a discussion of this process and the earlier public engagement activities on education reform that were led by the Prichard Committee, see Molly A. Hunter, *All Eyes Forward: Public Engagement and Educational Reform in Kentucky*, 28 J. L. & EDUC. 485 (1999).
102. *See id.*
103. *See McDuffy v. Secretary,* 615 N.E.2d 516, 554 (Mass. 1993), *Claremont v. Governor,* 703 A.2d 1353, 1359 (N.H. 1997).
104. *Leandro v. State,* 488 S.E.2d 249, 255 (N.C. 1997); The *Rose* decision also directly influenced the constitutional definitions adopted by the courts in Alabama and South Carolina. *See* Alabama Opinion of the Justice, 624 So.2d 107 (Ala. 1993); *Abbeville County Sch. Dist. v. State,* 515 S.E.2d 535 (S.C. 1999); *See also Unified Sch. Dist. No. 229 v. State,* 885 P.2d 1170, 1186 (Kan. 1994) (Noting the striking resemblance between *Rose* standards and standards enacted by Kansas legislature.)
105. *Idaho Sch. for Equal Educ. Opportunity v. Evans,* 850 P.2d 724, 734 (Idaho 1993); *see also Idaho Sch. for Equal Educ. Opportunity v. State,* 976 P.2d 913, 920 (Idaho 1998) (upholding new state board rules as being consistent with constitutional requirements). *See also Fair School Fin. Council v. State,* 746 P.2d 1135, 1149 (Okla. 1987) (holding that the constitution guarantees a "basic, adequate education according to the standards that may be established by the state Board of Education"); *Unified Sch. Dist No. 229 v. State*, 885 P.2d 1170, 1186 (Kan. 1994) (the court will use as a base for defining adequacy "the standards enunciated by the legislature and the state education department").
106. 917 S.W.2d 717, 730 (Tex. 1995)
107. *Claremont Sch. Dist. v. Governor,* 703A.2d 1353, 1358 (N.H. 1997).
108. *Id.* at 1359. For a detailed discussion of the legislature's handling of this charge in the context of strong pressures to limit state taxes and maximize local control, see DREW DUNPHY (CAMPAIGN FOR FISCAL EQUITY, INC.), *MOVING MOUNTAINS IN THE GRANITE STATE: SCHOOL FINANCE AND ADEQUACY REFORM IN NEW HAMPSHIRE* (2001).
109. *Abbott v. Burke,* 693 A.2d 417, 427 (N.J. 1997). "The standards provide achievement goals applicable to all students in seven core academic areas: visual and performing arts, comprehensive health and physical education, language-arts literacy, mathematics, science, social studies, and world languages. Infused throughout the seven core academic areas are five "cross-content workplace readiness standards," which are designed to incorporate career-planning skills, technology skills, critical-thinking skills, decision-making and problem-solving skills, self-management, and safety principles." *Id.* at 425 (citations omitted).

110. *Id.* at 428.
111. *Id.* at 429 ("Because [it] does not in any concrete way attempt to link the content standards to the actual funding needed to deliver that content, we concluded that [the act] is clearly inadequate and thus unconstitutional as applied to the special needs districts"). The court then ordered (at least as an interim remedy, pending a showing that a thorough and efficient education can be ensured through other means) spending for the poor districts at the same level as average spending in affluent districts, and additional supplemental programs to overcome educational disadvantages. *Id.* at 439.
112. The New York Court of Appeals, in a preliminary decision on a motion to dismiss, had issued a "template" definition of "the opportunity for a sound basic education" required by its state constitution. This definition included both substantive educational goals (basic skills "necessary to enable children to eventually function productively as civic participants capable of voting and serving on a jury") and specific resource essentials (including "minimally adequate facilities," "minimally adequate instrumentalities of learning," "sufficient personnel adequately trained to teach . . . up-to-date basic curricula"). These definitional concepts had not been suggested by either party to the litigation and had been developed by the court on its own initiative. In remanding the case for a trial to determine the extent to which children in New York City are actually being provided these opportunities, the court indicated that it was interested in a thorough adversarial analysis of these concepts at trial and that it would finally resolve the question of how a sound basic education should be defined, after reviewing the trial record, on a subsequent appeal. *Campaign for Fiscal Equity v. State,* 655 N.E.2d 661 (N.Y. 1995). The author is cocounsel for the plaintiffs in this case.
113. *Campaign for Fiscal Equity v. State,* 719 N.Y.S. 2d 475 (NY Sup Ct. 2001). The court stated that equating the constitutional requirement with a set of state regulations would "essentially define the ambit of a constitutional right by whatever a state agency says it is." *Id.* at 484.
114. Regents of the University of the State of New York, Learning Standards for English Language Arts Standard 1, Language for Information and Understanding: Listening and Reading. Commencement (Rev. ed. March 1996).
115. 719 N.Y.S.2d at 484.
116. Regents of the University of the State of New York, Learning Standards for Mathematics, Science and Technology, Standard 4 - Science, Commencement (Rev. ed. March 1996).
117. 719 N.Y.S.2d at 484.
118. *Hoke County Bd. of Educ. v. State,* 95 C.V.S. 1158, 2000 WL 1639686, slip op. at 30 (N.C. Sup. Ct. Oct. 12, 2000). This case is a follow-up to *Leandro v. State,* 488 S.C.2d 249 (N.C. 1997). In *Leandro*, the state supreme court defined the constitutional concept of a sound basic education and remanded the case for a trial to determine whether children in North Carolina were receiving an education that comported with those requirements.
119. *Id.* The New York court also ruled that art and physical education were beyond the scope of a sound basic education, but it also stated: "However, arts education and physical education are important means of supporting the teaching of other subject areas that are part of a sound basic education." 719 N.Y.S.2d at 500.
120. 719 N.Y.S.2d at 485. The North Carolina court similarly rejected the state's contention that performance "Level II" on the states "End of Grade" tests for grades 3 through 8 met constitutional requirements. Level II was defined as performance demonstrating "inconsistent mastery" of grade-level skills as set forth in the state's standard course of study. The court specifically held that "academic performance below grade level (Level II) is a constitutionally unacceptable minimal standard." *Hoke County*, slip op. at 18.
121. 719 N.Y.S.2d at 487.

122. *Id.* at 485.
123. *Id.* at 487.
124. *Id.* at 486.
125. George D. Brown, *Binding Advisory Opinions: A Federal Court's Perspective on State Court School Finance Decisions*, 35 B.C. L. REV 543, 567 (1994). Brown distinguished this new form of "dialogic" public law litigation in the state courts from the "managerial model" of the federal courts. *Id.* at 566.
126. *DeRolph v. State,* 677 N.E.2d 733, 745 (Ohio, 1997).
127. *Id.* at 744.
128. *Id.* at 747. In Arizona, where the core issue was capital facilities disparities, the Supreme Court enunciated guidelines for a new capital funding system emphasizing that: the baseline chosen must establish the level of funds necessary to (1) bring existing facilities up to an adequate standard; (2) construct new and adequate facilities for growing districts; and (3) maintain all capital facilities at the adequacy level. *Hull v. Albrecht,* 950 P.2d 1141, 1145 (Ariz. 1997).
129. *Campbell County Sch. Dist. v. State,* 907 P.2d 1238, 1279 (Wyo. 1995).
130. *Coalition for Adequacy and Fairness in Sch. Funding, Inc. v. Chiles,* 680 So.2d 400, 408 (Fla. 1996). A majority of the justices did agree that the constitution created a duty for the legislature to provide some minimal level of support for public education, which would, for example, be triggered if a county had a 30 percent illiteracy rate. *Id.* at 409 (Overton, J., concurring).
131. *See* Jon Mills & Timothy Mclendon, *Setting A New Standard for Public Education: Revision 6 Increases the Duty of the State to Make "Adequate Provision" for Florida Schools*, 52 FLA. L. REV. 329, 367 (2000).
132. FLA. CONST., art. IX, § 1. Public Education of Children.
133. Verstegen and Whitney, *supra* note 32.
134. *Vincent v. Voight,* 614 N.W.2d 388, 396 (Wis. 2000); *see also Robinson v. Cahill,* 303 A. 2d 273, 295 (N.J. 1973); *Pauley v. Kelly,* 255 S.E.2d 859, 877 (W.Va. 1979); *Seattle Sch. Dist. No. 1 v. State,* 585 P.2d 71, 94 (Wash. 1978); *Serrano v. Priest,* 487 P.2d. 1241, 1258-59 (Cal. 1971) (education is "crucial to . . . the functioning of democracy [and to] an individual's opportunity to compete successfully in the economic marketplace); *Edgewood Indep. Sch. Dist v. Kirby,* 777 S.W.2d 391, 395-96 (Tex. 1989)(citing intent of the framers of the education clause to diffuse knowledge "for the preservation of democracy . . . and for the growth of the economy"); *Claremont Sch. Dist. v. Governor,* 635 A.2d 1375, 1381 (defining constitutional duty in terms of preparing "citizens for their role as participants and as potential competitors in today's marketplace of ideas"); *Campbell Sch. Dist.v. State,* 907 P.2d 1238, 1259 (defining the core constitutional requirement in terms of providing students with "a uniform opportunity to become equipped for their future roles as citizens, participants in the political system, and competitors both economically and intellectually); *Campaign for Fiscal Equity, Inc. v. State,* 655 N.E. 2d 661, 666 (N.Y. 1995) (defining "sound basic education" in terms of preparing students to "function productively as civic participants capable of voting and serving on a jury," a definition that was further refined in the recent trial court decision (719 N.Y.S.2d 475 (N.Y. Sup. Ct. 2001) to include a specific reference to skills needed for "sustaining competitive employment"); *Abbeville County. Sch. Dist. v. State,* 515 S.E.2d 535, 540 (defining minimum adequacy inter alia, in terms of "fundamental knowledge of . . . history and governmental processes" and "vocational skills").
135. *Seattle Sch. Dist. No. 1 v. State,* 585 P.2d 71, 94 (Wash. 1978).
136. *Robinson v. Cahill,* 303 A. 2d 273 (1973)
137. *Campbell County Sch. Dist. v. State,* 907 P.2d 1238, 1274 (Wyo. 1995); *see also Leandro v. State,* 488 S.E.2d 249, 255 (N.C. 1997) (holding that the framers of the education clause

intended to allow students to "participate fully in society as it existed in his or her lifetime"); *Mc Duffy v. Secretary,* 615 N.E.2d 516, 555 (Mass. 1993) ("Our Constitution, and its education clause, must be interpreted 'in accordance' with the demands of modern society or it will be in constant danger of becoming atrophied") (citing *Seattle Sch. Dist. No.1 v. State,* 585 P.2d 71 (Wash. 1978)).

138. *See, e.g., Unified Sch. Dist. 229 v. State,* 885 P.2d 1170, 1186 (Kan. 1994) (noting a "striking resemblance" between legislative standards based on the goals of "preparing learners to live, learn and work in a global society" and constitutional definitions of adequate education in *Rose*, *Hunt* and *Abbott*); *Campaign for Fiscal Equity v. State,* 719 N.Y.S.2d 475, 487 (making explicit references to the reports of the national education summits and employers' and educators' perspectives).
139. *Claremont Sch. Dist. v. Governor,* 635 A.2d 1375, 1381 (N.H. 1993); *see also Seattle Sch. Dist. No. 1 v. State,* 585 P.2d 71 (Wash. 1978); Martin Carnoy, *Education Adequacy: Alternative Perspectives and Their Implications for Educational Finance*, 8 J. EDUC. FIN. 286, 288 (1982) ("[T]he notion that . . . level of achievement [defines adequacy] is historically defined. In 1920, the level may have been literacy; in 1950, it may have been an eighth grade reading level; in 1980 it probably would be thought of in terms of tenth to twelfth grade skills and some knowledge of algebra and geometry.")
140. *See Brigham v. State,* 692 A. 2d 384, 397 (Vt. 1997); *See also* William H. Clune, *The Shift from Equity to Adequacy in School Finance*, 8 EDUC. POL'Y 376 (1994) (describing the thrust of the cases as calling for a high minimum level).
141. Minorini and Sugarman, *supra* note 57 at 188.
142. 1996 NATIONAL EDUCATION SUMMIT POLICY STATEMENT; *see also*, ACHIEVE, INC., BENCHMARKING THE BEST, 3 (1999) ("Almost two-thirds of today's workforce needs advanced reading, writing , mathematical and critical thinking skills, compared to only 15 percent of workers just twenty years ago."); REPORT OF THE SECRETARY'S COMMISSION ON ACHIEVING NECESSARY SKILLS ("SCANS") (1991) (finding that students need much higher levels of technical skill and knowledge than in the past, including the ability to manage and comprehend complex texts and information); NATIONAL CENTER ON EDUCATION AND THE ECONOMY, AMERICA'S CHOICE: HIGHER SKILLS OR LOW WAGES (1990) (comparing skill levels of students graduating from American schools with graduates of other industrial nations and concluding that American workers need higher-level skills to be competitive).
143. *Abbeville County Sch. Dist. v. State,* 515 S.E.2d 535, 540 (Ala. 1999); *see also Rose v. Council for Better Educ.,* 790 S.W.2d 186 (Ky. 1989); *McDuffy v. Secretary,* 615 N.E.2d 516 (Mass. 1993), *Claremont Sch. Dist. v. Governor,* 635 A.2d 1375, 1381 (N.H. 1993), *Leandro v. State,* 488 S.E.2d 249 (N.C. 1997).
144. *Edgewood Indep. Sch. Dist. v. Kirby, 777* S.W.2d 391, 393 (Tex. 1989); *see also*, e.g., McDuffy, 615 N.E. 2d at 521 (comparing facilities, libraries, computers, staffing, etc., in specific poor and affluent school districts); *Abbott v. Burke,* 575 A. 2d 359, 395-396 (comparing, inter alia, availability of computers, science laboratories, and foreign language and advanced placement courses in rich and poor districts).
145. *Helena Elementary Sch. Dist. No. 1 v. State,* 769 P. 2d 684, 690 (Mont. 1989).
146. Deborah A. Verstegen, *Judicial Analysis During the New Wave of School Finance Litigation: The New Adequacy in Education*, 24 J. EDUC. FIN. 51, 67 (1998).
147. FLA. CONST. art IX, § 1.
148. This does not mean, however, that constitutional adequacy requirements are synonymous with current legislative or regulatory standards in any particular state. Constitutional criteria represent enduring fundamental values and principles; although their application will be influenced by contemporary needs, that need is assessed by the courts in terms of fundamental principles and not periodic legislative or administra-

tive policy revisions. *See also* discussion of *Campaign for Fiscal Equity v. State, supra* note 114.

149. *See* discussion, *supra* at 14.
150. Opinion of the Justices, 624 So.2d 107, 128 (1993). The Alabama trial court utilized three sets of state standards in determining that the state's schools were not providing an adequate education: the substantive educational standards set forth in the Alabama Education Improvement Act; state and regional accreditation standards; and indicators utilized by state officials, such as dropout rates, college remediation rates, and workforce preparation. *Id.* at 127. *See also* Martha I. Morgan, et al., *Establishing Education Program Inadequacy: The Alabama Example*, 28 U. MICH. J.L. Reform 559 (1995).
151. For a detailed discussion of the concepts of "equality of opportunity" and "equality of results" in American political history and in the evolution of federal desegregation doctrine, see MICHAEL A. REBELL AND ARTHUR R. BLOCK, EQUALITY AND EDUCATION: FEDERAL CIVIL RIGHTS ENFORCEMENT IN THE NEW YORK CITY SCHOOL SYSTEM, 3-33 (1985).
152. *See, e.g., Campaign for Fiscal Equity v. State,* 655 N.E.2d 661, 666 (N.Y. 1995) ("Performance levels on such examinations are helpful but should also be used cautiously as there are a myriad of factors which have a causal bearing on test results"); *Leandro v. State,* 488 S.E. 2d 249, 259-60 (N.C. 1997) (Holding that the "level of performance of the children of the state and its various districts on standard achievement tests" may be considered, but "they may not be treated as absolutely authoritative on this issue"); *see also* Linda Darling-Hammond, *Standards of Practice for Learner-Centered Schools*, in ROBERT BERNE AND LAWRENCE O. PICUS, OUTCOME EQUITY IN EDUCATION 191, 192-194 (1994) (discussing the limits of outcome data); Henry M. Levin, *Little Things Mean a Lot*, 8 EDUC. POL'Y 396 (1994) (discussing the lack of sufficient measurement tools to assess precisely the quality of education received by all students or the costs of reaching full substantive equality).
153. *See, e.g., Campaign for Fiscal Equity v. State,* 655 N.E.2d at 666 (articulating "education essentials" required to provide the opportunity for a sound basic education in terms of "minimally adequate physical facilities," "instrumentalities of learning," sufficient numbers of adequately trained teachers, etc.); *see also* Gary Orfield, *Asking the Right Question*, 8 EDUC. POL'Y 404 (1994) (discussing minimum prerequisites that schools should provide for "fair minimum standards of opportunity," rather than for "equal education"); W. Steven Barnett, *Obstacles and Opportunities: Some Simple Economics of School Finance Reform*, 8 EDUC. POL'Y 436, 444-445 (arguing for cost-benefit analysis of reforms that make substantial difference in the educational performance of poor students); Richard F. Elmore, *Thoughts on Program Equity: Programs and Incentives for Equity in Education*, 8 EDUC. POL'Y 453 (same).
154. *See, e.g. Vincent v. Voight,* 614 N.W. 2d 388, 397 (Wis, 2000). (requiring legislature to "take into account districts with disproportionate numbers of disabled students, economically disadvantaged students and students with limited English language skills"); *Campaign for Fiscal Equity v. State,* 719 N.Y.S.2d 475 (N.Y. Sup. Ct. 2001) (further elaborating on the education essentials required for a sound basic education by, inter alia, emphasizing the need for "adequate resources for students with extraordinary needs" and an expanded platform of programs for at risk students; *Hoke County Bd. of Educ. v. State,* 95 C.V.S. 1158, 2000 WL 1639686, slip op. at 30 (N.C. Sup. Ct. Oct. 12, 2000) (holding that at-risk students are constitutionally entitled to a preschool education); *Hull v. Albrecht*, 950 P.2d 1141, 1145 (Ariz. 1997) (requiring the state to provide financing sufficient to provide the facilities and equipment necessary "to enable students to master the [state's] educational goals").
155. *Wisconsin v. Yoder,* 406 U.S. 205, 221 (1972)
156. ALEXIS DE TOCQUEVILLE, DEMOCRACY IN AMERICA 329 (Vintage 1961).

157. *See, e.g.*, ROGERS M. SMITH, CIVIC IDEALS: CONFLICTING VISIONS OF CITIZENSHIP IN U.S. HISTORY (1997) (discussing systematic exclusion of women, minorities, and working-class people from exercise of the franchise); *Thiel v. Southern Pacific County,* 328 U.S. 217, 222 (1946) (discussing systematic exclusion from jury lists of those who work for a daily wage); T*aylor v. Louisiana,* 419 U.S. 522, 538 (1975) (discussing systematic exclusion of women from jury rolls).
158. *Rodriguez v. San Antonio Indep. Sch. Dist.,* 411 U.S. 1, 36.
159. MICHAEL SCHUDSON, THE GOOD CITIZEN: A HISTORY OF AMERICAN CIVIC LIFE 8 (1998).
160. *See, e.g.*, AMY GUTMANN, DEMOCRATIC EDUCATION 134 (1987) (asserting that inequalities in distribution of educational goods can be justified only if they do not deprive any child of the ability to participate effectively in the democratic process.)
161. Research and analysis and the drafting of the standards in New York was conducted by seven different curriculum committees, one for each key area of the school curriculum. The members of these committees included teachers, principals, experts in the disciplines from higher education, and also people from public life—from the professions, unions, business, and industry. An overarching Council on Curriculum and Assessment oversaw and coordinated the work of the separate committees. Memorandum from Thomas Sobol, New York State commissioner of education, to the New York Board of Regents: Implementing a New Compact for Learning: Strategic Plan 2 (1991). Throughout the drafting process, New York's state education department and Thomas Sobol, the commissioner of education, maintained ongoing communications on standards developments with their counterparts in other states and with the New Standards Project, of which Commissioner Sobol was, at the time, the chair. Testimony of Commissioner Sobol in *Campaign for Fiscal Equity v. State,* 719 N.Y.S.2d 475 (N.Y. Sup. Ct. 2001) (Record at pp.1020:23-1022:13). For a summary of a comparable standards development process in the State of North Carolina, see *Hoke County Bd. of Educ. v. State,* 95 C.V.S. 1158, 2000 WL 1639686, slip op. at 30 (N.C. Sup. Ct. Oct. 12, 2000).
162. THE NEW YORK STATE CURRICULUM AND ASSESSMENT COUNCIL, LEARNING CENTERED-CURRICULUM ASSESSMENT FOR NEW YORK CITY. (1994) at 8-9, 63-65; Testimony of Linda Darling Hammond in *Campaign for Fiscal Equity v. State,* 719 N.Y.S.2d 475; Record at pp. 6472:12-6473:17. The council also fully considered evidence on workplace skills such as the 1991 SCANS report (*see* discussion at *supra*) and stated that one of the primary purposes of the extensive standards development process they undertook was to identify the "higher-levels of technical as well as reasoning and analytical skills that workers *need* to function." *Id.* at 6460: 19-21.
163. *Rose v. Council for Better Educ.,* 790 S.W.2d 186, 212 (Ky. 1989).
164. See discussion *supra* note 113.
165. *Campaign for Fiscal Equity v. State,* 719 N.Y.S.2d 475; Record at pp. 6484, 6489. Richard Jaeger, a psychometrician and professor at the University of North Carolina, Greensboro, also testified that in order to comprehend ballot propositions on subjects like budget issues, voters need analytic, synthesizing, and evaluative skills that are properly assessed by the Regents examinations and that are based on the learning standards. *Id.* at 13452 - 13460. Henry Levin, an educational economist and professor at Teachers College, Columbia University, testified that the kinds of reasoning, communication, problem-solving, decision-making, informational, and other skills that are needed in the contemporary workplace are also specifically incorporated into the Regents learning standards. *Id.* at 12107 - 12117.
166. *Id.* at p. 6516.
167. *Id.* at p. 6517.
168. *Id.* at pp. 6522-6524;6528-6534.

169. *See People v. Guzman*, 555 N.E.2d 259, 261 (N.Y. 1990) ("At a minimum, a juror must be able to understand all of the evidence presented, evaluate that evidence in a rational manner, communicate effectively with the other jurors during deliberations, and comprehend the applicable legal principles, as instructed by the court.")
170. *Campaign for Fiscal Equity v. State,* 719 N.Y.S.2d 475; Record at pp.16874, 16878-79. 16886, 16888-89; Defendants Exhibit No. 19290, ("Primary News Sources in Presidential and Congressional Campaigns, U.S., 1996.") Defendants Exhibit No. 19293; (Percentage of People who Watch Network News Two or More Times Weekly by Education Level, U.S., 1983).
171. *Campaign for Fiscal Equity v. State,* 719 N.Y.S.2d 475; Record at pp. 17182-17183. The plaintiffs argued that Walberg's analysis relied on reading scales that focus on sentence length and other mechanical factors, rather than on the cognitive level of the materials being reviewed, and that by doing so he reached the implausible conclusion that the New York Times and the New York Daily News have essentially the same level of reading difficulty. They also charged that Walberg analyzed only selected parts of the jury documents that the plaintiffs' witnesses had reviewed, and he omitted precisely those materials that would have called for the highest level of reading skills. *Id.* at pp. 17185, 17201, 17215; 17317-17321, 17335-336. Walberg did not undertake any readability analysis of the ballot that Darling-Hammond had analyzed. *Id.* at p. 17329.
172. "If one person didn't understand something, perhaps another person could help them." *Id.* at 17220.
173. *Campaign for Fiscal Equity v. State,* 719 N.Y.S.2d 475, 485 (N.Y. Sup. Ct. 2001).
174. *See id.* at 485. ("The Court of Appeals invoked voting and jury service as synecdoches for the larger concept of productive citizenship. . . . Productive citizenship means more than just being *qualified* to vote or serve as a juror, but to do so capably and knowledgeably. It connotes civic engagement"); *cf Claremont Sch. Dist. v. Governor,* 635 A.2d 1375, 1381 (N.H. 1993) ("a free government is dependent for its survival on citizens who are able to participate intelligently in the political, economic and social functions of our system").
175. Many citizens also do not vote or serve on juries because they feel disengaged or are cynical about the current political system. America's voter participation rate—48.9 percent in the 1996 presidential election (down from 62.8 percent in 1960)—ranks below 22 other established democracies. ROBERT D. PUTNAM, BOWLING ALONE: THE COLLAPSE AND REVIVAL OF AMERICAN COMMUNITY 31-31 (2000). Putnam explains the substantial decline in civic participation in America in recent years in terms of a rapid decline in "social capital." He recommends improved civic education in schools as one route for restoring such social capital. Id at 405.
176. *See, e.g.*, MOLLY SELVIN AND LARRY PICUS, THE DEBATE OVER JURY PERFORMANCE: OBSERVATIONS FROM A RECENT ASBESTOS CASE 45-46 (1987), ARTHUR D. AUSTIN, COMPLEX LITIGATION CONFRONTS THE JURY SYSTEM: A CASE STUDY (1984); William C. Thompson, *Are Juries Competent to Evaluate Statistical Evidence?* 52 LAW & CONTEMP. PROB. 9, 24-41 (1989).
177. "If the jury has an Achilles heel, it is the comprehension of legal instructions." Joe S. Cecil et al., *Citizen Comprehension of Difficult Issues: Lessons from Civil Jury Trials*, 40 AM. UNIV. L. REV. 727, 749 (1991). The authors cite a recent in-depth examination of jury decision making in complex cases by the Litigation Section of the American Bar Association, which found significant juror difficulty in understanding and applying judicial instructions and substantial variability in juror comprehension between cases and among jurors. *Id.* at 752-754; *see also*, *e.g.*, Franklin Strier, *The Educated Jury: A Proposal for Complex Litigation* 47 PAUL L. REV 47, 53 (discussing studies indicating that pattern jury instructions are difficult for juries to understand); AUSTIN, *supra* note 178 at 84-85 (case study of two separate juries in antitrust litigation found that "their comprehen-

sion level of the instructions was very low, if not nonexistent"); Robert E. Litan, *Introduction* to VERDICT: ASSESSING THE CIVIL JURY SYSTEM 11, 18 (Robert W. Litan ed., 1993) ("whereas juries appear to be at fault for misplaced verdicts, the principal culprit seems to be difficulty in understanding the legal instructions, a problem that is found in complex and noncomplex cases").

178. Warren E. Burger, *The Use of Lay Jurors in Complicated Civil Cases*, Remarks to the Conference of State Chief Justices (3-5) (Aug 7, 1979) (asserting that technical evidence is too complex for lay juries); *see also* Warren E. Burger, *Agenda for Change*, 54 JUDICATURE 232, 235 (1971) (recommending consideration of use of experts to assist judges in complex cases); Sperlich, *The Case for Preserving Trial by Jury in Complex Civil Litigation*, 65 JUDICATURE 394, 397 (1982) (discussing Chief Justice Burger's concern and its impact).
179. *Burger Suggests Waiving Juries in Complex Civil Trials*, NAT'L L.J., Aug.13, 1979, at 21.
180. *See, e.g.*, William Luneberg & Mark A. Nordenberg, *Specially Qualified Juries & Expert Nonjury Tribunals: Alternatives for Coping with the Complexities of Modern Civil Litigation*, 67 VA. L. REV. 887, 945-50 (1981); Mark A. Nordenberg & William Luneberg, *Decision-Making in Complex Federal Civil Cases: Two Alternatives to the Traditional Jury*, 65 JUDICATURE 420, 425-27 (1982) (proposing that jurors in complex cases be required to hold a college degree); Strier *supra* note 179.
181. *See, e.g.*, *In re* Japanese Elec. Prods Antitrust Litig., 631 F.2d 1069, 1084 (3rd Cir. 1980, (denying right to jury in complex litigation); *Bernstein v. Universal Pictures,* 79 F.R.D. 59 (S.D. N.Y, 1978) (same); *But see In re* U.S. Financial Securities Litig., 609 F.2d 411 (9th Cir. 1979) (holding that there is no complexity exception to the Seventh Amendment); *see also Ross v. Bernhard* 396 U.S. 531, 538 n. 10 (noting that in determining whether an issue was of a legal nature and therefore jury triable, courts should consider "the practical abilities and limitations of juries"); Note, *The Right to a Jury Trial in Complex Civil Litigation*, 92 HARV. L. REV 898 (1979).
182. 28 U.S.C. § 1861. The act states that "it is the policy of the United States that all litigants in federal courts entitled to trial by jury shall have the right to grand and petit juries selected at random from a fair cross-section of the community." This right was apparently extended to the states by *Taylor v. Louisiana*, 419 U.S. 522, 528 (1975), at least in regard to criminal cases. But *cf. United States v. Potter* 552 F.2d 901, 905 (9th Cir. 1977) (holding that "the less educated" are not a "cognizable group" entitled to the constitutional protections); *United States v. Butera,* 420 F.2d 564, 571 (1st. Cir 1970) (indicating that the "less educated" are a distinctive group).
183. *See, e.g.*, Batson v. Kentucky, 476 U.S. 79 (1986) (a black defendant may challenge prosecutors' use of peremptory challenges against racial minorities); *Taylor v. Louisiana,* 419 U.S. 522 (1975) (banning exclusion of women as a class from jury service).
184. *Moore v. New York*, 333 U.S. 565, 570 (1948). The New York elite jury panel practice had previously been upheld by the Court in *Fay v. New York*, 332 U.S. 261 (1946). As late as 1967, 60 percent of federal courts still relied heavily on blue ribbon juries (results of a 1967 survey of federal courts cited in JEFFREY ABRAMSON, WE, THE JURY: THE JURY SYSTEM AND THE IDEAL OF DEMOCRACY 99 (1994). Juries have historically played a more critical role in America than in other nations, including England. In colonial days, the colonists relied on the jury to restrain governmental excesses, as in the Peter Zenger trial, and juries played an important role in keeping the judicial branch independent. In the 19th century, they were an important counterforce to probusiness judges. For an overview discussion of the historical role of American juries, see Stephan Landsman, *The History and Objectives of the Civil Jury System*, in Verdict, *supra* note 179 at 22. *See also*, LEONARD W. LEVY, THE PALLADIUM OF JUSTICE; ORIGINS OF TRIAL BY JURY (1999). De Toqueville also noted the important role juries play in training citizens in the democratic virtues:

> It teaches men to practice equity; every man learns to judge his neighbor as he would himself be judged. And this is especially true of the jury in civil causes; for while the number of persons who have reason to apprehend a criminal prosecution is small, everyone is liable to have a lawsuit. . . . It invests each citizen with a kind of magistry; it makes them all feel the duties which they are bound to discharge towards society and the part which they take in its government. By obliging men to turn their attention to affairs of their own, it rubs off that private selfishness which is the rust of society.
>
> DE TOCQUEVILLE, *supra* note 158 at 295.

185. *See, e.g.*, R. Lempert, *Civil Juries and Complex Cases: Taking Stock After 12 Years*, in VERDICT *supra* note 179; Steven A. Saltzburg, *Improving the Quality of Jury Decision-Making*, in VERDICT, *supra* note 179 at 341, Barbara Allen Babcock, *Jury Service and Community Representation*, in VERDICT, *supra* note 179 at 460. In a 1989 survey, 58 percent of federal judges and 66 percent of state court judges disagreed with the proposition that "in complex civil cases, there should be some minimum level of education or qualifications to avoid jurors who cannot understand the case." Louis Harris & Associates, Inc., *Judges' Opinions on Procedural Issues: A Survey of State and Federal Trial Judges Who Spend at Least Half Their Time on General Civil Cases*, 69 B.U. L. REV. 731, 747 (1989).
186. HARRY KALVEN, JR. & HANS ZEISEL, THE AMERICAN JURY 149 (2d ed., 1971). Kalven and Zeisel's study was based on questionnaires concerning a sample of approximately 3,500 criminal jury trials conducted in the mid-1950s. Among other things, the researchers asked presiding judges how they would have decided cases and found that the actual verdicts reached by the juries corresponded to the judges' views in 78 percent of the cases. *Id.* at 63. Judge-jury disagreements tended to be on issues of community values and not on factual issues. *Id.* at 116; *see also*, JOHN GUINTHER, THE JURY IN AMERICA 208-209 (1988) (stating that heterogenous juries recognize and offset each others' biases).
187. Strier, *supra* note 179 at 55; *See* notes 178-182, *supra*.

Appendixes

A

Conference and Workshop Agendas

MILLENNIUM CONFERENCE:
ACHIEVING HIGH EDUCATIONAL STANDARDS FOR ALL

The National Academies
Washington, DC
September 21-22, 2000

Thursday, September 21

9:00 Introductory Remarks
Barbara Torrey, The National Academies
Judith Winston, General Counsel and Deputy Secretary,
U.S. Department of Education
Christopher Edley, Jr., Harvard University, and
Catherine E. Snow, Harvard University, Co-Moderators

9:30 Keynote Address: Educational Access and Opportunity
Edmund Gordon, Yale University

Session I Opportunity and Achievement at the Threshold of the 21st Century

Catherine E. Snow, Moderator

10:00 Educational Achievement Trends of Minority Students Since *Brown v. Board of Education*
Marta Tienda, Princeton University
Coauthors: Kim Lloyd and Anna Zajacova, Princeton University

10:45 Educational Prospects and Progress of Minority and Disadvantaged Students
Patricia Gándara, University of California, Davis
Min Zhou, University of California, Los Angeles
L. Scott Miller, eHigherEducation
Samuel Lucas, University of California, Berkeley

12:00 Discussion

12:30 Lunch

Session II Promoting Educational Achievement for All Students

Christopher Edley, Moderator

1:30 How People Learn
John Bransford, Vanderbilt University

2:10 Early Childhood Education
Barbara Bowman, Erikson Institute

2:30 Learning to Read
Catherine E. Snow, Harvard University

2:50 Discussion

3:20 Promoting Educational Success: Social and Cultural Considerations
Craig Ramey, University of Alabama
Eugene Garcia, University of California, Berkeley
Claude Steele, Stanford University
Antoine Garibaldi, Educational Testing Service

4:20 Discussion

5:00 Adjournment

Friday, September 22

Session III Using Policy Interventions to Raise Achievement

Christopher Edley, Moderator

9:00 Policy as a Tool to Raise Educational Achievement
Ronald Ferguson, Harvard University

9:45 Policy Tools

Educational Adequacy
Jacob Adams, Vanderbilt University
Michael Rebell, The Campaign for Fiscal Equity

Standards, Accountability and High-Stakes Testing
Jay Heubert, Columbia University

Resegregation and School Choice
Gary Orfield, Harvard University

11:15 Discussion

Session IV Putting It Into Practice: Challenges and Successes of Research-Based Reform

Catherine E. Snow, Moderator

11:45 Improving the Academic Achievements of Historically Low-Achieving Students: What We Know and What We Need to Learn
Samuel Stringfield, Johns Hopkins University

12:15 Lunch

1:15 Organizing Districts for Effort-Based Reform
Lauren Resnick, University of Pittsburgh
Diana Lam, Providence Public Schools

2:00 Reforming Mathematics in an Urban School Setting
Diane Briars, Pittsburgh Public Schools
Brian Lord, Education Development Center

2:45 Whole-School Reform
Robert Slavin, Success for All Foundation
Bertha Rubio, Crockett Elementary School, San Antonio, TX

3:30 Discussants
Barbara Foorman, University of Texas
Michael Klentschy, El Centro School District, CA
Carmen Varela Russo, Baltimore City Public Schools, MD

4:15 Wrap It Up and Take It Home
Christopher Edley, Jr., and Catherine E. Snow, Co-Moderators

5:00 Adjournment

TECHNICAL ASSISTANCE/CAPACITY BUILDING WORKSHOP

The National Academies
Washington, DC
April 14-15, 2000

Friday, April 14

9:00 Opening Remarks, Introduction of Cochairs
Faith Mitchell, Director, Division on Social and Economic Studies
Cora Marrett, Vice Chancellor for Academic Affairs and Provost, University of Massachusetts
Catherine E. Snow, Henry Shattuck Professor of Education, Harvard University, Graduate School of Education

9:15 Providing Focus, The Purpose of the Workshop
C. Kent McGuire, Assistant Secretary, Education Research and Improvement, U.S. Department of Education

9:30 Supporting Teachers, Improving Teaching Practices
Annemarie Palincsar, Professor, University of Michigan, School of Education

10:00 Discussion

10:15 Break

10:30 Technical Assistance for Teaching with Technology
Robert Tinker, President, Concord Consortium
Louis Gomez, Associate Professor of Education and Social Policy, School of Education and Social Policy, Northwestern University

11:30 Discussion

12:00 Lunch

12:45 From Research to Practice—Scaling Up Technical Assistance
Barbara Foorman, Professor and Director, Center for Academic and Reading Skills
Reading is a Civil Right
Phyllis Hunter, Consultant, Texas Statewide Reading Initiatives

1:45 Discussion

2:15 Providing Technical Assistance for Specific Curricula
Sheila Sconiers, Director, The Alternatives for Rebuilding Curricula Center (ARC), Consortium for Mathematics and Its Applications (COMAP, Inc.)
Sally Goetz Shuler, Deputy Director for External Relations, Development, and Outreach, National Science Resources Center, and Coprincipal Investigator for the Leadership and Assistance for Science Education Reform (LASER) Initiative

3:15 Discussion

3:45 Break

4:00 Success for All: Technical Assistance Through a Scripted Curriculum
Robert Slavin, Chairman, Success for All Foundation and Codirector, Center for Research on the Education of Students Placed at Risk, Johns Hopkins University

4:30 A Regional TA Provider's Strategies for Supporting States, Districts, and Schools to Effect Comprehensive and Ongoing School Improvement
Wende Allen, Director, New England Comprehensive Assistance Center

5:00 Discussion

5:30 Adjournment

Saturday, April 15

9:15 Summary, Previous Day's Proceedings
Cora Marrett and Catherine E. Snow, Co-Moderators

9:45 Technical Assistance: What Do We Know? What We Need to Learn?
David K. Cohen, John Dewey Collegiate Professor of Education and Professor of Public Policy, University of Michigan, School of Education

10:30 Break

10:45 Discussion

12:00 Lunch

1:00 Recommendations for Technical Assistance—A Framework

2:00 Adjournment

ACHIEVING HIGH EDUCATIONAL STANDARDS FOR ALL: THE ROLE OF THE LAW

The National Academies
Washington, D.C.
June 29-30, 2000

Thursday, June 29

9:00 Opening Remarks
Alexandra Wigdor, CBASSE Deputy Director, National Research Council
Judith A. Winston, General Counsel, U.S. Department of Education

9:20 Workshop Objectives

Making Connections: Educational Adequacy, Accountability, Assessment, and Systemic Reform
Jacob Adams, Associate Professor of Education and Public Policy, Peabody College, Vanderbilt University

Improving Collaboration Between Lawyers, Educators, and Scholars
Jay Heubert, Associate Professor of Education, Teachers College, Columbia University, Adjunct Professor of Law, Columbia Law School

Educational Equity and Adequacy

9:50 State Constitutional Issues

The Paradigm Shift
Jacob Adams, Associate Professor of Education and Public Policy, Peabody College, Vanderbilt University

Developing New School Finance Systems: A New Era
James Smith, President, Management Analysis and Planning, Inc.

Respondent: Betsy Levin, Visiting Professor of Law, Nova Southeastern Law School, Ft. Lauderdale, FL

11:00 Discussion

11:30 Break

11:45 Emerging Issues

Title VI
Judith Winston, General Counsel, U.S. Department of Education
Scott Palmer, Deputy Assistant Secretary, Office for Civil Rights, U.S. Department of Education

12:30 Discussion

1:00 Lunch

2:00 Adequacy, Democracy, and Standards-Based Reform
Michael Rebell, Executive Director and Counsel, The Campaign for Fiscal Equity

Respondent: William Taylor, Cochair of Citizens Commission on Civil Rights

3:00 Discussion

3:30 Break

3:45 Enforceable Performance Mandates in Federal Education Statutes
Paul Weckstein, Codirector, Center for Law and Education

4:30 Discussion

5:00 Adjournment

Friday, June 30

High-Stakes Testing

9:00 Principles of Appropriate Test Use: Widely Accepted, Sometimes Ignored
William Trent, Professor of Educational Policy Studies and Sociology, University of Illinois, Urbana-Champaign
Art Coleman, Counsel, Nixon Peabody LLP
Jay Heubert, Associate Professor of Education, Teachers College

10:00 Discussion

10:30 Break

l0:45 From Test Scores to Improved Achievement
Lorraine McDonnell, Professor and Chair, Department of Political Science, University of California at Santa Barbara

Respondents:
Jennifer O'Day, Assistant Professor of Educational Policy Studies, University of Wisconsin, Madison
Julie Underwood, General Counsel, National School Boards Association
Lois Gray, Superintendent, Hardin County, Kentucky

11:45 Discussion

12:15 Working Lunch: Assessment of Students with Disabilities: Policy and Legal Issues
Margaret J. McLaughlin, Associate Director, Institute for the Study of Exceptional Children

Respondents:
Lorraine McDonnell, Professor, University of California at Santa Barbara
Ken Warlick, Director, Office of Special Education Programs, U.S. Department of Education

1:15 Discussion

1:45 Implications for Policy and Practice
Jacob Adams and Jay Heubert, Moderators

2:15 Millennium Conference Recommendations
Jay Heubert and Jacob Adams, Moderators

3:15 Adjournment

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Biographical Sketches of Conference Presenters

Jacob E. Adams, Jr., is associate professor of education and public policy at George Peabody College, Vanderbilt University, and a research fellow with the Peabody Center for Education Policy. His research focuses on ways in which school finance and accountability policies and implementation practices shape school capacity.

Barbara T. Bowman is a founding faculty member of the Erikson Institute for Advanced Study in Child Development in Chicago. Her specialty areas are early education, cultural diversity, and the education of at-risk children. In addition to teaching, Bowman has directed a wide range of projects, including ones for Head Start teachers, caregivers of infants at risk for morbidity or mortality, teachers on American Indian reservations, and the Child Development Associates program. Her most recent work has been with the Chicago Public Schools, in which she provided in-service education for teachers in inner-city neighborhoods. She was a member of the National Research Council's Committee on the Prevention of Reading Difficulties in Young Children and chaired its Committee on Early Childhood Pedagogy.

John D. Bransford is centennial professor of psychology and co-director of the Learning Technology Center at George Peabody College, Vanderbilt University. He is also a senior research scientist at the University's John F. Kennedy Center and senior fellow at the Institute of Public Policy Studies. His research has focused primarily on the nature of thinking and learning

and their facilitation, with special emphasis on the importance of using technology to enhance learning. He chaired the National Research Council's Committee on Developments in the Science of Learning and currently chairs the follow-on Committee on How People Learn—Targeted Report for Teachers.

Diane Briars is director of mathematics for the Pittsburgh Public Schools and the co-director of PRIME, the Pittsburgh Reform in Mathematics Education Project. As such, she is responsible for all aspects of the K-12 mathematics program, including curriculum and assessment development, professional development, and the development of special programs. The major focus of current district work is implementation of standards-based instruction and assessment, as called for in the National Council of Teachers of Mathematics standards documents.

Christopher Edley, Jr. *(Co-Moderator)*, is professor of law at Harvard University and founding co-director of The Civil Rights Project, a Harvard-based think tank. He is widely known for his work related to civil rights and education and has a long history of public service. He served as senior advisor to President Clinton for the Race Initiative. He is a member of the National Research Council's Board on Testing and Assessment.

Ronald F. Ferguson is a lecturer in public policy at the John F. Kennedy School of Government and a senior research associate at the Malcolm Wiener Center for Social Policy Research, Harvard University. He has written numerous publications and research reports on education, youth development programming, community change, economic consequences of skill differences, and state and local economic development. He is a member of the National Research Council's Committee on Community-Level Programs for Youth and its Board on Testing and Assessment.

Barbara R. Foorman is professor of pediatrics and director of the Center for Academic and Reading Skills at the University of Texas-Houston Health Science Center, and principal investigator of the NICHD-funded grant "Early Interventions for Children with Reading Problems." She was a member of the National Research Council's Committee on the Prevention of Reading Difficulties in Young Children.

Patricia Gándara is professor of education at the University of California, Davis, and associate director of the Linguistic Minority Research Institute for the University of California system. Her research focuses on issues of educational equity, particularly as it relates to underrepresented and limited English proficient students. Among her current projects is a study of

the formation of educational aspirations across ethnic groups in rural and urban high schools.

Eugene Garcia is professor of education at the University of California, Berkeley. He is also Dean of the Graduate School of Education. His research is in linguistic and cultural diversity in schools. From 1993 to 1995 he served as the director of the Office of Bilingual Education and Minority Language Affairs at the U.S. Department of Education where he played a major role in the re-authorization of several key pieces of federal legislation.

Antoine Garibaldi is a senior fellow at the Educational Testing Service, where his research and programmatic work are devoted to assessment and testing, teacher education, graduate education, and improving the academic performance of all students. In addition to his more than 20 years of experience in higher education and the federal government, he also has held teaching and administrative positions in elementary and secondary education.

Edmund W. Gordon is serving as acting dean at Teachers College, Columbia University. Until his retirement in 1991, he held a primary appointment as John M. Musser professor of psychology and secondary appointments as professor, Institution of Social and Policy Studies, professor of child psychology, Child Study Center, and professor of epidemiology and public health, at Yale University. His research is on diverse human characteristics and pedagogy and the education of the low-status populations.

Jay P. Heubert is associate professor of education at Teachers College, Columbia University, and adjunct professor of law at Columbia Law School. His current research involves how promotion and graduation testing affects student learning and dropout rates, particularly for students of color, English-language learners, and students with disabilities. He was study director for the National Research Council's Committee on Appropriate Test Use and is a member of its Committee on Educational Excellence and Testing Equity.

Michael Klentschy is superintendent of the El Centro School District in El Centro, California. He also is an instructor at San Diego State University Graduate School of Education, where he teaches and conducts research on alternate forms of assessment in elementary science. He is the principal investigator for the Valle Imperial Project in Science Local Systemic Change, funded by the National Science Foundation.

Diana Lam is superintendent of the Providence Public School District in Providence, Rhode Island. Since 1992, she also has served as senior adviser and consultant with Expeditionary Learning Outward Bound. As principal designer of this program, she has been a consultant to school sites implementing expeditionary learning in Boston, Denver, New York, and San Antonio. She has been involved in a number of research projects implementing school reform and has served on the National Research Council's Committee on Education Finance.

Kim M. Lloyd is a National Institutes of Health postdoctoral research fellow at Princeton University. Her research focuses on social inequality and family structure. She and Marta Tienda were recently awarded a research grant from the Ford Foundation to investigate the long-term implications of the elimination of race-sensitive college admission criteria in the state of Texas and its subsequent replacement with the "Top 10 Percent" plan.

Brian Lord is co-director of the Center for Professional Communities in Education at EDC, a research and development organization in Newton, Massachusetts. He has conducted research on the costs and configurations of professional development in urban school districts and on curriculum implementation and changes in teachers' practice (with Diane Briars). He is currently leading a three-year study of models of teacher leadership in the National Science Foundation's Urban Systemic Initiatives.

Samuel R. Lucas is associate professor of sociology at the University of California, Berkeley. His research interests include education and social stratification, racial disparities in academic tracking, and standardized testing. With his collaborator, Mark Berends, he is completing a cross-time comparative analysis of tracking in the United States. He is a member of the National Research Council's Committee on Minority Representation in Special Education.

L. Scott Miller is executive director for public service programs at e-Higher Education in New York City. Previously he was the director of the National Task Force on Minority High Achievement, a three-year initiative of the College Board designed to address the continuing underrepresentation of black, Hispanic, and Native Americans among top students at all levels of the educational system.

Gary Orfield is the director of the Harvard Project on School Desegregation, and co-director of the Harvard Civil Rights Project, which is devel-

oping and publishing a new generation of research on multiracial civil rights issues. His central interest has been the development and implementation of social policy, with a central focus on the impact of policy on equal opportunity for success in American society. Recent works include studies of changing patterns of school desegregation and the impact of diversity on the educational experiences of law students.

Craig Ramey is university professor of psychology, pediatrics, and neurobiology and director of the Civitan International Research Center at the University of Alabama at Birmingham. His research involves the study of factors affecting the development of intelligence, academic achievement, and social competence in young children. During the past 30 years, he has led numerous research and development teams and has won professional and civic awards for his work on the prevention of intellectual disabilities and for exemplary early childhood education programs. He is currently focusing on the successful transition to school and the creation of a new generation of early childhood education, health, and family support programs. He is a member of the National Research Council's Committee on Minority Representation in Special Education.

Michael A. Rebell is executive director for the Campaign for Fiscal Equity, Inc., a not-for-profit corporation that is a coalition of parent and advocacy groups, community school boards, and concerned citizens that seeks to reform the present methods for allocating city, state, and federal education funds to public school students in the City and State of New York. His research has focused on the areas of special education litigation, implementation of equal educational opportunity mandates, the role of the courts in educational policy making, and Title VII cases dealing with test validation issues and implications. Currently he is conducting research on remedies concerning fiscal equity reform implemented in 10 different states.

Lauren Resnick is professor of psychology at the University of Pittsburgh, and director and senior scientist at the Learning Research and Development Center (LRDC), also at the University of Pittsburgh. LRDC researchers have been studying learning and the teaching of basic cognitive skills since 1963. Dr. Resnick has been involved in a number of educational reform research projects across the country. She was a member of the National Research Council's Committee on Title I Testing and Assessment.

Bertha Rubio has been a principal at Crockett Elementary School in San Antonio since 1993. Previously she served as an assistant principal, guid-

ance counselor, bilingual teacher, supervisor of an adult education program, and teacher of English as a second language to adults.

Carmen Varela Russo is chief executive officer of the Baltimore City Public Schools. Previously she was associate superintendent of the Broward County (FL) Public Schools, where she was responsible for educational programs, technology, strategic planning, and accountability. She began her career as a teacher in New York City, served as principal of Morris High School in the South Bronx, went on to serve as superintendent of schools in the Bronx, and then chief executive for all of New York City's high schools. She has been recognized for her success in improving student achievement by restructuring schools and providing practical professional development to teachers and administrators.

Robert E. Slavin is co-director of the Center for Research on the Education of Students Placed at Risk at Johns Hopkins University and chairman of the Success for All Foundation. Dr. Slavin is a co-researcher and developer of Success for All, a comprehensive restructuring program for elementary schools currently in use in over a thousand schools across the country. The program emphasizes prevention of and early intervention for learning difficulties.

Catherine E. Snow *(Co-Moderator)* is the Henry Lee Shattuck professor of education at the Harvard Graduate School of Education. Her research involves the areas of language and literacy acquisition, as well as second-language acquisition and bilingualism. She has held teaching or research positions at Erasmus University and the University of Amsterdam in the Netherlands, at the University of Cambridge in England, at Hebrew University in Jerusalem, and at Universidad Autonoma in Madrid. She chaired the National Research Council's Committee on the Prevention of Reading Difficulties in Young Children.

Claude Steele is professor of psychology at Stanford University since 1991, and before that served on the faculties of the University of Michigan, the University of Washington, and the University of Utah. His research involves the processes of self-evaluation, especially in how people cope with self-image threat. This work has led to a general theory of the self-affirmation processes. A second area of interest is a theory of group stereotypes derived from extra self-evaluative and belongingness threats experienced by black Americans in all academic domains and women in quantitative domains, and how this can influence intellectual performance and academic identities.

Samuel Stringfield is a principal research scientist at the Johns Hopkins University Center for the Social Organization of Schools. He serves as co-director of the Systemic and Policy Studies section of the Center for Research on Education of Students Placed at Risk. Stringfield is also co-director of the Program on Integrated Reform at the Center for Research on Education, Diversity and Excellence of the University of California at Santa Cruz. His two most recent projects concern designs for improving programs within schools as well as for improving whole schools. He was a member of the National Research Council's Committee on the Prevention of Reading Difficulties in Young Children.

Marta Tienda is the Maurice P. During professor in demographic studies and director of the Office of Population Research at Princeton University. Her research interests include ethnic and racial stratification, population and economic development, socioeconomic integration of U.S. immigrants, poverty and social policy, and the sociology of employment and labor markets. She is a former member of the National Research Council Advisory Committee of the Division of Behavioral and Social Sciences and Education.

Anna Zajacova is a first-year graduate student of sociology at Princeton University. Her research interests include the sociology of immigration, race and inequality, and social demography. She recently published a paper on social networking and adjustment of new Slovak immigrants in New York metropolitan area in *Slovak Sociology Journal*.

Min Zhou is professor of sociology and Asian American studies at the University of California, Los Angeles. Her main areas of research are immigration, ethnic and racial relations, Asian Americans, ethnic entrepreneurship, enclave economies, and urban sociology. She has done extensive work on the education of immigrant children and children of immigrant parentage, and on the employment and earnings patterns of immigrants and native-born minorities. She is writing a book based on her recent ethnographic study of three immigrant communities in Los Angeles.