

The Promise of Preschool for Narrowing Readiness and Achievement Gaps Among California Children

California has fallen behind on many key indicators of education performance, prompting policymakers to look for strategies to improve student outcomes. Among the policy options being considered is the possibility of expanding public funding for preschool education as part of a broader agenda of education reform. To provide a foundation for evaluating the potential of such an expansion and how best to implement it, the RAND Corporation is undertaking the California Preschool Study, which seeks a better understanding of

- the size of achievement shortfalls overall in the early elementary grades and gaps in school performance between groups—defined, for example, by race-ethnicity or socioeconomic status—and the potential for preschool education to close existing gaps
- how publicly funded early care and education programs are structured and how effectively early care and education funds are being spent
- rates of access to high-quality early learning programs among California’s children.

This research brief summarizes the findings of the first part of the study, which is on school achievement and the potential of preschool to make a difference.

Many Students Are Performing Below State Standards

Despite rising student achievement levels in recent years, California still has a long way to go before reaching the goal of having all second and third graders attain proficiency in English-language arts and mathematics as measured by the California Standards Tests (CSTs). As seen in Figure 1, in 2007, the most recent test year, 52 percent of second graders and 63 percent of third graders did not achieve grade-level proficiency in English-language arts. The equivalent percent-

Key findings:

- Between 40 and 60 percent of California’s second and third graders are not achieving grade-level proficiency in core subjects.
- These percentages are even higher for some groups—e.g., Latinos, African Americans, English learners, children of parents with low education levels, and children in economically disadvantaged families.
- These achievement differences have early roots: The same groups of students behind by the second and third grades are also behind in kindergarten and first grade, and at kindergarten entry.
- High-quality preschool programs have been demonstrated to advance school readiness, raise achievement, and improve other education outcomes. The promise of preschool for closing achievement gaps in California is the focus of further investigation as part of the RAND Corporation California Preschool Study.

ages for mathematics performance were 41 and 42 percent. These figures translate into roughly 200,000 students in each of those grades performing below proficiency in math and a quarter of a million or more performing below proficiency in English-language arts.

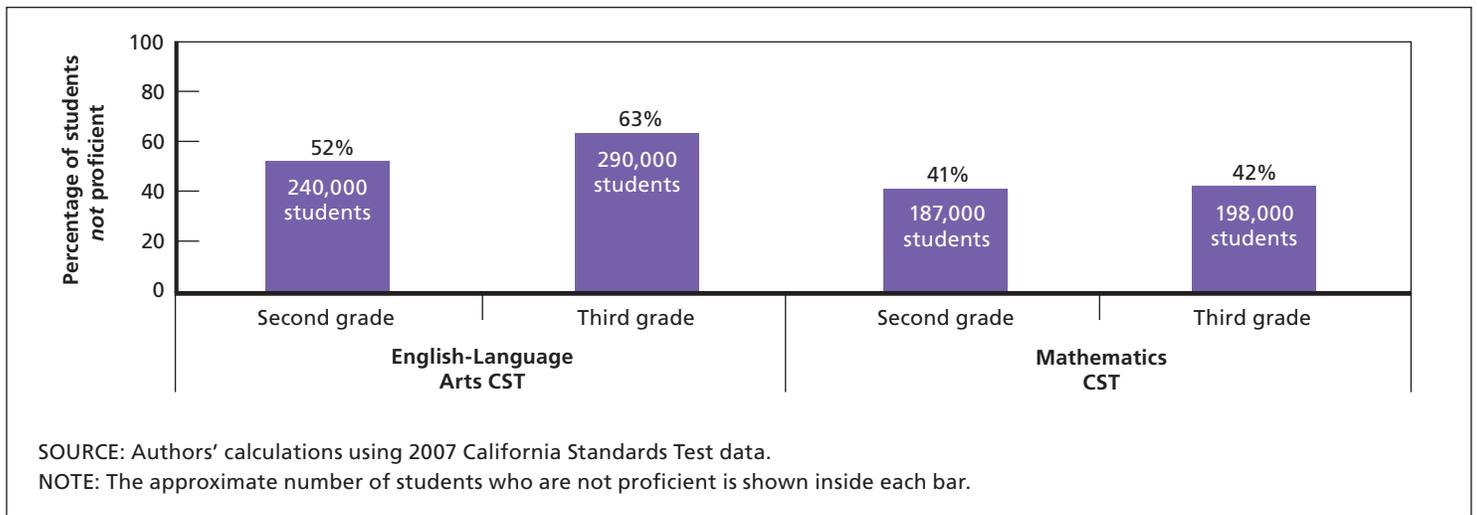
The statewide CST assessments are not given in kindergarten and first grades, but other data provide a picture of early reading skills. Of the children taking a reading-skills assessment in 17 school districts that provided data to RAND, from 45 to 49 percent of first graders and from 33 to 57 percent of kindergartners, depending on specific curriculum assessment and school year,

This product is part of the RAND Corporation research brief series. RAND research briefs present policy-oriented summaries of published, peer-reviewed documents.

Corporate Headquarters
 1776 Main Street
 P.O. Box 2138
 Santa Monica, California
 90407-2138
 TEL 310.393.0411
 FAX 310.393.4818

© RAND 2007

Figure 1
Many Second- and Third-Grade California Students Do Not Achieve Proficiency in Key Subjects



did not meet reading benchmark standards at the end of the school year, which we take to approximate a proficiency level at those ages. Though not representative of students statewide, as the CST data are, these kindergarten and first-grade results signal that shortfalls in achievement may have early roots.

There Are Large Differences Between Groups of Children

The percentages of children performing below proficiency on the CST show dramatic variations when broken down by the children’s race-ethnicity, their English-language fluency, their parents’ education, and their economic status. As illustrated in Figure 2 for third-grade English-language arts (in which longer bars mean a larger percentage of students are not proficient), Hispanic or Latino and black or African American students consistently trail their non-Hispanic white counterparts, English learners are behind English-only students, and there are large shortfalls for those whose parents have less education or who are in economically disadvantaged families. Similar patterns exist for second grade and for mathematics performance in the two grades.

The differences between those who are ahead and those who are behind are stark. For example, in third-grade English-language arts (see Figure 2):

- Hispanic or Latino students achieve proficiency at a rate 33 percentage points less than whites do, while the gap between black or African Americans and whites is 28 percentage points.
- English learners lag native English speakers by 31 percentage points.
- Over 50 percentage points separate students whose parents have less than a high school degree from those whose parents have education beyond a college degree.

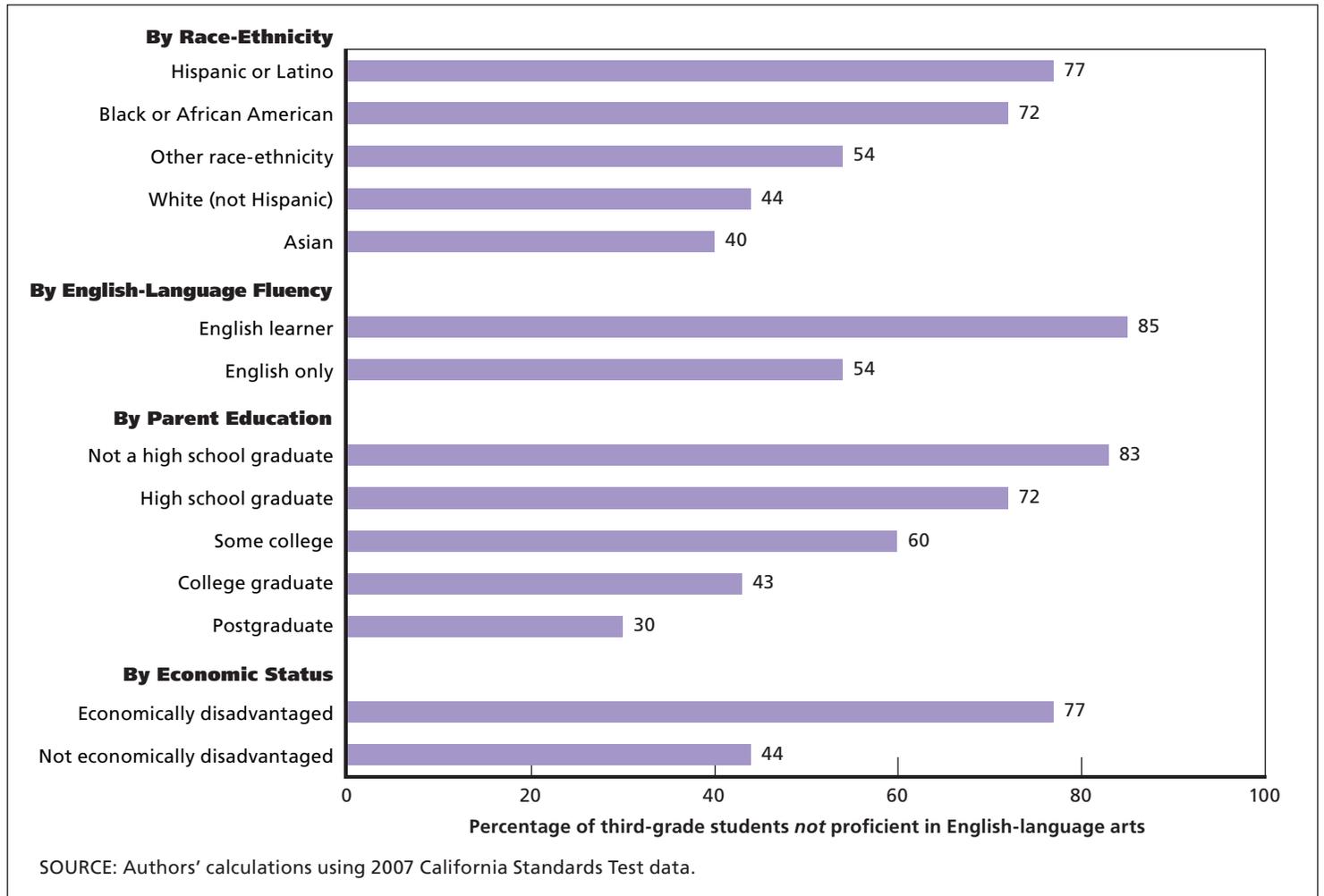
It should be kept in mind that, in spite of these differences among groups, even the more advantaged students score below proficiency at substantial rates. For example, in third grade, 30 percent of children whose parents have more than a college education do not achieve proficiency in English-language arts, and proficiency is not attained by 44 percent of students classified as not economically disadvantaged.

Of course, to some extent, the groups that fall short of state standards include the same children. For example, many Hispanics or Latinos are English learners or are economically disadvantaged, and vice versa. The RAND researchers used statistical techniques to isolate these differences and found that they cannot be “explained away.” That is, when they compared Hispanic and white children with the same English-language fluency, parental education, and economic status, there is still a disparity, albeit a smaller one. The same is true of the other groups when holding all other factors measured in the CST data constant. Thus, meaningful, independent differences in student achievement exist along multiple dimensions: race-ethnicity, English-language fluency, parental education, and economic status.

Achievement Differences in Second and Third Grade Are Mirrored at Earlier Ages

These patterns of differences between groups of students do not suddenly appear in second grade. The RAND researchers assembled various sources of data to assess achievement differences between groups of students in kindergarten and first grade and readiness gaps at kindergarten entry. Reading-skills assessments taken by children in some districts show that kindergartners and first graders exhibit some of the same patterns. For example, English learners perform less well

Figure 2
Different Groups of Students Miss Achieving Proficiency by Widely Varying Amounts



than native English speakers, and blacks or African Americans and Hispanics or Latinos less well than whites. These patterns are also evident in early-kindergarten assessments of cognitive and socioemotional readiness for school. In sum, the same groups of students that are behind by second and third grades were also behind when they entered school.

Preschool Appears Promising for Narrowing Achievement Gaps

Given the shortfalls in student proficiency relative to state standards in the primary grades, and given the disparities among groups evident even at the start of kindergarten, some means of boosting school readiness, especially for the disadvantaged, might seem attractive. Could preschool serve this purpose?

Scientifically rigorous studies show that well-designed preschool programs serving three- and four-year-olds can improve school readiness and raise performance on academic achievement tests in the early elementary grades. Some stud-

ies with longer-term follow-up show such benefits as achievement gains and reduced special education use through the middle school years, and higher rates of high school completion. The effects in the early grades have been demonstrated not only for small-scale model programs, but also for large-scale publicly funded programs currently operating in a number of states, e.g., Michigan, New Jersey, and Oklahoma. While this evidence base is strongest for programs serving more-disadvantaged students, findings from Oklahoma's universal preschool programs show benefits in terms of school readiness across diverse groups of children.

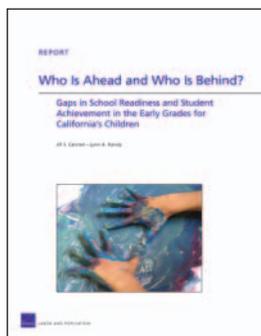
However, whether expanded preschool enrollment or higher quality in existing programs will narrow readiness or achievement gaps among those in early grades in California depends on the extent to which children are already enrolled in high-quality preschool programs. In a companion analysis that is part of the California Preschool Study, RAND researchers will be examining newly collected data to determine the extent of participation in high-quality

preschool programs across groups of California's children. If access or quality is lower for those for whom the shortfalls in achievement are so stark, it will suggest that there is room for expanded access to and/or quality improvements in preschool to help California improve student outcomes.

At the same time, while the effects of preschool are large in comparison to other educational interventions, preschool alone is unlikely to greatly reduce the large gaps in student performance evident in the early grades. Moreover, the extent

to which preschool narrows the current gaps is likely to depend on the nature of the change in preschool policy relative to the status quo, such as whether preschool is expanded on a targeted basis or across all children. Nevertheless, the size of the achievement shortfalls and the strength of the scientific evidence demonstrating benefits from well-designed preschool programs make a strong case for considering preschool as a component of a multipronged strategy for achieving proficiency for all California students. ■

The study summarized in this research brief was based on data from the California Standards Test for second and third graders and on data from multiple sources on children in kindergarten and first grade. The RAND California Preschool Study was requested by the California Governor's Committee on Education Excellence, the California State Superintendent of Public Instruction, the Speaker of the California State Assembly, and the President pro Tempore of the California State Senate. Funding was provided by The David and Lucile Packard Foundation, W. K. Kellogg Foundation, The Pew Charitable Trusts through the National Institute for Early Education Research (NIEER), The W. Clement and Jessie V. Stone Foundation, and Los Angeles Universal Preschool (LAUP). The project has been guided by an advisory group of academic researchers, policy experts, and practitioners.



This research brief describes work done for RAND Labor and Population and documented in *Who Is Ahead and Who Is Behind? Gaps in School Readiness and Student Achievement in the Early Grades for California's Children* by Jill S. Cannon and Lynn A. Karoly, TR-537-PF/WKKF/PEW/NIEER/WCJVSF/LAUP, 2007, 132 pp., available at http://www.rand.org/pubs/technical_reports/TR537/. A companion study and research brief are also available: *Early Care and Education in the Golden State: Publicly Funded Programs Serving California's Preschool-Age Children* by Lynn A. Karoly, Elaine Reardon, and Michelle Cho, TR-538-PF/WKKF/PEW/NIEER/WCJVSF/LAUP, 2007, available at http://www.rand.org/pubs/technical_reports/TR538/, and *Publicly Funded Early Care and Education Programs for California Preschool-Age Children*, RB-9307-PF/WKKF/PEW/NIEER/WCJVSF/LAUP, 2007, available at http://www.rand.org/pubs/research_briefs/RB9307/. The RAND Corporation is a nonprofit research organization providing objective analysis and effective solutions that address the challenges facing the public and private sectors around the world. RAND's publications do not necessarily reflect the opinions of its research clients and sponsors. RAND® is a registered trademark.

RAND Offices

Santa Monica, CA • Washington, DC • Pittsburgh, PA • Jackson, MS / New Orleans, LA • Cambridge, UK • Doha, QA



LABOR AND POPULATION

THE ARTS
CHILD POLICY
CIVIL JUSTICE
EDUCATION
ENERGY AND ENVIRONMENT
HEALTH AND HEALTH CARE
INTERNATIONAL AFFAIRS
NATIONAL SECURITY
POPULATION AND AGING
PUBLIC SAFETY
SCIENCE AND TECHNOLOGY
SUBSTANCE ABUSE
TERRORISM AND
HOMELAND SECURITY
TRANSPORTATION AND
INFRASTRUCTURE
WORKFORCE AND WORKPLACE

This PDF document was made available from www.rand.org as a public service of the RAND Corporation.

This product is part of the RAND Corporation research brief series. RAND research briefs present policy-oriented summaries of individual published, peer-reviewed documents or of a body of published work.

The RAND Corporation is a nonprofit research organization providing objective analysis and effective solutions that address the challenges facing the public and private sectors around the world.

Support RAND

[Browse Books & Publications](#)

[Make a charitable contribution](#)

For More Information

Visit RAND at www.rand.org

Explore [RAND Labor and Population](#)

View [document details](#)

Limited Electronic Distribution Rights

This document and trademark(s) contained herein are protected by law as indicated in a notice appearing later in this work. This electronic representation of RAND intellectual property is provided for non-commercial use only. Unauthorized posting of RAND PDFs to a non-RAND Web site is prohibited. RAND PDFs are protected under copyright law. Permission is required from RAND to reproduce, or reuse in another form, any of our research documents for commercial use. For information on reprint and linking permissions, please see [RAND Permissions](#).