

STUDENT AND SCHOOL PREDICTORS OF HIGH SCHOOL GRADUATION IN CALIFORNIA

Russell W. Rumberger and Brenda Arellano

Highlights:

- ▶ Only 1 in 3 students who failed ninth grade graduated four years later.
- ▶ Only about half of all at-risk Black and Hispanic students graduated from high school.
- ▶ The odds of graduating from high school were twice as high for students who reported that they were either in a college preparatory program or vocational program, compared to students in a general program.
- ▶ Participation in sports had a larger effect on whether students graduated than improved test scores did.
- ▶ Schools that are effective in improving graduation rates are not necessarily effective in improving test scores.
- ▶ The odds of graduating for students who attended alternative schools were only one-fifth the odds of students attending regular high schools.

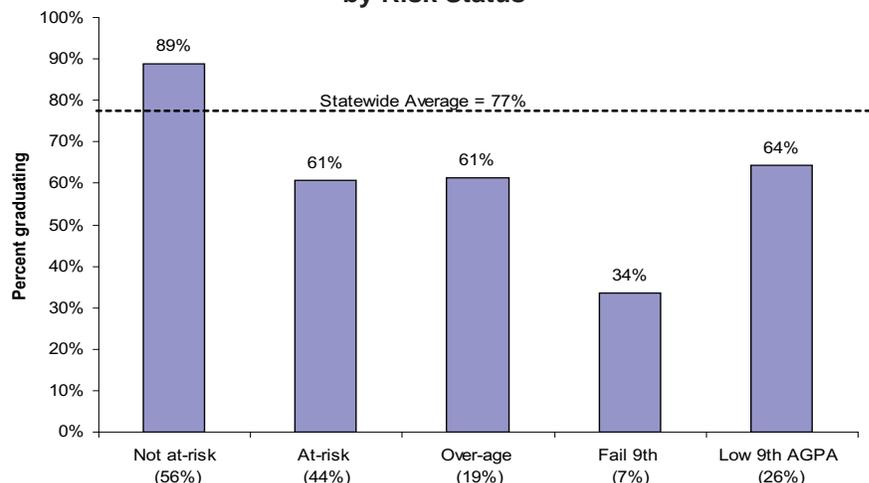
California is facing a dropout crisis, with only two-thirds of ninth graders earning a diploma by the time they are seniors four years later. The economic and social costs to the state are staggering. A recent study estimated that the economic losses to the state from a single group of 20-year-old dropouts exceed \$46 billion (see CDRP Policy Brief 1, "The Economic Losses from High School Dropouts in California").

Solving the dropout crisis in California requires a better understanding of the nature and causes of the problem. This brief summarizes a study of student and school predictors of high school graduation for a sample of 1,343 California tenth grade students who attended 63 public high schools in 2002. The analysis is based on survey data collected from students, teachers, principals, and parents in 2002, and transcripts collected one year after students' expected graduation in 2004.

▶ Who Graduated from High School in California?

According to California's transcript data, 77 percent of students who were in tenth grade in 2002 graduated from high school by the

Graduation Rates for 2002 California High School Sophomores, by Risk Status



NOTE: AGPA = Academic Grade Point Average (i.e., courses in English, mathematics, science, etc.)

SOURCE: Education Longitudinal Study of 2002 (ELS:2002), High School Transcript database, California subsample (N=1343).

Read the full report at: lmri.ucsb.edu/dropouts

spring of 2005 (*see figure*), a higher rate than would be expected for ninth grade students. The remaining students dropped out (nine percent), transferred and were not located (12 percent), or had some other designation on their transcript (two percent).

Graduation rates varied by *demographic characteristics* of students: females (83 percent) were more likely to graduate than males (71 percent); Asians (88 percent) and Whites (83 percent) were more likely to graduate than Blacks (67 percent) or Hispanics (70 percent); and students from high socioeconomic status (SES) families (89 percent) were more likely to graduate than students from low SES families (70 percent).

Graduation rates varied even more by *academic background*. Based on previous research, students were identified as at-risk based on three indicators of academic background: (1) whether they were over-age based on California's kindergarten entry date of December 1 (i.e., for this study, students born before December, 1985); (2) whether they had a low grade point average (GPA) in the ninth grade; and (3) whether students had failed ninth grade. More than 40 percent of California high school sophomores in the class of 2004 were academically at-risk, and only 3 out of every 5 of those students graduated from high school.

Both the incidence and consequences of being at-risk varied greatly by race/ethnicity and by gender. Over half of all male high

school sophomores were academically at-risk in 2002, compared to one-third of all female sophomores. About half of all Black and Hispanic students were at-risk, compared to about one-third of Whites and one-quarter of Asians. Within each racial and ethnic group, males were more likely to be at-risk than females.

Graduation rates varied little by race/ethnicity or gender among students *not* at-risk; but they varied greatly among students who *were* at-risk. More than 70 percent of at-risk Asian and White students graduated from high school, compared to only about half of Black and Hispanic students.

► What Student Factors Predict High School Graduation?

We used statistical models to estimate the size and statistical significance of a number of predictors of high school graduation simultaneously—that is, we estimated the unique contribution of each variable in the model, controlling for the effects of the other variables. The results are reported as a *change in odds* of graduating from high school. A predictor has a positive effect if it increases the odds of graduating and a negative effect if it decreases the odds of graduating.

The initial statistical models estimated the effects of demographic and academic background variables, confirming the descriptive results reported earlier. Another statistical model found the odds of graduating from high school were *twice as high* for students who reported that they were either in a

college preparatory program or vocational program, compared to students in a general program.

The final model found three measures of *student engagement* were significant predictors of high school graduation. Students who were engaged in school (e.g., less likely to report being late for school, cutting class, or being absent) were more likely to graduate; students who reported misbehaving (e.g., getting into trouble, put on in-school suspension, and suspended) were less likely to graduate; and students who participated in sports were more likely to graduate.

Finally, improved test scores had only a small effect on the odds of graduating. Interestingly, participating in sports had a larger effect on whether students graduated than improved test scores did.

Although student engagement and achievement in tenth grade mediated some of the effects of academic background, ninth grade performance and being over-age still had a powerful effect on high school graduation. This suggests that while high schools can improve students' graduation rates by improving their *engagement* and *achievement*, such improvements will not be sufficient to overcome poor academic backgrounds.

► What School Factors Predict High School Graduation?

A range of school characteristics were examined to see which ones were significant predictors of whether students graduated from high school in California. Two *structural features* of schools

were significant predictors of high school graduation: for students who attended year-round schools, the odds of graduating were half of those who attended schools on regular calendars, and for students who attended alternative schools the odds of graduating were only one-fifth of students attending regular high schools.

Several *characteristics of the student body* also had very small, but significant effects on the odds of graduating: the percentage of females in the school, the percentage of students who failed ninth grade, and the percentage of students who had frequent (two or more) school changes.

No measures of school resources—such as the student-teacher ratio, the proportion of teachers with full credentials and teachers with bachelors' degrees in the subject area that they taught, and the mean teacher salary in the school—had a significant effect on the odds of graduating.

Lastly, three measures of *school policies and climate* had very small, but statistically significant effects on the odds of graduating: the proportion of students enrolled in vocational programs (negative), the mean number of credits that students completed in trigonometry (positive), and schools where students reported classes as “interesting” and “challenging” (positive).

► Identifying Effective and Ineffective Schools

Effective and ineffective schools were identified in this study by whether their actual graduation rates were higher or lower than predicted by their student demographics, using the threshold established by the U.S.

Department of Education for identifying effective educational programs. Based on this procedure, 19 of the 63 schools in our sample—30 percent—were effective, 29 (or 46 percent) were average, and 15 (or 24 percent) of the schools were ineffective. School effectiveness was not related to school size, mean SES of the student body, the percent of minority students, nor the student-teacher ratio.

We used a similar procedure to identify whether schools were effective or ineffective in producing test scores higher or lower than predicted by their student demographics. Based on this procedure, only seven (or 11 percent) of the schools were effective, 50 (or 79 percent) were average, and only six (or 10 percent) of the schools were ineffective. It is interesting to note that there are far more effective and ineffective schools based on graduation rates than based on test scores, suggesting that it is harder for schools to effectively raise test scores above the level predicted by the students' academic and family backgrounds than it is to effectively improve graduation rates.

The results further show that schools that are effective in improving graduation rates are not necessarily effective in improving test scores.

► Conclusions

Schools cannot alter students' demographic characteristics or their family backgrounds, but they can alter what students experience once they walk in the door. Identifying *alterable characteristics* of schools and students (such as their attitudes, behaviors, and per-

formance) can provide guidance for designing interventions that may address those characteristics.

This study identified a number of alterable student and school predictors of high school graduation. The finding that students in both college preparatory and vocational programs were more likely to graduate compared to students in the general program supports the idea of “multiple pathways” for preparing students for future school, work, and citizenship. At the same time, the findings also indicate that schools with *too much* emphasis on vocational programs *lessen* a student's prospects for graduating.

The finding that both student achievement and student engagement, particularly participating in sports, improves high school graduation supports the idea that improving high school graduation involves more than academics.

Finally, the finding that several school characteristics impact graduation rates, and that schools effective in improving graduation rates are not necessarily effective in improving test scores, underscores the need to hold schools accountable for both outcomes and to promote reform strategies that address both outcomes.

In all, the findings from this study support the argument that solving California's high school dropout crisis will take a multifaceted approach—it will require better preparing students before they enter high school, addressing their social as well as their academic needs while in high school, and it will require improving high schools themselves.

Research Reports and Policy Briefs in Print

1. **THE ECONOMIC LOSSES FROM HIGH SCHOOL DROPOUTS IN CALIFORNIA** (*August 2007*)
2. **THE RETURN ON INVESTMENT FOR IMPROVING CALIFORNIA'S HIGH SCHOOL GRADUATION RATE** (*August 2007*)
3. **DOES STATE POLICY HELP OR HURT THE DROPOUT PROBLEM IN CALIFORNIA?** (*October 2007*)
4. **CAN COMBINING ACADEMIC AND CAREER-TECHNICAL EDUCATION IMPROVE HIGH SCHOOL OUTCOMES IN CALIFORNIA?** (*November 2007*)
5. **STUDENT AND SCHOOL PREDICTORS OF HIGH SCHOOL GRADUATION IN CALIFORNIA** (*December 2007*)

In Production (*Working Titles*)

- Alternative Pathways to High School Graduation, Further Education, and Workforce Preparation in Other Countries
- Why Students Drop Out of School
- Building District Capacity for Improving High School Graduation Rates in California
- Middle School Reform as a Strategy for Improving California's High School Graduation Rate
- Improving California's Data System for Measuring Dropout and Graduation Rates
- What's Motivating Youths in Differing Schools?
- Follow-up Study of Students Who Did Not Pass the California High School Exit Exam (CASHEE)
- Early Predictors of High School Dropout
- Profiles of High School Dropouts and Graduates in Los Angeles Unified School District
- California High Schools That Beat the Odds in High School Graduation

California Dropout Research Project Staff:

Russell W. Rumberger, Director
Beverly Bavaro, Editor/Web Manager
Briana Villaseñor, Business Officer
Susan Rotermund, Research Assistant

Policy Committee:

Jean Fuller
David W. Gordon
Marqueece Harris-Dawson
Rowena Lagrosa
Lorraine McDonnell
Gary Orfield
Darrell Steinberg

Funding:

The Bill and Melinda Gates Foundation
The William and Flora Hewlett Foundation
The James Irvine Foundation
The Walter S. Johnson Foundation

Contact:

University of California
California Dropout Research Project
4722 South Hall, MC3220
Santa Barbara, CA 93106-3220

Tel: 805-893-2683

Email: dropouts@lmri.ucsb.edu

Project Web Site:

www.lmri.ucsb.edu/dropouts

University of California
California Dropout Research Project
4722 South Hall, MC 3220
Santa Barbara, CA 93106-3220

Non-Profit
Organization
U.S. POSTAGE
PAID
Santa Barbara, CA
Permit No. 104