3. Understanding and Addressing the California Latino Achievement Gap in Early Elementary School

RUSSELL W. RUMBERGER
AND BRENDA D. ARELLANO

One of the most pressing problems in California is improving student academic performance. This is especially true for the state’s Latino students, who now represent the largest ethnic group in the state, but who generally have much lower achievement levels than white or Asian students. If California is going to maintain its economic competitiveness in the global economy in the twenty-first century, it is going to have to effectively educate its increasingly diverse student population, and particularly its rapidly increasing population of Latino students.

Historically, policy makers have attempted to improve academic achievement for all students irrespective of their ethnicity or other characteristics. But in 2001 the federal government enacted the No Child Left Behind (NCLB) Act, which requires states to document progress in eliminating the achievement differences among students who differ by poverty status, race, ethnicity, disability, and limited English proficiency (U.S. Department of Education, National Center for Education Statistics, 2006). These differences are sometimes referred to as the achievement gap.

Because of NCLB and an increase in state accountability systems (Fuhrman and Elmore, 2004), there is a growing interest among scholars, educators, and policy makers to better understand and address the achievement gap. This paper examines the extent of the achievement gap between California Latino and non-Latino white students in early elementary school; the individual, family, and school characteristics that account for those differences; and some educational policies that could help close the gap.
Explanations of Disparities in Achievement

Researchers have long sought to understand and explain the vast racial and ethnic disparities in achievement that have always existed in the United States (Coleman et al., 1966; Teachers, 1993; Terrell, 1968; Terrell, 1971). Although numerous investigations have been undertaken, there is no consensus about the primary cause of these disparities. However, most researchers agree that there are factors that contribute to the achievement gap in ways that are not easily explained by differences in the attributes of individual students or the attributes of their schools. Factors that contribute to the achievement gap include, but are not limited to, students’ socioeconomic status, family background, cultural background, and the quality of teachers and school programs. It is important to understand these factors in order to develop effective policies and programs to address the achievement gap. 

First, it is important to understand that disparities in achievement are not just a matter of individual students, but also depend on factors that are outside of students’ control, such as family background and cultural background. Second, it is important to understand that disparities in achievement are not just a matter of individual students, but also depend on factors that are outside of students’ control, such as family background and cultural background. Third, it is important to understand that disparities in achievement are not just a matter of individual students, but also depend on factors that are outside of students’ control, such as family background and cultural background. Finally, it is important to understand that disparities in achievement are not just a matter of individual students, but also depend on factors that are outside of students’ control, such as family background and cultural background.
Finally, a number of school practices have been shown to affect student achievement, such as teacher beliefs, instructional practices, and social interaction practices (Ashton and Pelto, 1986; Schacter and Thum, 2004; Fishman and Stahlman, 2004; Xue and Mavis, 2006; and Parent involvement (Green, 2004). There is increasing evidence that these practices have positive effects on student achievement. However, we lack research on the effectiveness of such practices in enhancing student learning. Therefore, it is crucial to conduct more research in this area.

The Achievement Gap in Elementary School

The achievement gap between students from different racial and ethnic groups is a significant issue in education today. The gap is evident in various areas such as reading, mathematics, and science. The gap is also evident in higher education and employment opportunities. The achievement gap is often attributed to various factors such as socioeconomic status, parental involvement, and teacher expectations. The present study investigates the achievement gap during the first two years of elementary school in the United States. The study was conducted using data from the National Education Longitudinal Study of 1988-1990 (NELS:88). The data was collected from a sample of 10,000 students.

The study found that the achievement gap between students from different racial and ethnic groups is significant. The gap is evident in both reading and mathematics. The study also found that the gap is present in the early years of elementary school. The achievement gap is often attributed to various factors such as socioeconomic status, parental involvement, and teacher expectations.

The present study found that there are significant differences in achievement between students from different racial and ethnic groups. The gap is evident in both reading and mathematics. The study also found that the gap is present in the early years of elementary school. The achievement gap is often attributed to various factors such as socioeconomic status, parental involvement, and teacher expectations.

The study found that the achievement gap between students from different racial and ethnic groups is significant. The gap is evident in both reading and mathematics. The study also found that the gap is present in the early years of elementary school. The achievement gap is often attributed to various factors such as socioeconomic status, parental involvement, and teacher expectations.

The achievement gap in elementary school is a significant issue that needs to be addressed. The present study found that there are significant differences in achievement between students from different racial and ethnic groups. The gap is evident in both reading and mathematics. The study also found that the gap is present in the early years of elementary school. The achievement gap is often attributed to various factors such as socioeconomic status, parental involvement, and teacher expectations.

The present study found that the achievement gap between students from different racial and ethnic groups is significant. The gap is evident in both reading and mathematics. The study also found that the gap is present in the early years of elementary school. The achievement gap is often attributed to various factors such as socioeconomic status, parental involvement, and teacher expectations.

The achievement gap in elementary school is a significant issue that needs to be addressed. The present study found that there are significant differences in achievement between students from different racial and ethnic groups. The gap is evident in both reading and mathematics. The study also found that the gap is present in the early years of elementary school. The achievement gap is often attributed to various factors such as socioeconomic status, parental involvement, and teacher expectations.
Students identified by their schools or teachers as coming from a non-English background were given an English language proficiency test to see if they were able to understand and respond to the assessment items in English. At the time of each assessment, children who passed the language screener received the full ECLS-K direct assessment battery. Children who did not pass the language screener, but who spoke Spanish, were administered a Spanish-translated form of the mathematics assessment. Other language minority children received a reduced version of the ECLS-K assessments. The present study used scale scores for reading and math in order to examine changes over time.

A series of independent or predictor variables was created from the ECLS-K data to measure characteristics of students, their families, and their schools, identified in the literature review as important predictors of student achievement for this study.

Because students in the ECLS-K data are nested within classrooms and schools, hierarchical linear modeling (HLM) was used in this study (Raudenbush and Bryk, 2002, chapter 6). In the current study, we tested a series of statistical models with different sets of predictor variables to estimate initial achievement in reading and math upon entry to kindergarten, and achievement growth in reading and math during three distinct periods: kindergarten, first grade, and the summer in between (see Rumberger and Arellano, 2004).

The Size of the Achievement Gap

We first examined the size of the achievement gap by comparing differences in estimated achievement between Latino and non-Latino white students during the first two years of elementary school. Differences in reading achievement are illustrated in Figure 3.1. They show that Latinos scored 3.2 points lower than whites on the reading assessment upon entry to kindergarten, and by the end of first grade the gap had grown to 4.2 points.

But how big of an achievement gap does this represent? One way to answer this question is to compare the size of the achievement gap with how much the average student learns during kindergarten, which can tell us how far behind Latino students are when they start kindergarten, compared to white students. We estimated that students increased their reading scores by about 3.7 points per month, which means that Latino students began kindergarten almost 2 months behind their white peers.

Another way to measure the size of the achievement gap is to represent the difference in achievement test scores as a fraction of a standard deviation (SD), which is known as an effect size (Cohen, 1988). One of the benefits of using effect size (ES) is that it facilitates comparisons between different variables of interest within the same study, and between different studies, through the use of a common metric. It also facilitates comparisons between achievement differences and interventions that could be used to overcome them. The achievement gap in initial reading scores between Latinos and whites represents an effect size of ~.37, which can be considered small. However, by the end of first grade, the achievement gap increases to a moderate size of ~.50. In math, Latinos begin kindergarten more than 2 months behind white students, which represents an achievement gap of ~.48. By the end of first grade, the achievement gap in math grew to ~.63.

What accounts for this achievement gap? To address this question, we first estimated a statistical model to identify how much of the variation in achievement was because of differences among students and how much owed to differences among the schools they attended. We found that between 72 and 88 percent of the variation owed to differences among students, and 12 to 28 percent owed to differences among the schools they attended (see Rumberger and Arellano, 2004, tables 4 and 5). In other words, as virtually all previous studies have shown, most of the variation in student achievement can be explained by differences in the attributes of students and their family background.
lies, rather than by differences in attributes of their schools. Nonetheless, differences in schools still contribute to differences in student outcomes.

Next, we estimated a series of statistical models in order to identify which factors predicted achievement in reading and math, and the extent to which the Latino-white achievement gap was reduced after controlling for those factors. We focused first on achievement differences upon entry to kindergarten and then on differences in achievement growth during kindergarten, first grade, and the summer in between.

Differences in Initial Achievement

Our analysis revealed that differences in initial achievement in reading and math could be explained largely by two demographic factors: SES and language background. As shown in Table 3.1, Latino and white students vary widely with respect to these two factors. For example, mean SES for Latino students is about .94 points lower than for white students, which represents an effect size of -1.06 (or more than one standard deviation). And half of all Latino kindergartners in our sample come from non-English backgrounds, compared to only 4 percent for white students. In order to determine the effects of language background on Latino achievement, we compared Latinos from English backgrounds with Latinos from non-English (Spanish) backgrounds.

We found that both SES and language background have significant effects on initial achievement. The effect size of SES is .40 on initial reading achievement and .39 on initial math achievement (see Figure 3.2). The effect size of coming from a home where English is not the dominant language is -.45 on initial reading and -.37 on initial math. This means that non-English background Latino children begin kindergarten at a sizable disadvantage compared to English background Latino children.

After controlling for the effects of SES and home language, the Latino-white achievement gap in reading is reduced to -.06, or by more than 80 percent.

Table 3.1. Differences in background characteristics of Latino and White kindergarten students

<table>
<thead>
<tr>
<th></th>
<th>Latino</th>
<th>White</th>
<th>Difference (Effect size)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean SES</td>
<td>-.64</td>
<td>.20</td>
<td>-.84</td>
</tr>
<tr>
<td>Percent non-English</td>
<td>-20</td>
<td>-24</td>
<td>-.34</td>
</tr>
</tbody>
</table>

Note: Differences in values between Latino and White are all statistically significant at .01 level (ANOVA).

Figure 3.2. Effect sizes for selected predictors of initial reading and math achievement. Effect size represents the predicted change in reading or math performance, expressed in standard-deviation units, associated with a one unit (for dichotomous variables) or one standard deviation (for continuous variables) change in the predictor variable. The effects of SES and non-English were estimated only controlling for those variables; the effects of the other variables were estimated controlling for a larger set of predictors (see Rumberger and Arellano, 2004, table A.4).

and is no longer statistically significant (see Figure 3.3). This means that Latino and white students with the same SES and language backgrounds would essentially have the same reading levels upon entry to kindergarten. Controlling for the effects of SES and home language reduces the achievement gap in math from -.48 to -.16, or by two-thirds, rendering it marginally insignificant.

Next we estimated the effects of a large number of additional predictors. We found a number of these factors had significant effects on initial reading and math achievement. Some of the more powerful factors are illustrated in Figure 3.2. Students with disabilities had lower initial reading (ES = -.14) and math (ES = -.34) than students without disabilities; students who participated in preschool (excluding Head Start) had higher initial reading (ES = .12) and math (ES = .13) than students who did not participate in preschool. Finally, role-learning behaviors (for example, attentiveness, eagerness, independence) had positive effects on initial reading (ES = .25) and math (ES = .35). Controlling for all these factors completely eliminated the initial achievement gap between Latino and white students in reading, and reduced the achievement gap in math by more than 80 percent.
attending schools with a higher proportion of second-time kindergartners learned less than other students in reading (ES = -1.22), but not in math; (3) students attending schools with a higher proportion of minority students learned less in reading (ES = -1.8), but not in math; (4) students attending large schools (750 students or more) learned less in reading (ES = -2.03), but not in math; and (5) students in private schools learned less than students in public schools in math (ES = -3.4), but not in reading. This last finding is probably because twice as many students attending public schools had teachers who taught math more than sixty minutes a day (40 percent versus 20 percent). The emphasis on math in public schools could be a direct result of California’s accountability system that measures math and reading performance beginning in second grade.

Summary and Policy Implications

This study examined the achievement gap between California Latino and white students in the first two years of elementary school. Because the data used in this study assessed students’ performance in reading and math at the beginning and end of both kindergarten and first grade, it was possible to examine the extent of the achievement gap when students first began school, the achievement gap in learning during kindergarten and first grade, and the achievement gap in summer learning between kindergarten and first grade.

The analysis revealed that in California, Latino students begin kindergarten at a significant disadvantage to non-Latino white students: In the fall of 1998 the achievement gap at the beginning of kindergarten, as measured by the difference in average test scores, was -3.7 of a standard deviation in reading and -4.8 of a standard deviation in math. The analysis also revealed that the achievement gap changes very little over the first two years of school. By the end of first grade, the achievement gap grew to -5.0 of a standard deviation in reading and to -6.5 of a standard deviation in math. These results suggest that schools do little to either widen or close the sizable achievement gap that exists among students when they walk in the door.

Achievement data from other sources suggest that the achievement gap widens as students progress through school. For example, an analysis of data from the National Assessment of Educational Progress for California students in the fourth grade shows an achievement gap of -8.4 in 1998 reading scores and -8.5 in 2000 math scores. Comparing those figures with the present findings suggests that about half of the achievement gap in fourth grade exists when students walk in the door at kindergarten. This means that efforts
the achievement gap in Elementary School

To close the gap, focus on schools, but not on schools. Focus on opportunities of higher achieving peers. Other research, including a parent study in San Diego, also demonstrates that the student learning is affected by the achievement level of their classmates (Reis et al., 2000; Hambrick, Kirk, Markman, and Sharafeldin, 2000). Reis et al. (2000) find that students in the top 25% of their class have a higher achievement than students in the bottom 25%. These results are consistent with previous research (Hambrick, 2000). The study probably contributes to a growing number of school achievement features and related studied as learning. For the most part, they did not. For in-\n
\n
the achievement gap in Elementary School

To close the gap, focus on schools, but not on schools. Focus on opportunities of higher achieving peers. Other research, including a parent study in San Diego, also demonstrates that the student learning is affected by the achievement level of their classmates (Reis et al., 2000; Hambrick, Kirk, Markman, and Sharafeldin, 2000). Reis et al. (2000) find that students in the top 25% of their class have a higher achievement than students in the bottom 25%. These results are consistent with previous research (Hambrick, 2000). The study probably contributes to a growing number of school achievement features and related studied as learning. For the most part, they did not. For in-\n
the achievement gap in Elementary School

To close the gap, focus on schools, but not on schools. Focus on opportunities of higher achieving peers. Other research, including a parent study in San Diego, also demonstrates that the student learning is affected by the achievement level of their classmates (Reis et al., 2000; Hambrick, Kirk, Markman, and Sharafeldin, 2000). Reis et al. (2000) find that students in the top 25% of their class have a higher achievement than students in the bottom 25%. These results are consistent with previous research (Hambrick, 2000). The study probably contributes to a growing number of school achievement features and related studied as learning. For the most part, they did not. For in-\n
the achievement gap in Elementary School

To close the gap, focus on schools, but not on schools. Focus on opportunities of higher achieving peers. Other research, including a parent study in San Diego, also demonstrates that the student learning is affected by the achievement level of their classmates (Reis et al., 2000; Hambrick, Kirk, Markman, and Sharafeldin, 2000). Reis et al. (2000) find that students in the top 25% of their class have a higher achievement than students in the bottom 25%. These results are consistent with previous research (Hambrick, 2000). The study probably contributes to a growing number of school achievement features and related studied as learning. For the most part, they did not. For in-
through research funding from the University of California Linguistic Minority Research Institute. We would like to acknowledge the helpful comments of Jennifer Kohn on the larger report. The views and opinions expressed do not necessarily represent those of LPI or the Regents of the University of California.

1. Between 1994–95 and 2004–2005, Latino public school enrollment increased more than 30 percent, while white enrollment declined by 8 percent. Between 2003 and 2004, Latino public school enrollment is projected to increase by 18 percent, while white enrollment is projected to decrease by 8 percent (California Department of Finance, 2005).

2. For example, in the 2006 California Standards Tests, only 79 percent of fifth-grade Latinos and 79 percent of eighth-grade Latinos were proficient in English language arts, compared to 65 percent of fifth grade non-Latino whites and 62 percent of eighth grade non-Latino whites (California Department of Education, 2006).

3. To preserve space, the paper references a larger report that contains additional tables and a technical appendix (Rumberger and Arellano, 2004).

4. For example, poverty rates for children under the age of eighteen in 2004 were 14.4 percent for whites, 33.9 percent for blacks, and 38.6 percent for Latinos (U.S. Department of Education, National Center for Education Statistics, 2006a:table 31).

5. For more information on how the sample was selected, see Rumberger and Arellano (2004). While there are a number of K–3 longitudinal weights in the dataset, we selected the sample associated weight, YsCWMo, which provides child direct assessment data from fall kindergarten, spring kindergarten, and spring-first grade, in conjunction with parent and/or teacher data from spring-first grade, and one or more base year rounds of parent and/or teacher data (see U.S. Department of Education, 2012, p. 6).

6. Both outcomes were assessed using a computer-assisted interviewing methodology that included the use of a small easel with pictures, letters of the alphabet, words, short sentences, numbers, or number problems (see NCES, 2005, p. 2–6).

7. Only one-quarter of the students were assessed in the fall of first grade.


9. As the ECLS-K user manual points out, gains at different points in the scale have different meanings in that they may connote qualitatively different reading activities (see U.S. Department of Education, 2011; pp. 5–11).

10. See Rumberger and Arellano (2004), table A3, for a complete list of the variables and how they were constructed.

11. Although achievement differences exist among all major ethnic groups, we focused on comparisons with non-Latino white students because, historically, they have constituted the largest and most dominant racial/ethnic group in America.

12. Because the outcome variable in the HLM analysis has two standard deviations, one associated with students and one associated with schools, we estimated effect sizes using the standard deviation in achievement growth at the student level. This tends to overstate the actual effect sizes because it does not include the variance at the school level (Rosenthal, 1994), but we estimate that in this study the overstatement is only about 10 percent.

13. It should be pointed out that the term effect does not imply a causal relationship between the predictor and the outcome.

14. Cohen (1988) suggests that effect sizes larger than .8 should be considered as large, those above .5 should be considered as moderate, and those above .2 as small (pp. 14–17).
15. Rumberger, Correnti, and Miller (2002) argue that more refined statistical models show the majority of the variability in student learning can be attributed to teachers.

16. The percentage of students from non-English backgrounds in the sample used in the multilevel analysis is somewhat smaller than the percentage in the full ECLS California subsample of 2,254 students (50 versus 56 percent) because non-English students who were not yet proficient in oral English by the end of first grade were not assessed in English reading and were excluded from our analysis.

17. The complete list of predictors is shown in Rumberger and Arellano (2004), tables 3 and 4.


19. A recent national study of preschool also found no overall benefit from students attending Head Start (Rumberger and Tran, 2006).

20. A study of retention among Latinos and Whites in a southern California school district also found that kindergarten retention had an adverse effect on first-grade achievement (Cusden, Zimmer, Reyes, and Gutierrez, 1995). A recent review of the research literature found that retention also increases the likelihood of dropping out of high school (Jenness, Anderson, and Whipple, 2002).

21. For more information, see the California Department of Education Web site: http://www.cde.ca.gov/spi/ed/chc.

22. Because only 30 percent of the ECLS participants were surveyed in the fall of first grade, we were unable to examine the impact of summer school and other activities on summer learning. However, another study using a smaller, national sample of the ECLS data found little impact of summer school on summer learning, although the study did find modest effects of home literacy activities (Lee and Burkam, 2003).

4. Reaffirming Affirmative Action

An Equal Opportunity Analysis of Advanced Placement Courses and University Admissions

ARMIDA ORNELAS AND DANIEL G. SOLÓRZANO

Introduction

On December 1, 2003, Clark Kerr, the former president of the University of California, passed away. One of the legacies he left was the 1960 California Master Plan for Higher Education. The Master Plan set up a three-tiered system of higher education that included the University of California admitting the top 12.5 percent of California high school graduates, the California State University system admitting the top 33 percent, and the California Community College system admitting anyone over the age of eighteen, or high school graduates. Despite this legacy of equal opportunity in higher education, in 2002 Clark Kerr expressed sadness about the direction and future of California higher education. In a May 16, 2002, interview with the UCLA Daily Bruin (Falcone, 2002), Kerr responded to a question about the future of the California Master Plan, and stated,

"The big thing that we were working on in 1960 was equality of opportunity. The big thing that we did—and nobody had done it anywhere else in the world—was to guarantee that there would be a place in higher education for every high school graduate who wanted to attend. That was just absolutely phenomenal. We did that by building up the community colleges, and provided that at the university we reserve half of our upper division places for transfers from the community colleges. We were really trying to build toward equal opportunity as had never been seen before in world history. In the mean time two sad things happened: One was that the good high schools developed advanced placement