A Special Section on the Achievement Gap

Challenging Assumptions About the Achievement Gap

The national dialogue about the achievement gap can help policy makers and educators find ways to better serve minority students. However, school policy and practice must be founded not on perceptions of group stereotypes, Mr. Ramirez and Mr. Carpenter argue, but on knowledge about each student's needs and strengths.

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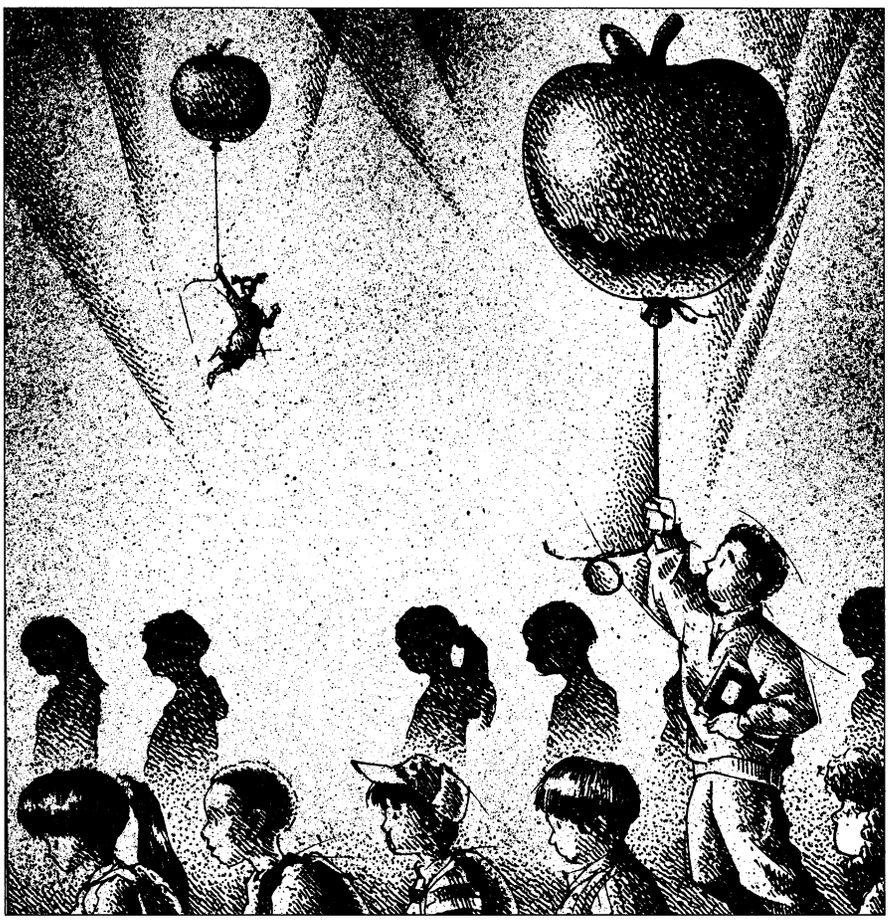

HERE IN Colorado, snow is particularly significant. It affects our economy through winter recreation and tourism, reduces the danger of forest fires, and provides water for most residents. And while to the casual observer the snow all looks the same, Coloradans know differently. We evaluate each snowfall not only by its quantity but also by its quality, that is, how wet it is. Sometimes the moisture content of the snow is low, which sets off a rush of snowboarders and skiers to the mountains

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but supplies little water to the arid landscape. Other times the moisture content is high, which contributes greatly to the state's water supply. Thus differences within the general category of snow are critical to our state's health and future.

Similarly, "within-group" differences are important to recognize when we look at student achievement, particularly as it relates to race or ethnicity. Since the *Brown* v. *Board of Education* decision more than 50 years ago, much attention has been paid to significant "between-group" differences. This focus resulted in policies and practices designed to reduce such disparities. Yet, until quite recently, educational researchers, policy makers, and practitioners have paid far less attention to within-group differences that are probably as important as those between groups and could, in fact, help us figure out how to narrow the differences between groups.

Take, for example, Latinos, who now constitute the largest minority group in the U.S. and who are certainly well represented in the public schools.[1] As a group, Latino students share many similar characteristics that set them apart from other groups. On average, Latino students tend to be poorer, attend more segregated schools, and live in urban areas. Latino students also account for the largest number of students served in programs of English-language acquisition. While these characteristics typify the group of students we call Latinos, it would be a mistake to assume that all Latino students have similar needs or require the same type of education.[2]

Yet current policies and educational practices directed toward Latino students are built on such assumptions and have had the unintended consequence of hurting the students' futures, educational and otherwise. Among these overgeneralized policies and practices are presuming that all students with Spanish surnames need English-language-acquisition classes; creating a policy of de facto segregation by assigning Latino students only to schools with English as a Second Language (ESL) programs; and presuming Latino students are potential dropouts rather than college-bound students.

When policy makers and education professionals remain oblivious to these false assumptions, misinterpretations occur, and stereotypical thinking prevails. Indeed, our investigation of the achievement gap underscores the relative insignificance of race and ethnicity, compared to other factors that most affect student learning. Furthermore, we have found that the "achievement gap" between Latino and white students may be a "phantom gap" derived from the practice of lumping all nonwhite students into a single comparison group. In short, the importance of within-group differences eclipses the importance of between-group differences.

ACHIEVEMENT GAP RESEARCH

Research on the academic achievement gap between majority and minority students is sometimes misapplied by policy makers and practitioners, and this in turn can lead to ineffective and even counterproductive programs for students.[3] Media coverage further exacerbates this misunderstanding about the lagging academic performance of minority groups, for it oversimplifies complex data in order to fit the conventions of news reporting and to manufacture catchy headlines. Moreover, policy discussions and debates about the achievement gap have missed the mark by casting the problem as a "minority group" phenomenon, without considering the dynamic interplay of variables that affect the learning of any individual child.

Of the achievement gap research that does consider factors in addition to race or ethnicity, much of it involves such home-based variables as socioeconomic status, home language, and parent involvement or such school-based variables as school segregation and teacher quality. However, the findings are far from conclusive.

Beginning with home-based variables, much of the research indicates that the income level of a student's family is highly correlated with academic success in school, a phenomenon that is indeed true for Latino students.[4] Moreover, in some studies the effect of socioeconomic status often overwhelms the relationship between race or ethnicity and academic achievement, since minority groups tend to be overrepresented among the poor. Yet not all researchers agree about the impact of socioeconomic status on student learning, and some cite other factors as having more influence.[5]

Regarding home language, the research remains mixed and crammed with cross-cutting issues. Some researchers believe that a student's language background is central to success in school, particularly when it is related to the level of parents' education.[6] For example, the U.S. Department of Education reported that, in 1999, the percentage of Latino parents with a high school or higher educaton was 49% for those who spoke mostly Spanish at home and 83% for those who spoke mostly English at home. Other researchers find that maintaining Spanish as the home language enhances academic achievement when combined with other factors.[7] Still

others contend that language background accounts for little in explaining student achievement.[8]

In contrast to the mixed findings on the role of language, there is general agreement among researchers on the importance of parent involvement, particularly for black and Latino students.[9] While parent involvement takes many forms, numerous researchers have concluded that the most significant type is assisting children with schoolwork at home.[10] Parent involvement also plays an important role in students' course-taking patterns. For example, James Valadez illustrates how Latino parents influence their children's enrollment in algebra and advanced mathematics courses.[11]

Turning to school-based variables, some researchers conclude that school segregation significantly affects the academic achievement of minority students. Gary Roberts describes a spiraling relationship in which student achievement and segregation interact in a negatively correlated fashion.[12] John Ogbu writes of a "cultural ecological" model in which minority students perceive ongoing patterns of discrimination and prejudice when comparing their experiences to those of their majority peers, which then inhibits academic achievement.[13] Other authors have identified what they call an "oppositional culture," which is most prevalent in schools with smaller percentages of minority students.[14] In such situations, minority student engagement, participation, and achievement all suffer, and any achievement gap is exacerbated.

Finally, although teacher quality has enjoyed attention in the literature of the achievement gap, researchers differ regarding its significance. For example, Harold Wenglinsky, Jonah Rockoff, and Peter Denner and his colleagues all find a strong relationship between teacher quality, defined in terms of training or experience, and student learning.[15] Yet Theodore Eisenberg indicates that advanced subject-matter knowledge on the part of teachers does not translate into higher levels of student learning.[16] Considering the emphasis given to this factor in the No Child Left Behind Act and the importance this law attaches to closing the achievement gap, teacher quality is a particularly salient variable.

WHAT WE STUDIED

Based on our experiences in schools and our review of the educational research on the achievement gap, we hypothesized that academic achievement for Latino students would be based on factors similar to those that affect all students. Furthermore, we hypothesized that within-group differences in the Latino student population would be much larger than the differences between white students and Latino students. In order to test these suppositions, we examined data in the National Educational Longitudinal Study (NELS:88).

NELS:88 is a comprehensive study authorized by the U.S. Congress and conducted by the National Center for Education Statistics. It is a series of cohort studies of American students that began in 1988 with eighth-grade students who were followed into high school, postsecondary education, and the work force. Follow-up studies were done in 1990, 1992, 1994, and 2000. NELS:88 uses both questionnaire data and test data

for each student. In addition, NELS:88 involves questionnaires for the school principal, for two teachers, and for parents.

The sample for our study was drawn from the 12th-grade follow-up study. To determine both within- and between-group differences, we calculated effects for whites, blacks, and Latinos. Thus our sample included data on 15,618 students: 2,170 Latinos, 1,660 blacks, and 11,788 whites. We chose to look at mathematics as the measure of student achievement. While including other subjects would provide a more complete picture of achievement, idiosyncrasies of the database required that we limit our achievement measure to mathematics only.

The NELS:88 database contains many hundreds of possible variables to draw upon and combine in examining factors that could be important to student achievement. Thus it was necessary for us to identify factors that, based on other research, have been shown to influence student learning generally. Our review led us to investigate the relationship between mathematics achievement and the following variables:

- socioeconomic status,
- language other than English regularly spoken at home,
- participation at any time in an ESL program,
- time spent on homework,
- class size,
- number of minority students in the class,
- number of units of algebra taken,
- number of undergraduate courses taken by the teacher in the subject he or she teaches most frequently,
- number of graduate courses taken by the teacher in the subject he or she teaches most frequently,
- family composition (i.e., two parents in the home),
- level of parent involvement, and
- urbanicity (i.e., urban, suburban, or rural).

FINDINGS AND RECOMMENDATIONS

Our analysis discovered that the "achievement gap" really consists of "multiple gaps" that exist both between and within groups. Socioeconomic status and participation in ESL were the most significant factors for all groups of students. For the most part, white and Latino student achievement were mirror images of each other, and each was affected similarly by each of the factors we examined. But this was not the case for black students in the sample. For example, Latino and white student achievement reflected similar differences based on urbanicity, but the same did not hold true for black students. Latino students who spoke English at home, who had never been enrolled in an ESL class, who came from intact families, and who spent more time on homework demonstrated higher levels of academic achievement than Latino students who did not share these characteristics. These relationships were similar for white students.

Turning to between-group differences, none of the variables we considered revealed a statistically significant gap between whites and Latinos. Socioeconomic background, experience in an ESL class, units of algebra, and level of parent involvement had a similar impact on the achievement of both white and Latino students. However, hours of homework were not a good predictor of student achievement for Latino students, while this variable was a good predictor for both black students and white students. Finally, while the differences we found between white students and Latino students were not significant, the differences between black students and white students and between black students and Latino students were significant.

While these findings are important, a caveat is worth bearing in mind. They do not indicate a simple, straight-line relationship, in which increases or decreases in one variable affect student achievement in direct proportion. Nevertheless, our findings do clearly indicate that family income, the number of parents in the home, the number of algebra units taken, the level of parent involvement, and the level of English-language skills are significant predictors of academic achievement for Latino students. Moreover, the differences on these factors among Latinos are greater than those between Latinos and whites. And many of the same factors exert a similar effect on achievement for white students.

Our research also indicates that the achievement gap is not monolithic. Instead, it is a richly textured, complex, and nuanced framework. Our findings underscore the need to disaggregate student data into many combinations of subsets in order to understand the dynamic relationships that exist within and between groups. The practice of lumping together data from all students of color — and even data from divisions within a single group — is a mistake that is bound to produce poor policy choices and poor educational practices.

Data-driven decision making is gaining popularity with educators and policy leaders. This methodology holds much promise to help us better understand the needs of students, to evaluate the effectiveness of our education programs, and to inform parents and key

stakeholders about our schools. However, we must remain wary of the allure of numbers and conscious of the destructiveness of flawed research. We must be careful about jumping to conclusions simply because we find a number that implies a difference between groups of students. We must always investigate the underlying factors that contribute to the average score for any group of students. As our research demonstrates, taking action based on limited data and analysis is professionally irresponsible. We have an ethical obligation to be thorough in our understanding of the phenomena we study in our schools.

Finally, what is evident from our investigation is that both school-based factors and home-based factors are important to the success of every child, regardless of racial or ethnic differences. School policy and practice must be founded not on perceptions of group stereotypes, but rather on knowledge about each student's needs and strengths. Thus the voices of parents, teachers, and students must be included when practitioners and policy makers seek to design better ways to serve students. The national dialogue about the achievement gap has the potential to help policy makers and educators find ways to better serve Latino and other minority students. But if we are to create such constructive policies, research and practice must be based on thoughtful reflection about what we know rather than what we assume.

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