

UCLA HIGH SCHOOL DIVERSITY PROJECT

PRINCIPAL INVESTIGATORS: SANDRA GRAHAM, PH.D. & JAANA JUVONEN, PH.D.

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Thank you!

Letter from the Principal Investigators

Welcome back to the UCLA Middle School and High School Diversity Project. This is the fifth issue of our yearly newsletter for school administrators that will keep you informed about the study. Just to remind you, about 6,000 students, some from middle schools and high schools in your district, are taking part in this important and timely study. The Principal Investigators are Sandra Graham PhD., Distinguished Professor in the Department of Education at UCLA, and Jaana Juvonen, PhD., Professor in the Department of Psychology at UCLA. Our collaborator in Northern California is Frank C. Worrell PhD., Professor in the Graduate School of Education at UC Berkeley. Our long-term goal is to use the information obtained from this research to develop better school programs that are sensitive to the needs of all adolescents. In this project, we are especially interested in healthy social relationships and positive academic outcomes in schools that range in ethnic diversity. With the most ethnically diverse population of any state in the nation, California is the perfect setting for this research.

We began the study in 2009. In three cohorts over the next three years, we recruited 6,000 6th grade students from 26 middle schools in Southern and Northern California. At the time of recruitment, our ethnically diverse sample was about 28% Latino, 23% White, 17% Asian/Pacific Islander, 11% African American, 14% who self-identified as multiethnic, and 7% who selected the category Other. By the end of the 2013-14 academic year, all of the students in the study had completed middle school. At that time, we received new funding from the National Institutes of Health (NIH) to follow our sample through the four years of high school and one year beyond. By the end of the 2017-18 academic year, students in Cohorts 1 and 2 will have completed the one year post-high school follow-up survey, where they are either enrolled in postsecondary education and/or working, and students in Cohort 3 will have completed 12th grade. Every year, participants respond to a written and confidential survey that asks about the social and academic challenges of middle school during that phase of the study, about high school during the current phase of the study, and now, for Cohorts 1 and 2, about their post-high school experiences. The longitudinal design with multiple time points in middle school, high school, and one year beyond is well-suited



to study continuous and discontinuous pathways to middle school completion, the transition to high school, high school graduation, and the transition to young adulthood. We hope to provide new insight into the protective factors that contribute to successful high school completion for all youth.

Published once a year, our Newsletter will provide updates about progress in the study. In this issue, we focus on three new sets of findings from the high school phase of the study. Written by current and former graduate students, all of the results reported here have racial/ethnic diversity of students and schools as core features. The first article in the newsletter by Jessica Morales-Chicas, Ph.D. explores how math course taking across the high school transition is related to the ethnic context and feelings of belonging in math. Jessica found that sense of belonging, an important motivation variable, was related to the perception of more same-ethnic peers in one's math class. For most ethnic groups in our sample, feeling like they belong is especially meaningful when their own ethnic group is under-represented in the particular course sequence they are taking.

The second and third articles probe more deeply the social experiences of high school students, with a particular focus on perceived discrimination (unfair race-based treatment from peers and adult authority figures). Being the target of discrimination can take its toll on the social, academic, and mental health adjustment of adolescents. Our analyses begin to explore some protective factors that can buffer the effects of perceived discrimination. In the second article, Feliz Quiñones examines how neighborhood collective efficacy -- the perception of the neighborhood as a close-knit community -- can be a protective factor. Even though more experiences with discrimination in the neighborhood can spill over to impact perceived unfair treatment at school, Feliz documented that residing in a neighborhood where members take care of one another can lessen the effect of negative neighborhood experiences. Focusing on the neighborhood reminds us that students bring a wealth of experiences with them when they walk through the school gates each morning.

The third article by Manpreet Dhillion-Brar explores the buffering role of civic engagement, defined as attitudes, beliefs, and behaviors that encourage young people to work to make society a better place. Taking a longitudinal approach, Manpreet found that high school participants' average level of perceived discrimination across 9th to 12th grade predicted social anxiety one year later. These correlations were weakened when students embrace their role as socially responsible emerging young adults (e.g., helping the less fortunate, advocating for social causes). We think that it is never too early to start nurturing our young people to have a social conscience.

If you have any questions about the High School Diversity Project or other information contained in this Newsletter, please feel free to call our UCLA office at (951) 807-0747. Armando Rodriguez, our Lead Project Manager, will be happy to speak with you or arrange for you to speak to one of the Principal Investigators. The Principal Investigators would also be pleased to give workshops or talks at your District office. You can also find more information about the project on our website, www.uclaschooldiversityproject.com.

Do I Belong in Math? **Why Ethnic Context and Math Sequence Matter**

Jessica Morales-Chicas, PhD

Enrolling in and passing advanced math courses is critical for entry into science, technology, engineering, and math (STEM) fields. However, African American and Latino students are less likely to enroll in advanced STEM courses and less likely to pass gate-keeping math courses in the 9th grade, when compared to White and Asian peers. Over the past several years, the *Algebra for All* policy initiative has helped enroll more 8th grade students into Algebra in middle school in hopes of lessening math disparities. In turn, this has helped reposition students who were traditionally funneled into lower level math (i.e., students of color) to now take a higher-level math course. Yet few studies have tried to understand the interplay between the ethnic context of the school and the math class. For example, does it make a difference for math motivation and achievement if there are many as opposed to few same-ethnic peers in your 9th grade math class when you did or did not successfully take Algebra I in middle school? We were particularly interested in the effects of math

sequence from 8th and 9th grade and the ethnic context on a motivation variable that we labeled *sense of belonging* in math. Sense of belonging (e.g., do I fit in?) is integral to the classroom experience and has been found to buffer achievement, academic engagement, and motivation in high school.

As students adjust to their new math course in high school, being in a classroom with more same ethnic peers may be important, especially at a time when fitting in with same ethnic peers increasingly matters. However, the availability of same ethnic peers across math courses may differ depending on math class ability level due to organizational practices like academic tracking that assigns classes based on ability. This practice can inadvertently segregate students by ethnicity within schools. In the study reported here using data from the Middle School and High School Diversity projects, we examined whether perceiving an ethnic numerical mismatch (i.e., ethnic incongruence) with more same ethnic peers in math relative to the school protects sense of belonging in math for different ethnic groups. It was hypothesized that fewer same ethnic peers in math class than in the school would negatively affect math sense of belonging, especially for students underrepresented at the highest levels of math.

Participants were from the UCLA Middle and High School Diversity Projects and were first recruited in the 6th grade from 26 ethnically diverse middle schools. Participants were re-recruited in the 9th grade from 152 high schools to which they transitioned. A total of 4,385 students were granted permission to participate and 3,507 took the 9th grade survey (46% males; 54% female). The ethnic breakdown is as follows: 33.1% Latino, 23.3% White/Caucasian, 14.9% Asian (East and Southeast Asian), 10% Black/African American, 7.8% Multiethnic or Biracial, 3.2% Filipino or Pacific Islander, 2.7% Middle Eastern, 1.9% South Asian, .6% Other (including Native American), and 2.5% who did not report an ethnic group.

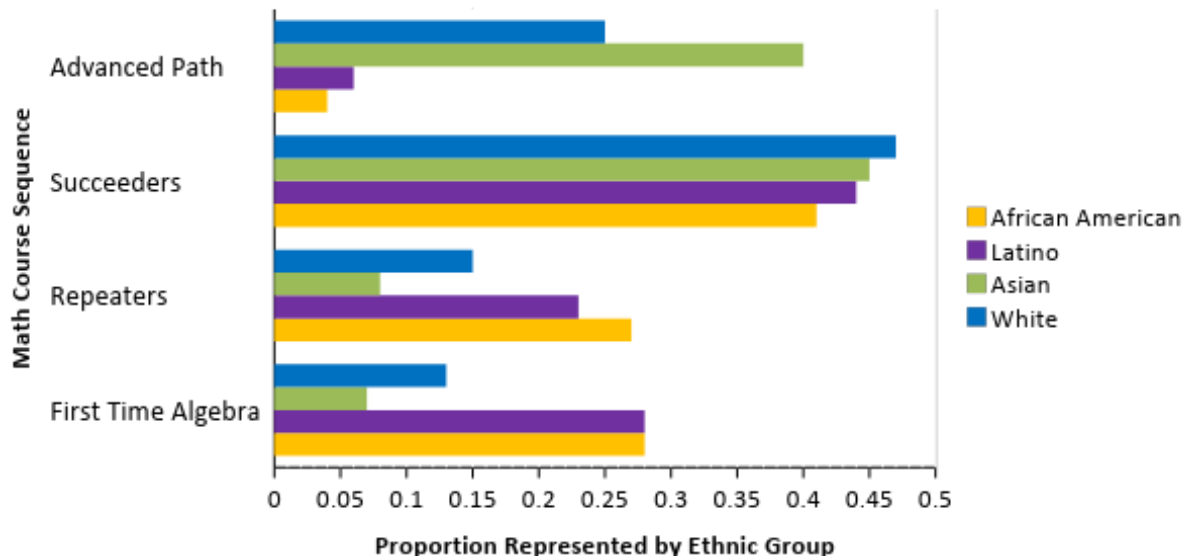
Table 1 shows how each of the four *math course sequences* was created based on what math course students took in 8th and 9th grade. Students who took Algebra I in 9th grade for the first time were labeled *First Time Algebra Takers*. Those who took Algebra I in both 8th and 9th grade (presumably because they failed) were labeled *Algebra Repeaters*. Those who passed Algebra I in 8th grade and were now in Algebra II in 9th grade were labeled *Algebra Succeeders*, and students who were already past Algebra I by 8th grade were labeled *Advanced Math*.

Table 1: *Math Course Sequences*

	8 th and 9 th Grade Math Courses				
	8 th Grade Geometry	8 th Grade Algebra 1	9 th Grade Algebra 1	9 th Grade Geometry	9 th Grade Algebra 2
Math Course Sequence					
1 st Time Algebra Takers			X		
Algebra Repeaters		x	X		
Algebra Succeeders		x		x	
		x			X
Advanced Math	x				X

Figure 1 shows the proportion of students enrolled in each of these math sequences by ethnicity, focusing on the four largest pan-ethnic groups in our sample. First, the good news. Consistent with the *Algebra for All* initiative, the second set of bar graphs shows that *Algebra Succeeders* were a large and ethnically diverse proportion of students (50%) enrolled in 8th grade Algebra 1. Now, the more concerning findings. About 15% of students ended up repeating Algebra 1 in 9th grade for a myriad of reasons and these tended to be Latino and African American and youth. We also see that Latino and African American students were more likely to wait to take Algebra I in 9th grade and they were noticeably under-enrolled in Advanced Math when compared to their White and Asian peers.

Math course sequence by ethnic group



Next we turned to the role of ethnic context. To measure *Perceived Same Ethnicity Incongruence* between math course and school ethnic representation, participants were asked “How many students in your *math class* are from your ethnic group?” to which they responded on a 5-point [1 = “none or hardly any (less than 20%)” to 5 = “all or almost all (80-100%)”]. From this score, we subtracted the value attained by asking: “How many students in your school are from your ethnic group?”. Higher positive values therefore indicated more perceived same ethnic peers in math class than in school. *Sense of Belonging in Math* was assessed by 6 statements (e.g., “I feel like I fit in with the other students in my math class”), to which they responded on a 5-point scale (1 = *no way!* to 5 = *for sure yes!*).

The findings confirmed the hypothesis that incongruence in the perceived number of same ethnic peers in math compared to the school predicted belongingness in 9th grade math. Students felt more like they belonged when they thought their own ethnic group was more represented in math than what would be expected by chance. However, this association differed by ethnicity and particular math course sequence. For White students, Figure 2 shows that more perceived same ethnic peers in math than school was associated with significantly higher belonging in math but only for *Algebra Repeaters* (the red line). Additionally, Figure 3 shows that Black students who perceived more same ethnic peers in math than school reported a higher sense of belonging when they were in *Advanced Math* (the purple line). Figure 4 shows similar results for Latino students, with more perceived same ethnic peers in math than school associated with increased belonging in *Advanced Math* (the purple line). All of the highlighted groups in Figures 2-4 differed significantly from the other math sequence groups. For Asian students, perceiving more same ethnic peers in math than in school was associated with greater math belonging, but this pattern did not depend on math course sequence.

Fig. 2: White Students

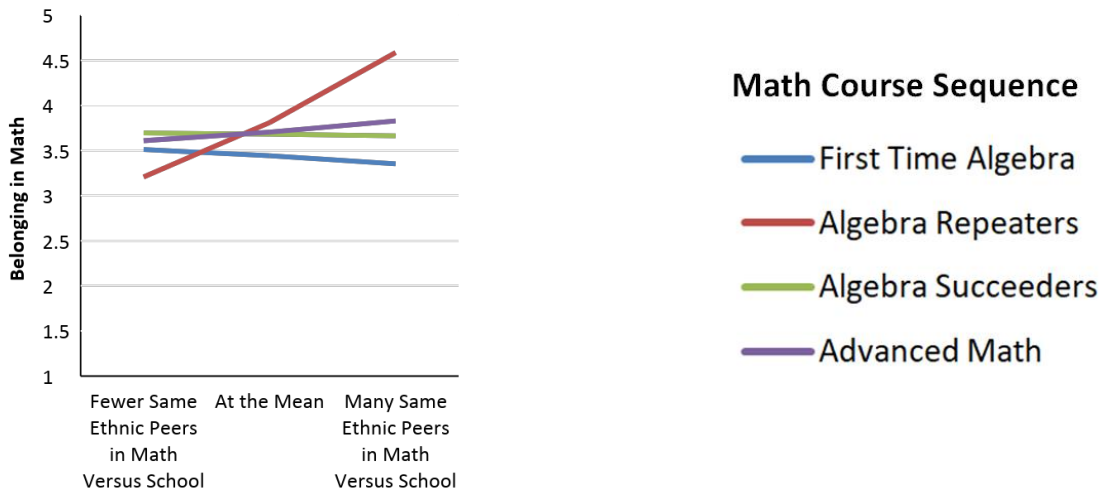


Fig. 3: Black Students

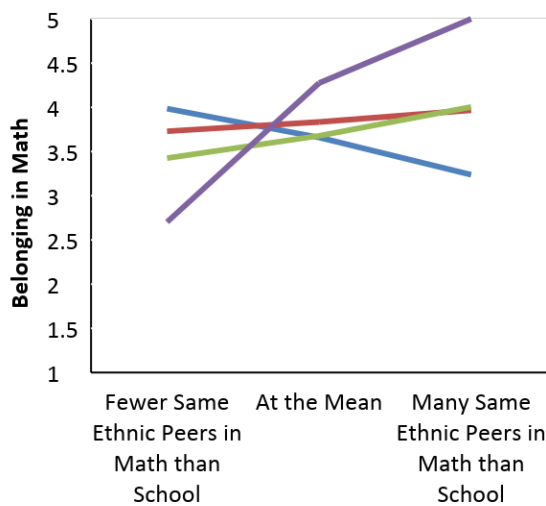
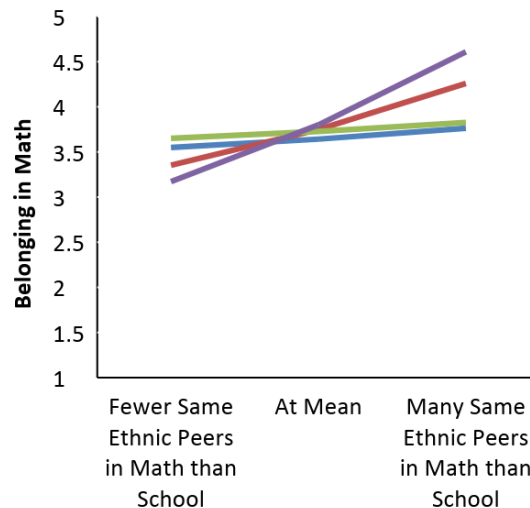


Fig. 4: Latino Students



Collectively, these findings suggest that perceiving more same ethnic peers in math than in school was positively related to more belonging in math, but this depended on students’ ethnic background and particular math course sequence. For Black and Latino students who are typically underrepresented in advanced math, the mere perception of someone like them in class moreso than in the general school population buffered math belonging. Perceiving similar ethnic peers in class could facilitate friendships and also serve as a source of social support to get through the more difficult math content. For White students, perceiving more same ethnic peers in math class than school was protective of belongingness in the math sequence in which they were underrepresented (*Algebra Repeaters*).

At both ends of the achievement spectrum, there is something especially protective about looking around the classroom and seeing more peers “like you” especially when your group is under-represented. Our findings suggest that studies on the impact of significant policy changes such as *Algebra For All* would do well to pay greater attention to the larger ethnic context in which math course-taking unfolds.

The Neighborhood-School Spillover in Predicting Perceived Discrimination in High School

Feliz Quiñones

Previous research suggests that students' perceptions of school discrimination are informed by interactions with peers and adults in the school context. However, there is only a relatively small literature examining the role of the neighborhood context in helping us understand students' perceptions of unfair treatment at school. Residing in a community where students experience high levels of neighborhood discrimination (e.g., from authority figures) may inform their perceptions around unfair treatment at school. Previous research also suggests that residing in communities high in collective efficacy, or with strong social ties, can be protective against unfair treatment. While few studies address how neighborhoods influence students' perceptions in the school context, it is imperative and timely to examine the possibility of *neighborhood-to-school spillover*.

The current study takes an ecological perspective to examine how (1) neighborhood racial/ethnic discrimination (by police and store clerks) affects students' perceptions of school-based racial/ethnic discrimination by adult authority figures and by peers; and (2) how neighborhood collective efficacy may change the relationship between neighborhood discrimination and school-based discrimination. Data for this study comes from the larger High School Diversity Project. The analytic subsample for this analysis consists of 987 10th graders from Cohort 1 (53% female; 13% Black, 17% Asian, 28% White, and 42% Latina/o) drawn from over 200 high schools in northern and southern California and over 300 neighborhoods that varied in ethnic diversity.

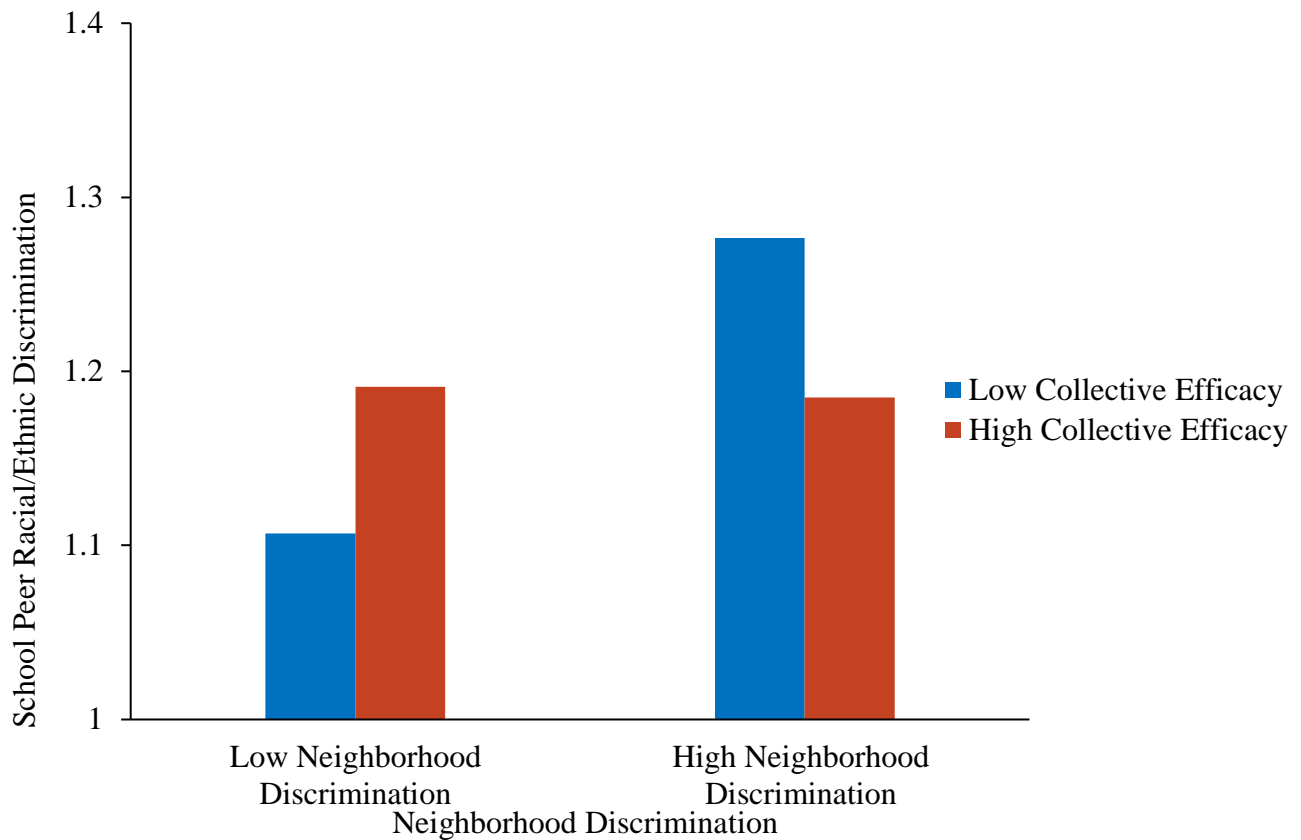
Measures

Students responded to a three-item measure where they were asked how often they were treated unfairly or suspiciously in their neighborhood (i.e., by police) because of their ethnic group (1=*never*, 5=*a whole lot*) ($\alpha = .76$). To examine neighborhood collective efficacy, students responded to an 11-item measure where they were asked how strongly they agreed with statements such as the following about their community (i.e., "This is a close-knit neighborhood") (1=*definitely disagree*, 5 = *strongly agree*) ($\alpha = .89$). Perceived school-based adult racial/ethnic discrimination was measured using four items, on 5-point scales (1 = *never*, 5 = *a whole lot*) ($\alpha = .81$). A sample item was: "How often did adults at your school act as if they thought you were not smart because of your race/ethnicity?". Finally, perceived discrimination by peers used a similar response format with a 4-item measure (e.g., "How often were you threatened by other kids because of your race/ethnicity?") ($\alpha = .81$).

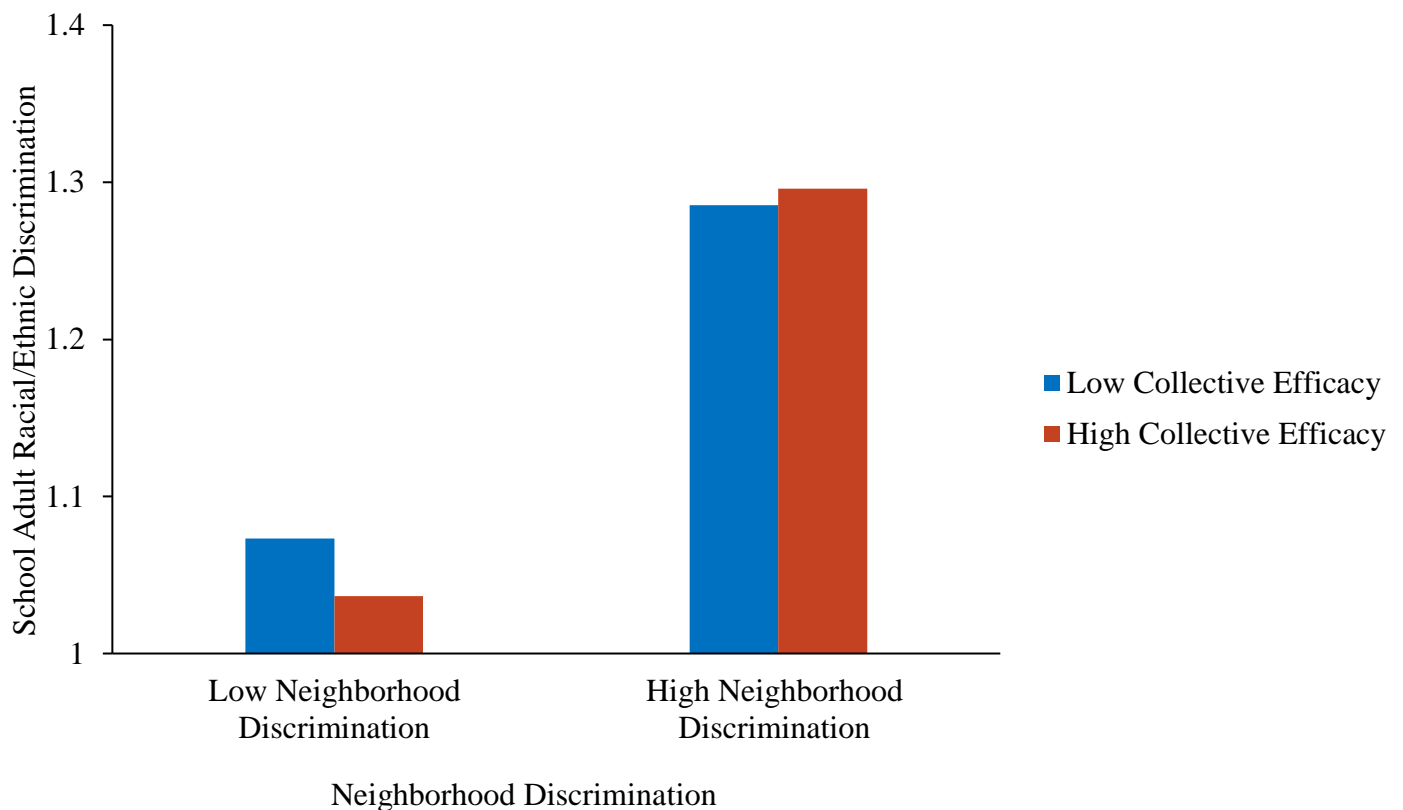
Findings

To account for the nested data (students nested in neighborhoods and schools), we ran a series of multilevel models. We ran one set of models examining how neighborhood discrimination and collective efficacy – independently and together – affected perceived discrimination from peers at school. We analyzed identical models for perceived discrimination by adults at school.

Peer discrimination. Figure 1 shows the effects documenting spillover of both neighborhood discrimination and collective efficacy on peer discrimination. The largest effect was for neighborhood discrimination. The more our 10th graders thought they were treated unfairly in their neighborhood, the more they perceived race-based unfair treatment at school. But collective efficacy mattered too. Notice the blue and red bars at low and high levels of neighborhood discrimination. The negative effect of high neighborhood discrimination was exacerbated when collective efficacy was low. Stated otherwise, high collective efficacy served to counteract some of the negative effects of perceived high neighborhood discrimination in the neighborhood.



Adult discrimination. Figure 2 shows the data for perceived adult discrimination. Here most of the impact on perceived unfair treatment at school was due to the experience of unfair treatment in the neighborhood. There was very little effect of collective efficacy.



In summary, what happens in the neighborhood is important and it can spill over to affect how adolescents perceive their school environment. When students perceive that adult authority figures in their community treat them unfairly, that can impact the extent to which they perceive both peers and adult authority figures at school also treat them unfairly because of their racial or ethnic background. Collective efficacy, or perceiving the neighborhood as a close-knit community, buffered the effect of neighborhood unfair treatment when it came to judgments about peers at school. Living in neighborhoods with high collective efficacy, where community residents “have each other’s backs” is protective for adolescents. Future analyses will probe whether other characteristics of the neighborhood, such as the representation of one’s own ethnic group, mitigate the amount of perceived adult discrimination at school.

School life doesn’t begin when students walk through the school gates every weekday morning. Where students live, how far they travel from home to school, and what they experience in their neighborhood *matters*. Students carry with them their communities’ cultural wealth, which helps them make sense of their experiences in school.

To be Involved or Not to be Involved: The Impact of Civic Engagement During Late Adolescence

Manpreet Dhillon-Brar

The transition from adolescence to young adulthood is formative for the development of civic engagement. A multidimensional construct, civic engagement includes attitudes, beliefs, and behaviors that encourage young people to work to make society a better place. Engaging in civic behaviors such as volunteerism, exercising political voice, and acting on beliefs about social responsibility can empower youth to become agents of positive change for their communities.

Some evidence has suggested that experiencing discrimination can alienate adolescents from civic life. However, little is known about the predictors of developmental change in the relationship between civic engagement and discrimination during adolescence. Using data from the High School Diversity Project, we examined how perceiving racial/ethnic discrimination from peers over the high school years can predict an increase in civic engagement and how civic engagement can help mediate negative psychosocial outcomes that have been linked to perceiving discrimination.

Discrimination has been linked to many psychosocial problems such as lower self-esteem, more psychological distress, and more physical symptoms along with lower academic performance. Few studies have explored how discrimination is related to civic behavior among diverse youth. Many scholars theorize that experiences with race-based discrimination play a pivotal role in predicting civic behavior, although the direction of effects is unclear. Some research suggests that discrimination *undermines* civic participation because of the barriers imposed by perceived unfair treatment, whereas other research suggests that discrimination *motivates* civic participation. In support of the latter position, studies of responses to anti-immigration events point to increased collective protests and political participation among immigrant adults. Such evidence suggests that negative experiences of exclusion, traditionally thought of as barriers to civic engagement, can motivate certain forms of civic participation such as expressing opinions or protesting perceived injustice.

We examined perceived racial/ethnic discrimination from peers among the students in Cohort 1 of our study (1100 students) to better understand how perceived discrimination across high school from 9th to 12th grade predicted later civic engagement. To understand the positive impacts of civic engagement, we also examined whether civic engagement could partly explain the relationship between discrimination and social anxiety one year beyond the high school years. We measured civic engagement by asking our participants to report how often they engaged in civic activities such as volunteerism in various contexts, participation in social causes, attending political events. Some example items on our 10-item civic engagement scale are shown below.

Civic Engagement Questions

Students were asked about how often they engage in civic activities from “never” to “about once a month” on 10 questions. Below are some examples.

Volunteered for a group to help feed the homeless or care for the elderly or handicapped?

Helped collect money or signatures for a social cause?

Participated in a community or political rally/demonstration (in person, not online)?

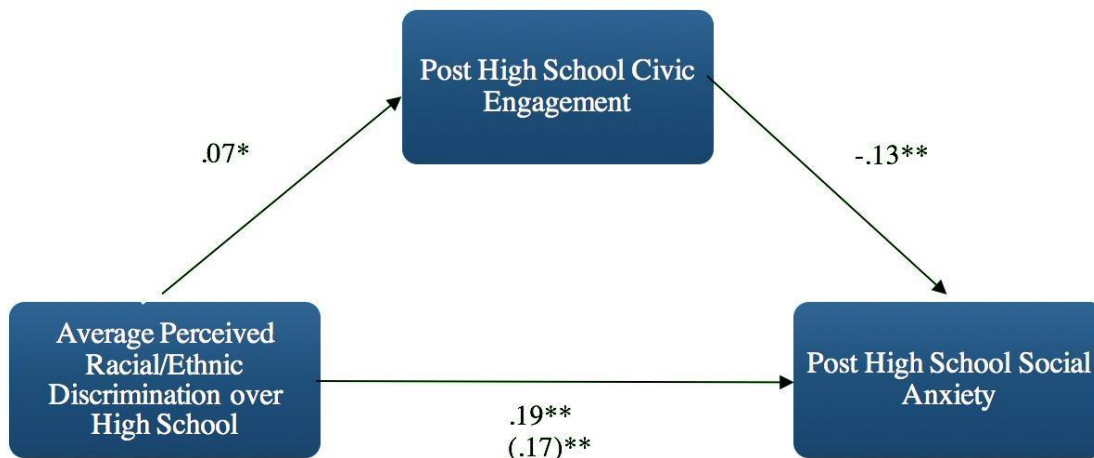
Actively participated in other political petitions, events, or discussions online?

Contacted your local, state, or national political representatives about current issues?

By late adolescence and early adulthood, young people have formed ideas about society based on accumulated experiences in their families, peer groups, schools, and neighborhoods. Therefore, the changes occurring as individuals transition out of familiar contexts of home and high school to new living situations and social roles make the period after high school crucial for examining civic development.

Our findings were consistent with previous research on perceived racial/ethnic discrimination such that being the target of discrimination in high school predicted a host of negative psychosocial outcomes including loneliness, depressive symptoms, physical symptoms and social anxiety. Additionally, our survey findings indicated that perceived discrimination over the high school years (an average score over 9-12th grade) significantly predicted civic engagement one year after high school. Separately from perceived discrimination, youth in our survey reported feeling less anxious when they engaged in more civic activities, regardless of how many hours per week they spent on those activities. When we examined whether civic engagement can lower the impact of the negative psychosocial outcomes, we found that this was true for the relationship between perceived racial/ethnic discrimination and social anxiety. As shown in the figure below, while average perceived racial/ethnic discrimination over high school predicted later social anxiety, this effect was modestly reduced when youth were engaged in more civic activities.

From our findings, we can conclude that civic engagement is critical for youth, not only to teach them leadership skills, to empower them, and to encourage them to contribute to society, but also to reduce the negative impact of perceived discrimination on psychosocial health. Educators and schools can work towards not only reducing the discrimination experiences of youth, but also promoting engagement in civic activities at a young age to empower students and buffer psychological distress. It is never too early to begin nurturing social responsibility in our nation’s young people.



Thank You!

We would like to thank you for your continuing involvement in the UCLA Diversity Project. We greatly appreciate all of the school administrators, staff, teachers, parents, and students who open their doors to us and allow us the opportunity to conduct this research. If you have any questions, please feel free to contact the Principal Investigators, Sandra Graham (graham@gseis.ucla.edu; 310-206-1205) and Jaana Juvonen (juvonen@psych.ucla.edu; 310-825-8293). You can also reach our Project Managers, Armando Rodriguez (armandorodriguezhsdp@gmail.com; 951-807-0747) and Tate LeBlanc (leblanchsdp@gmail.com; 909-705-6712).

