The Role of Science Identity Salience in Graduate School Enrollment for First-generation, Low-income, Underrepresented Students

Elizabeth Piatt   **Kent State University**
David Merolla   **Wayne State University**
Eboni Pringle   **Kent State University**
Richard T. Serpe   **Kent State University**

While much of the research on formal mentoring programs considers their impact on underrepresented students, there is very little research on formal mentoring programs which examines the utility of these programs for underrepresented students who are also first-generation and limited-income students. The authors addressed this gap in the literature by examining the relationships between formal mentoring program participation, science identity salience, and graduate school enrollment in a sample of first-generation, low-income, underrepresented students. Specifically, interest was in understanding whether these relationships are the same for first-generation, low-income students, underrepresented students; and what aspects of a formal mentoring program are most important for graduate school enrollment in this group. These relationships were explored using data from The Science Study, a national panel study of undergraduate STEM majors.

Keywords: *science identity, underrepresented minorities, graduate school matriculation, STEM, formal mentoring programs*

INTRODUCTION

Higher Education in the United States continues to reflect the deep divide represented by race and class that is evident in many other sectors of education. Racially underrepresented and low-income students, who are often segregated into K–12 school districts with limited resources and course options, experience lower college enrollment and degree attainment. White students enroll in college at a rate of 42% compared to 36% of African American and 39% of Latinx students (de Brey et al., 2019).

Degree attainment represents a larger gap between these populations. While there has been a notable increase in six-year graduation rates from four-year institutions, African American and Latinx students continue to represent the lowest number of graduates (Shapiro et al., 2017). African American and Latinx students are 20% less likely to graduate than their White and Asian counterparts (Tate, 2017). While access has shifted to welcome more students from diverse backgrounds, success for this population seems elusive.

When income is added to the equation, the outcomes are even bleaker. Students whose families earn $100,000 or more annually are 43.1% more likely to earn a college degree than those students whose families make less than $30,000 (Markowitz, 2017). Tinto (2012) stated, "Despite our nation's success in increasing access to college and reducing the gap in access between high- and low-income students, we have not yet been successful in translating the opportunity access provides into college completion" (p. 4).

African American and Latinx college students are disproportionally represented in lower income households (Espinosa et al., 2019). Parents leading these households are less likely to be college graduates. Only 25% of White and Asian students are classified as first-generation while 41% of African American and 61% of Latinx families meet these criteria (Postsecondary National Policy Institute, 2018). The median household income for students who are classified as first-

generation is $37,565 compared to $99,635 for households where the parents earned a bachelor's degree (Postsecondary National Policy Institute, 2018).

As expected, graduate school enrollment and attainment follows a similar trend as undergraduate outcomes. The pipeline to graduate education looks more promising in recent years for underrepresented students. However, on closer inspection, enrollment, and completion is still dismal when compared to White and Asian students. In 2017, doctoral degrees awarded to African Americans was up by 23% and 43% for Latinx students (National Science Foundation, NSF, 2018). Racially underrepresented students; however, make up only 7% of all doctoral degree awardees (NSF, 2018).

In a review of STEM (science, technology, engineering, and mathematics) graduate degrees outcomes, underrepresented student attainment falls short of their 30% representation in the U.S. population (NSF, 2018). Data however indicate that Whites are overrepresented among graduate degree recipients by as much as 12% (NSF, 2018).

Income continues to play a role in graduate school enrollment. Forty-nine percent of students in the highest income quartile enroll in graduate school ten years after completing a bachelor's degree compared to only 33% of those in the lowest income quartile (Baum & Steele, 2017). Income is also related to the selected type and level of graduate school enrollment. Baum and Steele (2017) found that students from families representing the lowest income quartile are less likely than those in higher income brackets to enroll in doctoral degree programs and more likely to pursue academic degrees that lead to lower income outcomes.

Beyond income, being the first person in the family to earn a baccalaureate degree, impacts postbaccalaureate pursuits. Students who are first in their family to earn a bachelor's degree enroll in graduate programs at a rate of 41% compared to 46% of those whose parents hold a degree (Cataldi, Bennett, & Chen, 2018). Much like data on income, differences in enrollment by type of program are noted as well. There is a 6% gap between students who enroll in a doctoral or professional program who report being the first in their family to earn a degree and those who have parents who have completed a baccalaureate degree (Cataldi, Bennett, & Chen, 2018).

The current trends are likely to have an economic impact on the U.S. As of 2017, 34% of Americans earned a baccalaureate degree and 13% earned a graduate degree (Schmidt, 2018; U.S. Census Bureau, 2019). Employment requiring a master's degree is projected to increase by 17% and by 13% for doctoral and professional degrees through to 2026 (Torpey, 2018). Torpey (2018) reported that the growth in employment requiring a postbaccalaureate degree is expected to exceed the growth for those jobs requiring a bachelor's degree. To meet hiring demands for highly skilled employees, the U.S. will need to increase the participation of all individuals in education and the economy.

The U.S. is projected to become a majority-minority country by 2044, with individuals identifying as White dropping below 50% of the U.S. population (Poston & Saenz, 2019). Increasingly, without education, racially underrepresented individuals will join the working class rather than filling the positions requiring a degree (Wilson, 2016).

Beyond meeting hiring demands, studies demonstrate that innovation is more likely when there is a diversity in the workplace, a critical need to address the complex issues in our society and to remain competitive as a country (Pittinsky, 2016). STEM employers are alarmed about the significant and persistent inadequate pipeline for underrepresented students (Funk & Parker, 2018). The U.S. trails China and India in STEM college graduates. According to the World Economic Forum, in 2017 China reported 4.7 million recent STEM graduates, followed by India reporting 2.6 million in 2017 (Herman, 2019). The U.S. is in third place reporting only 568,000 STEM graduates (Herman, 2019). To meet current and future hiring demands, requires strategies to increase the number of underrepresented students who earn a graduate degree. This is especially critical in the STEM fields.

In a review of data and studies of bachelor's and graduate degree enrollment and attainment for underrepresented students, many separately consider the impact of family income and the level of parental education. However, many haven't explored the influence of all three of these factors

combined. Can a formalized research mentoring program (FMP) help students form a positive STEM identity and ameliorate graduate school enrollment and degree attainment?

BACKGROUND LITERATURE

Formalized research mentoring programs have been in existence since the 1950s, when the National Science Foundation established the precursor to the Research Experiences for Undergraduates program (National Academies of Sciences, Engineering and Medicine, 2017). The structure of these programs vary, but typically includes an assigned mentor in the student's discipline, a research internship experience, assistance with the graduate school application process, and academic conference support. Research has shown that these programs increase retention and graduation rates of participants, as well as increase the rate at which students enroll in graduate programs or enter STEM careers. For example, Campbell and Campbell (1997) found that students in a formal mentoring program had higher grade point averages (GPAs), completed more hours, and were more likely to persist. Eubanks-Turner, Beaulieu and Pal (2018) used formal mentoring to increase the number of underrepresented math students transitioning into graduate school and STEM careers. Merolla and Serpe (2013) reported that students who participated in STEM FMPs were more likely to matriculate into graduate programs. Formalized mentoring programs have been particularly successful in adding to the diversity of STEM fields, boosting the participation of women and underrepresented students in science occupations and graduate programs (Schultz et al., 2011).

The McNair Postbaccalaureate Achievement Program is a formal mentoring program which targets first-generation, low-income and underrepresented students. The McNair program is a federal TRIO program, sponsored by the U.S. Department of Education (https://www2.ed.gov/about/offices/), which is aimed at increasing the number of doctoral degree holders from first-generation, low-income and underrepresented populations. TRIO programs are a collection of college access and retention programs that were originally authorized and funded through the Elementary and Secondary Act of 1965, and then through the Higher Education Act of 1965. The McNair Program was approved in 1986. Currently, there are over 180 McNair programs, collectively serving more than 5000 students. To be eligible for McNair, students must be first-generation college students and have a family income at or below 150% of the poverty level or identify as African American, Hispanic/Latinx, or Native American. Many McNair participants meet both eligibility requirements. The average size of a McNair program is 28 students (U.S. Department of Education, 2018).

While there is some variation in the structure of McNair programs, all programs include

> . . . opportunities for research or other scholarly activity; summer internships; seminars and other educational activities designed to prepare students for doctoral study; tutoring; academic counseling; and activities designed to assist students . . . in securing admission to and financial assistance for enrollment in graduate programs (U.S. Department of Education, 2018).

Because McNair Programs focus on research, they rely on faculty to serve as mentors to participants. Faculty mentors are expected to support participants in their research, assist them in identifying graduate programs, and socialize participants to their discipline. This model has been effective in diversifying the number of doctoral degree holders from underrepresented groups. A 2008 study of McNair participants demonstrated that 14.4% of all 1989–1993 participants had earned doctoral degrees and 46.4% of those doctorates were earned by participants from underrepresented groups (African American, 25.9%; Hispanic/Latinx, 15.7%; and Native American, 4.8%).

Formal mentoring programs are a form of anticipatory socialization, whereby participants learn and practice the expectations and behaviors associated with the researcher role prior to acquiring that role. Through anticipatory socialization, program participants will also adopt the values and attitudes of those in the researcher role (Merton, 1957). Consequently, much of the research aimed at understanding why FMPs are effective focuses on the socialization aspect of

these programs. However, socialization is conceptualized in the literature in a number of different ways. Gittens (2014) described it as *academic integration*, which is developing competence and confidence from participating in scholarly activities, particularly conducting research and presenting at national conferences, in an examination of McNair program participants. In this study, participants identified academic integration as an important contributor to their persistence in a graduate program. This is similar to what Estrada and colleagues (2011) identified as rule orientation, a measure of the extent to which a person feels like they can do tasks associated with the scientist role. Estrada and associates added role orientation (has the person developed an identity as a scientist), and value orientation (has the person internalized the same values as other scientists) in an effort to understand how each of these factors are involved in integration into a scientific community and enrollment in graduate school. What they found is that role identity and value orientation are most important for long-term integration into the scientific community.

There is additional evidence that the development of non-academic attributes is also related to science persistence. For example, research indicates science identity salience is an important reason why FMPs are effective. Identity salience describes the relative placement of a particular role identity relative to an individual's other role identities. A role identity that ranks higher in an individual's identity salience hierarchy has a greater probability to be enacted across a wide range of situations and is more likely to be maintained over time (Merolla et al., 2012). The student development literature supports the idea that strong identification as a student is associated with student success. For example, Bowman and Felix (2017) identified that students high on student identity centrality have greater goal and institutional commitment. Furthermore, there is a growing body of social psychological research which has consistently noted a positive relationship between science identity and entering a science career or graduate program. Stets and others (2017) found that those with a strong science identity are more likely to be working in a science career after graduation. Merolla and colleagues (2012) determined that science identity salience is positively associated with intention to pursue a science career. Additionally, they noted that participation in a formal mentoring program is positively associated with science identity salience. In other words, FMPs increase likelihood to enter a science career through their positive effect on identity salience. Merolla and Serpe (2013) demonstrated that science identity salience is positively associated with graduate school matriculation. Specifically, they found that students who participated in an FMP, and those who were higher on science identity salience, were more likely to enroll in a graduate program.

In summary, research suggests that FMPs are an effective mechanism for increasing science identity for underrepresented students, and that science identity is positively associated with intention to pursue a career in science or attend graduate school. However, while much of the research on FMP considers their impact on underrepresented students, there is very little research on formal mentoring programs that examines the utility of these programs specifically for underrepresented students who are also first-generation and low-income. Students who are first in their family to go to college and from lower income backgrounds make up an increasing proportion of college students, but face significantly steeper challenges with retention, graduation, and graduate school enrollment compared to their peers. This is evidenced by the fact that about 90% of first generation, low-income students, do not graduate in six years (Education Technology, Services and Research, EAB, 2019). National Center for Education Statistics data show that one third of college students in 2012 had parents who had not earned a bachelor's degree (Cataldi, Bennett, & Chen, 2018). Given the size of this population of students, colleges and universities need to identify ways to increase their retention and graduation.

PURPOSE

In this study the authors addressed this gap in the literature by examining the relationships between formal mentoring program participation, science identity salience, and graduate school enrollment in a sample of first-generation, low-income, underrepresented students. Specifically, we were interested in understanding

- what aspects of a formal mentoring program are most important for graduate school enrollment for first-generation, low-income, and underrepresented students; and
- are the relationships between formal mentoring program participation, science identity salience, and graduate school enrollment the same in this group?

These relationships are explored using quantitative data which comes from The Science Study, a national panel study of undergraduate STEM majors.

METHODS

Data and Sample

The data for this research comes from The Science Study (Schultz et. al., 2011), a national panel study of undergraduate science majors at universities across the United States. The Science Study panel was recruited in the fall semester of 2005 by way of an online screening survey publicized through announcements to directors of National Institutes of Health (NIH) STEM FMPs in numerous colleges and universities across the U.S. In total 1,040 students were selected for the panel, with about 40% of undergraduate students reporting enrollment in an FMP at baseline. Of the total respondents, 137 graduate students at baseline, 83 were still undergraduate students during winter 2011, 106 did not meet criteria for TRIO McNair program eligibility, and 197 completed either zero or only one survey as an undergraduate student. Removing these cases gives an analytic sample of 517 students who meet federal criteria for TRIO programs defined as either first-generation and low income or underrepresented—African American, Native American, or Latinx, GPA of 2.8 or higher and at least a junior standing. After applying all of the criteria, the sample consisted only of Black and Latinx students. Students were asked to complete a survey once each semester and data used were collected from 2005 through 2011. Item level missing data were adjusted using multiple imputation and all results are averaged over 20 imputed datasets.

Measures

The dependent variable for this project is whether the respondent ever reported matriculating into any graduate program. As shown in Table 1, 61% of all students reported some graduate enrollment over the span of the study. This high percentage is likely due to the unique nature of the sample; the students are primarily high-achieving students who indicated an interest in graduate school at baseline. These are precisely the students that TRIO McNair programs hope to encourage to attend graduate programs.

Table 1

Descriptive Statistics for Analysis Variables (N = 517)

Variable	Range	Mean/Proportion	STD
Attended Graduate School (1=Yes)	0-1	.61	-
Proportion of Semesters In FMP	0-1	.37	.43
Proportion of Semesters Involved in Research	0-1	.61	.39
Proportion of Semesters has a Mentor	0-1	.60	.40
Science Identity Salience	0-10	7.27	2.53
College GPA	0-4	3.41	.432
Black (1=Yes)	0-1	.52	-
Female (1=Yes)	0-1	.76	-
Parent with Graduate Degree (1=Yes)	0-1	.22	-
Took High School AP Course (1=Yes)	0-1	.53	-
Single Mom Home (1=Yes)	0-1	.28	-
Biology Major (1=Yes)	0-1	.63	-
Baseline Intention for Science Career	0-10	8.49	1.808

Note. Adapted from Schultz, P. W., Hernandez, P. R., Woodcock, A., Estrada, M., Chance, R. C., Aguilar, M., & Serpe, R. T. (2011). Patching the pipeline: Reducing educational disparities in the sciences through minority training programs. *Educational Evaluation & Policy Analysis*, 33(1), 95-114. (The Science Study). https://doi.org/10.3102/0162373710392371

The first independent variable is the proportion of undergraduate semesters that the student reported being enrolled in a FMP. The majority of students in The Science Study panel participated in one of two NIH funded FMPs—Research Initiative in Science Education (RISE), or Minority Access to Research Careers (MARC)—although a small number of students were involved in other FMPs. Table 1 indicates that the average student was enrolled in an FMP 37% of the semesters they completed surveys. Alternate analyses using a dummy variable for receiving funding yielded results similar to those reported.

The authors use four mediating variables that could explain the link between participation in FMPs and graduate school matriculation. The first mediator is the proportion of undergraduate semesters that the students reported being involved in a research project. Table 1 indicates high research participation among the sample, with the average student reporting being involved in research in 61% of the semesters they were surveyed. Similarly, proportion of semesters with a mentor is the proportion of semesters the student reported a faculty mentor. Again, the sample had high involvement with faculty with the average student reporting having a faculty mentor in 60% of the semesters that they were surveyed. The third mediating variable is science identity salience. *Science Identity Salience* is a composite variable computed as a student's average response to four questions. Specifically, respondents were asked, "Think about meeting a (co-worker, the friend of a close friend, a person of the opposite sex, the friend of a family member) for the first time, how likely would you be to tell this person about your desire to be a scientist?" Alpha reliability of this measure is .94 and the mean is 7.27. College GPA is the students reported college GPA; the average student had a GPA of 3.41. Given that students were entering graduate school or leaving college in different terms, the values for GPA and science identity salience were taken from the semester prior to each student's outcomes.

Seven control variables are used to account for demographic and family and educational background differences among students who select into FMPs and those that do not; although given the restricted range on most of the variables, past research using these data has shown relatively modest effects of demographic variables (Merolla et al. 2012; Merolla & Serpe 2013). *Black* is a dummy variable that compares Black to Hispanic students; Black students comprise 52% of the analytic sample. *Female* is a dummy variable that compares female students to male students; females comprise 76% of the sample. *Parent graduate degree* is a dummy variable that compares students who had at least one parent with a graduate degree to all other students; 22% of the student reported one parent with more than a bachelor's degree. *Took High School AP Course* compares student who reported advanced placement (AP) credits from high school to those that did not; 53% of students indicated AP credits. *Single Mom Home* compares students who reported growing up with only their mother in the home; 28% of the sample indicated a single mother background. *Biology* major compares students who majored in biology to all other students. Finally, *Baseline Intention for Science Career* is the student's scores from the screening survey on the question of "On a scale of 0-10, please rate the degree to which you plan to pursue a science related research career." The analyses follow current thinking in regard to interpreting statistical significance and *p*-values. Namely, rather than relying on binary determinations based on arbitrary criteria, exact *p*-values are presented for all results so the reader has the full context to understand the results (See Greenland et al., 2016).

Results

Table 2 presents the bivariate associations among the primary analytic variables. Table 2 shows that with the exception of GPA, FMP participation and each of the mediating variables have positive associations with graduate school attendance. Moreover, we see evidence of the interrelated nature of FMP participation, research involvement and mentorship, as these variables share moderate positive correlations with each other. Finally, with the exception of GPA, science identity salience is also positively correlated with each of the other variables.

Table 2

Correlations among Main Analysis Variables (N = 517)

		1	2	3	4	5	6
1.	Attended Graduate School	1					
2.	Proportion of Semesters In FMP	.212	1				
3.	Proportion of Semesters Involved in Research	.209	.539	1			
4.	Proportion of Semesters has a Mentor	.207	.542	.540	1		
5.	Identity Salience	.173	.124	.218	.095	1	
6.	College GPA	.057	.074	.087	.128	.017	1
Critical values for *r* (*p*): .03(.50); .056 (.20); 072 (.10); .086 (.05); .113 (.01)							

To assess our research questions of whether formal mentoring programs are associated with graduate school enrollment and what factors might explain these effects, we estimated a series of logistic regression models which are presented in Table 3. In Model 1, we use the proportion of semesters in a FMP as the sole predictor variable. This model establishes the unconditional associate of program participation on graduate school entry. Model 1 indicates that program participation is positively associated with graduate school entry (b = 1.07; Odds Ratio (OR) = 2.924, $p < .001$). To give these results context, the model indicates that a student who never participated in an FMP would have a 51.3% chance of entering graduate school, a student who was participated in half of their undergraduate semesters would have a 64.3% chance of entering graduate school and a student who was in an FMP in every semester would have a 75% chance of entering graduate school.

Model 2 adds the variables indexing research participation and mentoring. The coefficients for both research participation (b = .540; OR = 1.72, p = .069) and mentoring (b = .478; OR = 1.61, p = .091) are in the expected direction with relatively small p-values. Furthermore, with the addition of the two mediators the coefficient for FMP participation declined by 47%. This provides evidence that mentoring and research support could be important aspects of FMPs that encourage graduate school enrollment.

Model 3 enters GPA and science identity salience. Model 3 shows that science identity salience (b = .115, OR = 1.11; p = .002) has a positive association with graduate school enrollment. To put this result in context, the model indicates that, controlling for other factors, a student in the 25th percentile in science identity salience would have a 57% chance of attending graduate school, whereas a student in the 75th percentile would have a 66% chance of graduate school attendance. The coefficient for GPA was also positive, but with a relatively high *p*-value. The addition of science identity salience and GPA also reduced the coefficient for research involvement by 31% suggesting that research experience may operate through science identity salience.

The final model adds the remaining control variables. This model indicates that female students (b = .613, OR = 1.84; p = .007) and those with higher baseline intention to attend graduate school (b = .140; OR = 1.15; p = .011) were more likely to attend graduate school, whereas biology majors (b = .362; OR = .696; p = .083) were less likely to attend. All other control variables had relatively high p-values. Other results remain substantively similar from Model 3 to Model 4.

Table 3

Logistic Regression for Graduate School Enrollment (N = 517)

	Model 1			Model 2			Model 3			Model 4		
	b	OR	p	b	OR	p	b	OR	p	b	OR	p
Proportion of Semesters In FMP	1.073***	2.924	.000	.567*	1.76	.043	.559*	1.75	.050	.489^	1.64	.091
Proportion of Semesters Involved in Research				.540^	1.72	.069	.370	1.45	.225	.297	1.34	.345
Proportion of Semesters has a Mentor				.478^	1.61	.091	.504^	1.66	.079	.480	1.62	.106
Identity Salience							.115**	1.11	.002	.111**	1.12	.005
College GPA							.148	1.16	.566	.133	1.14	.618
Black										.168	1.84	.408
Female										.613**	1.84	.007
Single Mom										-.179	.836	.412
Parent has Graduate Degree (1=Yes)										-.112	.894	.636
Took AP Classes in HS (1=Yes)										.049	1.051	.803
Biology Major										-.362^	.696	.083
Baseline Intention for Science Career										.140*	1.15	.011
Nagelkerke R²		.061			.084			.108			.151	

Note. ^ *p* < .10; * *p* < .05; ** *p* < .01; *** *p* < .001. Adapted from Schultz, P. W., Hernandez, P. R., Woodcock, A., Estrada, M., Chance, R. C., Aguilar, M., & Serpe, R. T. (2011). Patching the pipeline: Reducing educational disparities in the sciences through minority training programs. *Educational Evaluation & Policy Analysis, 33*(1), 95-114. (The Science Study). https://doi.org/10.3102/0162373710392371

DISCUSSION

In this study, research question number one examined what aspects of a formal mentoring program are most important for graduate school enrollment for students who would be eligible for the TRIO McNair Postbaccalaureate Achievement Program, using a national panel sample of students. Similar to previous research on FMPs (Merolla & Serpe, 2013; Stets et al., 2017), we found that even among very high performing underrepresented students, that students who participated in a FMP during their entire undergraduate career have a 75% chance of enrolling in a graduate program compared to only 50% among those with no participation. Given the rate at which first-generation, low-income, and underrepresented students go on to graduate study, our findings suggest that these programs are an effective strategy for increasing graduate school enrollment for high performing first-generation, low-income and underrepresented students. The continued success of these students is vitally important to ensuring scientific progress and diversity in the 21st century.

Our finding for research question number 2 was that science identity is an important contributor to graduate school enrollment in this population. Our findings support the idea that FMPs work in part because they develop students' connection to the scientific community and allows them to see themselves as researchers, as students with higher levels of science identity were more likely to enroll in graduate school. FMPs which allows students to interact with other scientists and successfully engage their researcher identity will be more successful in enrolling first-generation, low-income, and underrepresented students in graduate programs. This study adds to the growing evidence regarding the importance of non-academic social-psychological factors for encouraging the success of high achieving minority students.

Findings also suggested that faculty mentoring and research involvement are associated with graduate school enrollment. These findings underscore the importance of robust implementation for FMPs. To maximize the efficiency of FMPs, efforts should continue to ensure they implement programming that is known to produce desired outcomes.

The findings also suggest that FMPs are especially effective for motivating first-generation, low-income, underrepresented students to enroll in graduate programs. Descriptive statistics from The Science Study data indicate that FMP eligible students were almost twice as likely to enroll in graduate programs compared to non-eligible students. The mentoring received in FMPs and the resulting increase in science identity may explain some of this difference.

LIMITATIONS AND CONCLUSIONS

While these are important contributions to our understanding of the effectiveness of FMPs, this study has some limitations. First, we did not compare TRIO McNair eligible students to others. However, we were interested in understanding how these processes work in students who are first-generation, low-income and underrepresented. Moreover, like most studies on FMPs our research design cannot establish FMPs as a causal factor leading to graduate school enrollment. Randomized, controlled experimental studies are a vital next step in establishing the effectiveness of FMPs.

Future research should explore what components of FMPs serve to increase or develop science identity in this population of students, as it would assist program staff in tailoring programs. This, in turn, would improve graduate school enrollment rates for first-generation, low-income, underrepresented students.

It is important to note that although we confirmed promising evidence about the role of FMPs to ensure graduate enrollment of high performing undergraduate students, programs like these play a small role in the push for true educational equality in the U.S. (Merolla & Jackson, 2019). That is, while these types of programs absolutely assist individual students, broader change is needed to address the systemic issues that continue to deprive Americans of color educational opportunity on par with White Americans.

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AUTHORS
ELIZABETH PIATT is Director of the McNair Scholars Program at Kent State University in Kent, Ohio.
DAVID M. MEROLLA is Associate Professor of Sociology at Wayne State University in Detroit, Michigan.
EBONI PRINGLE is Dean of University College at Kent State University in Kent, Ohio.
RICHARD T. SERPE is Professor Emeritus of Kent State University.

All comments and queries regarding this article should be addressed to lpiatt@kent.edu