

Increased Academic Success for Racially and Ethnically Underrepresented Students Who Study Abroad

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Results from a large-scale national study, the Consortium for the Analysis of Student Success through International Education (CASSIE), indicate that the benefits of studying abroad on certain indices of academic success are especially strong for racially and ethnically underrepresented (URM) students. The CASSIE sample includes semester-by-semester academic records of students entering 36 higher education institutions in 2010 and 2011, including information on study abroad experiences. Using a sophisticated “nearest neighbor” statistical matching technique, first CASSIE matched students on factors such as gender, high school GPA, SAT scores, and racial/ethnic identity. Then, CASSIE analyzed student success outcomes, including graduation within 4 and 6 years. Among students who graduated, CASSIE examined final GPA, number of credits at graduation, and number of semesters to graduation. In the full population, studying abroad is associated with increased probabilities of graduating within 4 or 6 years. That increased probability is substantially higher for URM students who study abroad relative to URM students who do not study abroad, and especially so for Black and Latinx students. Overall, CASSIE results indicate that students who study abroad are more likely to graduate in a timely fashion, with a higher cumulative GPA and more credit hours, especially URM students.

Keywords: study abroad, student success, racially and ethnically underrepresented students, URM

Introduction and Literature Review

Though any college education confers a variety of benefits, graduation is vital to unlocking the full economic and social value of higher education (Giani, Attewell, and Walling 2019). Unfortunately, people who would most benefit economically from completing a college degree are the least likely to graduate (Brand and Xie 2010). One promising avenue to supporting graduation rates is studying abroad, which is associated with multiple benefits, including timely graduation (Sutton and Rubin 2010). However, because White students are overrepresented in study abroad participation, there is an unproven assumption that these benefits operate the same for minority students. Yet, prior higher education research has shown students react differently to retention strategies by racial/ethnic identity group (Xu and Webber 2016).

The relationship between study abroad and student success outcomes disaggregated by subgroups of racially and ethnically underrepresented (URM) students has not been a widely studied area of research. (In this article, we use the acronym “URM” to stand for both racially and ethnically underrepresented minority and underrepresented minority groups as this term is used more widely with regards to underrepresented minority scholarship.) The lower participation rates for URM

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students have made research at the institutional level challenging due to small sample sizes. This study explores the relationship between study abroad and student success for URM students by using a large national dataset and matching analyses.

Prior research demonstrates the advantage of studying abroad, including greater likelihood of timely college completion—a key student success metric. One of the reasons for this is because study abroad is categorized as a high-impact practice (HIP). HIPs are practices in which students are engaged in active learning, which in turn elevates their success in desirable outcomes (Kuh 2008). Other HIPs include undergraduate research, service learning, and internships. HIPs have become increasingly available and prioritized across a range of institutions, such as small private liberal arts colleges, large public research institutions, and community colleges (Kinzie 2012). Beyond improving the student experience, HIPs contribute to “student success,” including persistence toward degree and, in particular, timely college completion (Jones 2015). For example, in a study measuring the effect of selected HIPs on student persistence and success in the California State University system, HIPs were found to have a positive effect on final GPA, time to degree, and timely graduation (Huber 2010).

The “study abroad experience” often incorporates multiple HIPs, including a specialized learning community, high rates of faculty interaction, and exposure to cultural diversity (Kuh and Kinzie 2018). Empirical evidence demonstrates that study abroad, as a HIP, enhances engaged learning (Burns, Rubin, and Tarrant 2018; Gonyea 2008; Johnson and Stage 2018). Though study abroad is characterized as a HIP, and HIPs contribute to student success, a common misconception is that study abroad can negatively impact timely graduation, perhaps because the process of credit transfer from host to home institution is not always seamless and additional credit hours may be accrued. This has especially been associated with rigidly sequential majors such as STEM fields. However, Georgia Learning Outcomes of Students Studying Abroad Research Initiative (GLOSSARI) demonstrated that study abroad did not negatively impact timely graduation. In fact, students who participated in study abroad graduated on time at higher rates than students who did not participate (Sutton and Rubin 2004, 2010). Study abroad is considered one pathway that might be utilized as an intervention tactic for students at risk for dropping out (Metzger 2006; Rubin et al. 2014; The Center for Global Education, n.d.).

Differential Effects of Study Abroad on Student Success Outcomes by Racial/Ethnic Group

For students from different racial and ethnic backgrounds, college retention factors may function differently. For example, Xu and Webber (2016) found that while financial pressure was the most consistent impediment to college retention, there were nuances by racial/ethnic identity group in relation to the importance of both academic and social dimensions. Xu and Webber reported that White students, as the majority group in their research, were more concerned with an enjoyable learning environment, whereas Black students were strongly influenced by institutional commitment to academic quality. This difference then informs effective intervention as availability of faculty members for academic advising and increased personal contact between faculty and

students would be more effective in increasing the likelihood of success for Black students than for White students (Teranishi and Bezbatchenko 2015).

It is important to study the effect of study abroad on graduation rates by racial/ethnic identity group instead of assuming that findings based on predominantly White study abroad students apply to all students. However, the relationship between study abroad and student success outcomes for racial/ethnic identity groups has not been a widely studied area of research. This is not due to researchers' lack of interest in the topic, but rather because lower participation rates for minority students have made research at the institutional level challenging due to small sample sizes. For the purposes of this study, the focus is on the effect of study abroad on URM students.

It is important to note that not all non-White groups are considered URM. The National Center for Science and Engineering Statistics (2019) considers individuals who are Black or African American, Hispanic or Latino, and American Indian or Alaska Native (but not Asian) as belonging to underrepresented groups based on science and engineering degree attainment and workforce participation, providing a framework for the designations of underrepresentation used here. Not only are Asian students proportionally represented in higher education, according to the Institute of International Education (IIE) 2019 Open Doors Report, Asian students are overrepresented proportionally in study abroad (IIE 2019). In relation to the focus of this research, Engel (2017) illustrates the differences between study abroad participation rates relative to overall college enrollment rates by racial/ethnic group, such that those with a lower study participation rate compared to the college enrollment rate would be considered URM. Thus, in this article, we designate URM groups as Black, Latinx, American Indian or Alaskan Native, and Native Hawaiian or Pacific Islander, with all other groups designated as non-URM.

Not only is there persistent inequity in higher education graduation rates, there is also marked inequity in study abroad participation. From the 2007–08 academic year until the 2017–18 academic year, the IIE reports that study abroad has immensely grown in the United States with now approximately one in 10 students studying abroad (IIE 2019). According to IIE's 2019 Open Doors Report, in the 2007–08 academic year there were 262,416 outbound study abroad students nationally, and by the 2017–18 academic year the number of outbound study abroad students had grown to 341,751. Yet, national study abroad growth has been disproportionately White. In the 2017–18 academic year, the percentage of White students enrolled in higher education in the United States was 56 percent, yet White students comprised 70 percent of national study abroad participants (IIE 2019; NCSES 2019). Since White and Asian students are overrepresented in study abroad programs, it follows that other groups are underrepresented (see table 1). For the 2017–18 academic year, two URM student groups stood out in their disproportionate representation. First, Latinx students comprise 18.9 percent of the total U.S. higher education student body, but Latinx study abroad participation was only 10.6 percent. Second, Black students comprised 13.6 percent of the total U.S. higher education student body but only 6.1 percent of the study abroad students. To achieve proportional representation, higher education institutions would need to approximately double the participation rates of Black and Latinx students.

Table 1. Representation of Racial/Ethnic Identity Groups in Higher Education and in Study Abroad

Racial/Ethnic Identity Group	Percentage of All U.S. Higher Education Students in Fall 2017	Percentage of All U.S. Study Abroad Students in 2017–18
White	56.0%	70.0%
Hispanic	18.9%	10.6%
Black or African American	13.6%	6.1%
Asian, Native Hawaiian, or Other Pacific Islander	7.1%	8.4%
Multiracial	3.7%	4.4%

The underrepresentation of certain ethnic and racial groups in study abroad is not due to a lack of interest; Black and Latinx students do not differ from White students in their stated intent to study abroad (Luo and Jamieson-Drake 2015). However, barriers to participation for these students may differ and include finances, lack of family support, fear of racism, access to information, and minimum GPA requirements (Lopez-McGee, Comp, and Contreras 2018; Salisbury, Paulsen, and Pascarella 2011; Brux and Fry 2010; Adams and Reinig 2017). Even after controlling for factors such as academic achievement, URM students were more likely to identify financial need as an obstacle when compared with White student counterparts (Salisbury, Paulsen, and Pascarella 2011; Sutton and Rubin 2010). While financial cost was the most referenced concern for both Black and White students who studied abroad and those who did not, the nuance of these findings indicates the differences in approaches needed to resolve this barrier (Kasravi 2009). In order to better advocate for allocating resources to boost URM student participation in study abroad, evidence of increased positive outcomes is needed.

Challenges of Study Abroad Research

Outcomes research on self-selected education experiences, such as study abroad, is challenging as a researcher cannot conduct randomized controlled experiments (Sutton, Miller, and Rubin 2007). Selection biases may come from a variety of sources including varied interest in study abroad—women and those in humanities majors are more likely to intend to study abroad—or lack of financial support despite intent to study abroad (Luo and Jamieson-Drake 2015). Avoiding self-selection bias is a major challenge as students who study abroad are not the same as students who do not study abroad. Simple comparisons of treated and control groups can result in biased estimates as student outcomes may not be due to study abroad but other factors (e.g., educational preparedness, family resources). Thus, it is difficult to isolate the impact of the actual study abroad experience on student success from the impact of other factors that may affect both the likelihood to study abroad and likelihood of timely graduation. Haupt, Ogden, and Rubin (2018) provide a list of recommended control variables to provide standardization for research on the effects of study abroad, including race, gender, high school GPA, and Pell Grant status.

Since study abroad participation cannot be randomly assigned, researchers need specialized statistical techniques that separate out the impact of studying abroad from selection biases. One approach to control for selection bias is to create a comparison group of otherwise similar students to those who have studied abroad (Sutton and Rubin 2004), but this task can be burdensome. Yet, not many researchers tend to make use of more sophisticated matching methods that better isolate the effects of study abroad and control for possible confounding variables (DeSalvo and Roe 2017; Haupt, Ogden, and Rubin 2018). GLOSSARI addressed this gap by using data from multiple institutions to create comparison groups composed of students who never studied abroad but stayed enrolled in college and “matched” students who left campus to study abroad. The study found that the graduation rate for students who studied abroad was higher than for peers who did not study abroad (Sutton and Rubin 2004, 2010). Several subsequent studies embraced research designs that controlled for the effects of confounding variables and found even more pronounced results (e.g., DeSalvo and Roe 2017; Xu et al. 2013). Other studies examined the impact of studying abroad on college completion but only used data from single institutions (e.g., Bell and Glass 2019; Hamir 2011).

Do URM Students Benefit More from Studying Abroad?

While there is disproportional representation of URM student groups in study abroad, there is evidence to suggest that study abroad may benefit URM student groups more than the aggregated population (Sutton and Rubin 2004, 2010). Evidence from Thornes and Schneider (2019) indicates that URM students who studied abroad had higher graduation rates when compared to non-study abroad students, but these results are severely limited by available sample sizes. The GLOSSARI study provides further evidence that the benefit of studying abroad is extended to URM students in the form of timely graduation (see also Engel 2017; Thornes and Schneider 2019).

However, beyond GLOSSARI, no research has utilized matching techniques on variables such as socioeconomic status and academic preparation when assessing the effect of study abroad on student success. Further, most prior research aggregated results across varied racial /ethnic identity groups, overlooking the likelihood that distinct URM student groups may be affected differently by study abroad experiences. However, due to the relatively low participation rates of URM students, it has been historically difficult to obtain large enough sample sizes to uphold inferential statistics. Disaggregating the effect of study abroad on student success by racial/ethnic identity group necessitates more data. A multi-institutional approach allows for a larger dataset and provides the opportunity to examine student success variables across groups and institutions, particularly for subgroups that may be too small to analyze using data from a single institution.

To answer questions on the effect of studying abroad on student success outcomes for URM students, a larger dataset is necessary along with the use of matching analyses to account for self-selection bias. If we can demonstrate that studying abroad positively affects the outcomes (e.g., timely graduation) of URM students, then we can provide compelling evidence to students and their families to encourage the financial investment in study abroad opportunities, as well as advocate to institutional decision-makers for increased resources to promote participation.

Methods

To address questions about the relationship between study abroad experience and student success for URM students, data were needed from more than one higher education institution to create a large enough sample. The Consortium for Analysis of Student Success through International Education (CASSIE) is a national collaboration led by the Board of Regents of the University System of Georgia in conjunction with the IIE to research the contribution of international education to student success. A total of 36 institutions, representing 19 states across the United States, contributed data to CASSIE.

To create the dataset, several types of data—which are typically siloed in different departments within institutions—were required to be matched and merged into a provided template. This included (a) term-level information about student course-taking and degrees awarded; (b) student demographic characteristics; (c) student high school performance, including admissions testing; (d) selected financial aid data; and (e) details of study abroad experiences.

The racial/ethnic identity information used in this study are self-reported at admission. The categories used in the CASSIE dataset are consistent with the National Center for Education Statistics's Integrated Postsecondary Education Data System (IPEDS) definitions: African American or Black (referred to throughout this text as Black), American Indian or Alaskan Native, Asian, Hispanic (referred to throughout this text as Latinx), Native Hawaiian or Other Pacific Islander, two or more races, unknown race, and White.

Sample

The final sample consists of 221,981 first-time freshmen (National Center for Education Statistics's IPEDS definition) who were seeking a bachelor's degree and matriculated to their respective institutions in fall 2010 or fall 2011. These cohort years were chosen so that six-year graduation rates could be calculated at the time the data were compiled. Approximately 14 percent of the students ($n = 30,649$) studied abroad at some point during the observed terms, which is consistent with other national findings (IIE 2019). Due to missing data on the covariates included in the matching analysis, some observations were excluded, reducing the matching analysis sample to 26,561 treated (i.e., students who studied abroad) and 161,403 controls. (The missing data were primarily institutionally based—some institutions were unable to provide key matching characteristics such as high school GPA. Since the data were not available for any students from that institution, all students from that institution were excluded from further analysis.)

Descriptive statistics about the sample population are provided in tables 2 and 3, broken down by students' racial/ethnic identity group and study abroad experience. Participation rates in study abroad vary by racial/ethnic identity group, from 5.5 percent among Black students to 15.3 percent for White students. For all racial/ethnic identity groups, students who studied abroad differed substantially from the non-study abroad students in measures of college readiness. To control for these observed differences between the study abroad and non-study abroad groups, we utilized a nearest neighbor matching analysis.

Table 2. Descriptive Characteristics of Study Abroad (SA) and Non-Study Abroad (No SA) URM

	URM Individual Race/Ethnic Identity Groups									
	URM		American Indian or Alaskan Native		Black		Latinx		Native Hawaiian or Other Pacific Islander	
	SA	No SA	SA	No SA	SA	No SA	SA	No SA	SA	No SA
N	4,305	46,580		79	625	1,447	25,065	2,763	18,499	13
Covariates										
High School GPA (mean)	3.5	3.2*	3.7	3.3*	3.5	3.1*	3.6	3.4*	3.5	3.3
Receive Pell or Need-Based Aid	52.3%	66.3%*	43.3%	49.0%	62.0%	71.1%*	47.7%	57.9%*	30.8%	39.5%
Female	71.5%	57.0%*	68.4%	56.0%	76.6%	59.6%*	68.9%	53.8%*	84.6%	50.4%
Age (mean)	19.3	19.7*	19.4	19.6	19.3	19.8*	19.3	19.4*	19.0	19.5*
SAT (mean)	1127	1010*	1177	1070*	1071	967*	1155	1081*	1116	1081
Major										
Humanities	29.5%	17.9%*	45.6%	24.8%*	20.1%	12.8%*	34.1%	25.4%*	30.8%	23.7%
Business Communication	16.1%	14.0%*	11.4%	11.4%	15.5%	13.9%	16.6%	13.5%*	23.1%	13.0%
Education	2.3%	3.5%*	1.3%	3.0%	3.0%	4.2%	1.9%	1.9%	7.7%	1.9%
STEM	27.7%	36.4%*	24.1%	37.8%	28.6%	35.9%*	27.3%	37.0%*	15.4%	33.2%
Social and Behavioral Sciences	14.6%	13.1%*	13.9%	11.8%	15.8%	13.1%*	13.9%	13.2%	7.7%	10.7%
Trades	1.0%	3.5%*	0.0%	2.2%	1.5%	3.9%*	0.7%	2.2%*	7.7%	4.2%
Other	8.9%	11.6%*	3.8%	9.0%	15.6%	16.2%	5.5%	6.9%*	7.7%	13.4%
Full Time	93.0%	84.1%*	88.6%	89.8%	93.1%	82.2%*	93.6%	89.7%*	100.0%	87.8%
Terms Enrolled (mean)	9.8	7.2*	9.8	6.8	10.2	7.1*	9.6	7.6*	9.4	6.9*
Outcomes										
Graduate in 6 Years	93.0%	72.5%*	94.9%	45.9%*	91.3%	45.3%*	93.9%	60.5%*	100.0%	49.6%*
Graduate in 4 Years	60.6%	35.7%*	69.6%	25.8%*	53.7%	19.1%*	63.8%	33.1%*	69.2%	25.2%*
Semesters to Degree (mean)	12.1	12.8*	11.8	12.5*	12.4	13.1*	12.0	12.5*	11.8	12.6
Cumulative GPA at Degree (mean)	3.3	3.1*	3.4	3.1*	3.2	3.0*	3.3	3.1*	3.2	3.1*
Credit Hours Earned at Degree (mean)	167.0	149.6*	167.2	144.7*	154.6	138.4*	173.8	162.6*	126.8	146.8

* Indicates statistical significance at $p < 0.01$ for paired t-tests or chi-square tests as appropriate

Table 3. Descriptive Characteristics of Study Abroad (SA) and Non-Study Abroad (No SA) Non-URM

	Non-URM Individual Race/Ethnic Identity Groups									
	Non-URM		Asian		Two or More		Unknown Race		White	
	SA	No SA	SA	No SA	SA	No SA	SA	No SA	SA	No SA
N	26,347	147,599	2,287	13,491	725	5,102	1,517	7,509	21,818	120,779
Covariates										
High School GPA (mean)	3.7	3.5*	3.7	3.6*	3.7	3.4*	3.6	3.4*	3.7	3.5*
Receive Pell or Need-Based Aid	22.7%	31.4%*	38.6%	49.6%*	30.6%	42.7%*	27.3%	40.4%*	20.6%	28.5%*
Female	66.4%	50.6%*	61.2%	47.8%*	67.2%	53.5%*	66.4%	50.9%*	66.9%	50.7%*
Age (mean)	19.3	19.5*	19.3	19.3*	19.3	19.5*	19.4	19.6*	19.3	19.5*
SAT (mean)	1243	1158*	1310	1201*	1206	1133*	1290	1142*	1234	1156*
Major										
Humanities	32.2%	24.1%*	25.1%	19.5%*	26.6%	23.1%	47.7%	29.0%*	32.0%	24.4%*
Business Communication	16.4%	13.4%*	20.5%	11.8%*	15.9%	11.5%*	19.2%	15.9%*	15.8%	13.5%*
Education	2.5%	4.3%*	1.3%	0.9%	1.9%	2.9%	1.6%	3.7%*	2.7%	4.7%*
STEM	26.8%	34.4%*	36.4%	50.1%*	29.9%	35.0%*	15.4%	30.9%*	26.5%	32.7%*
Social and Behavioral										
Sciences	12.0%	10.3%*	9.5%	6.9%*	13.2%	11.3%	12.1%	11.1%	12.2%	10.6%*
Trades	0.6%	1.6%*	0.3%	0.7%	0.6%	2.3%*	0.1%	1.3%*	0.6%	1.6%*
Other	9.6%	12.1%*	6.9%	10.0%*	11.9%	14.0%	3.7%	8.1%*	10.2%	12.5%*
Full Time	92.8%	91.7%*	96.3%	92.2%*	90.6%	87.3%	98.5%	93.4%*	92.1%	91.8%
Terms Enrolled (mean)	9.3	7.6*	9.1	8.3*	9.7	7.2*	8.9	7.3*	9.4	7.5*
Outcomes										
Graduate in 6 Years	96.2%	84.9%*	93.4%	73.7%*	93.9%	56.8%*	95.1%	61.9%*	95.7%	65.9%*
Graduate in 4 Years	75.0%	55.6%*	70.9%	44.1%*	62.2%	33.2%*	79.3%	38.0%*	74.7%	42.6%*
Semesters to Degree (mean)	11.6	12.1*	11.7	12.3*	12.0	12.4*	11.4	12.2*	11.6	12.1*
Cumulative GPA at Degree (mean)	3.4	3.3*	3.4	3.3*	3.4	3.2*	3.5	3.3*	3.4	3.3*
Credit Hours Earned at Degree (mean)	150.7	147.4*	176.3	180.7*	169.2	157.9*	131.8	126.9*	148.6	144.1*

* Indicates statistical significance at $p < 0.01$ for paired t-tests or chi-square tests as appropriate

Analysis

Since the students who studied abroad and those who did not often differ in observed characteristics such as demographics and college readiness, we used exact and nearest neighbor matching methodology (Rosenbaum and Rubin 1985) to control for potentially confounding variables (Haupt, Ogden, and Rubin 2018). This approach aims to mimic the results from a randomized experiment (Stuart 2010). We used the nearest neighbor matching approach, as opposed to a propensity score-based matching approach because of the flexibility of adding in exact matching and incorporating covariates. The initial intent was to restrict matches to students within the same institution, while also matching to the nearest neighbor on other characteristics such as academic major or Pell Grant status. By matching on observed characteristics, the assumption is that students also match on unobserved characteristics, though this is unlikely. For example, among students with similar SAT scores, there could be unobserved differences in prior international travel experience or willingness to take risks. Because of these likely unobserved differences, matching analysis results should not be interpreted as causation.

The matching analyses examined the degree to which studying abroad conferred an advantage for five indicators of student success: (1) graduating in 4 years, (2) graduating in 6 years, and, conditional on graduating, (3) time to degree, (4) final GPA, and (5) cumulative credit hours earned. Credit hours earned is an important outcome to examine due to existing concerns about study abroad experiences delaying graduation. By looking at credit hours, we can demonstrate that while students who study abroad earn more credit hours, the overall effect of study abroad does not delay graduation.

Within racial/ethnic groups, students who studied abroad (treated) were matched with students who did not study abroad (control), based on a set of observed characteristics (matching variables). These matching variables included gender, academic preparation (e.g., high school GPA), receipt of need-based aid, and college major area. All the covariates used for matching are shown on table 2 for URM students and table 3 for non-URM students. One noticeable element missing from the covariate list is institution. To obtain a sufficient sample size for the underrepresented student groups, we did not restrict matches to students within the same institution (see “Limitations” section).

We allowed data for controls to be matched with more than one treated (matching with replacement). Every treated student was found to have a match among the controls, but not all controls were found to be good matches for treated students. If a student could not be well matched with another student from the same racial/ethnic group, the student was excluded from the analysis; this is a common practice in statistical matching (Caliendo and Kopeinig 2008). Thus, the final data set was comprised of matching 26,561 study abroad students with non-missing data on the matching covariates with data from a total of 20,337 control students.

The matching analysis was conducted using the Stata procedure `teffects nnmatch` (StataCorp 2019), calculates differences in outcomes between treated and control students within matched

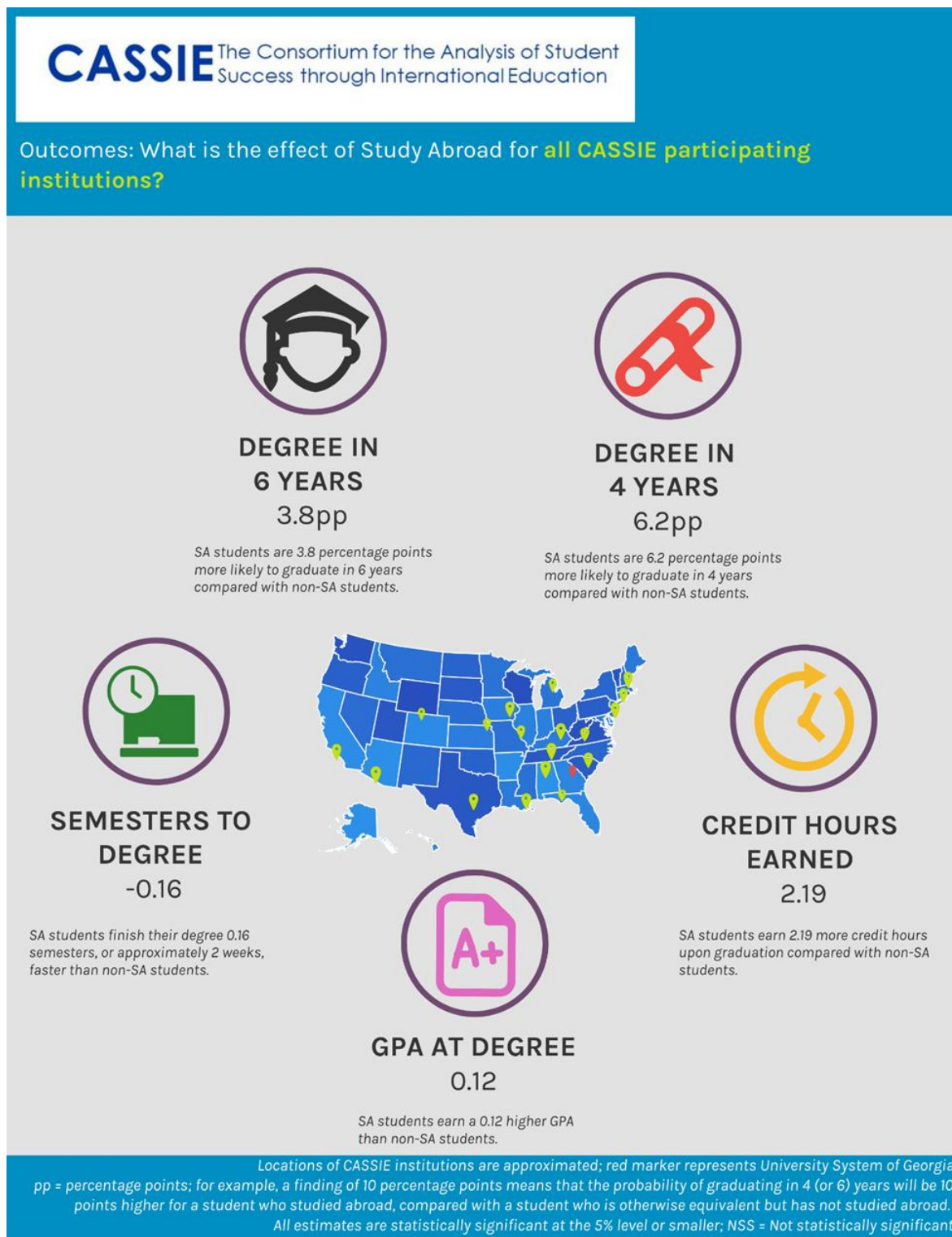
groups and creates estimates as population weighted averages of the differences in the matched groups. We report the average treatment effect on the treated (ATT), which estimates the effect of studying abroad for the population of students that went abroad. To assess the quality of the matching, we calculated the standardized bias for each covariate by racial/ethnic group; the values indicate that the matching procedure greatly reduced differences between the treated and untreated groups for most covariates and groups.

Results

Looking first at the total national sample and using the matching analysis, when compared with students who did not study abroad, our findings indicated that students who studied abroad were more likely to graduate in a timely manner, with a higher GPA and with slightly more earned credit hours. Specifically, compared to students who did not study abroad, study abroad students were 3.8 percentage points more likely to graduate within 6 years and 6.2 percentage points more likely to graduate within 4 years. For students who graduated within 6 years, study abroad students finished their degree 0.16 semesters (approximately 2 weeks) faster than students who did not study abroad and earned a 0.12 higher GPA and 2.19 more credit hours at graduation. For a summary of the full national sample results, see figure 1. For the full CASSIE National Sample Effect of Study Abroad infographic see [here](#).

To explore the differences for subpopulations between students who did or did not study abroad, we divided the sample into URM students and non-URM students and within each subgroup compared students who studied abroad with students who did not study abroad. As a reminder, URM students include American Indian/Alaskan Native, Black, Latinx, and Native Hawaiian/Pacific Islander. Of the total sample, 22 percent were categorized as URM, and comprised 14 percent of the study abroad sample. Within URM students, 8.5 percent studied abroad compared to non-URM students of which 15.1 percent studied abroad. Taking GPA at degree as an example, descriptive statistics demonstrate that in both categories—URM and non-URM students—those who study abroad graduate with a higher GPA at degree when compared with students who do not study abroad (see tables 2 and 3). Specifically, URM students who study abroad had an average GPA of 3.27 at degree when compared with URM students who do not study abroad (3.05 GPA at degree). Further, non-URM students who study abroad had a higher average GPA at degree (3.44) when compared with non-URM students who do not study abroad (3.27).

Figure 1. Excerpt from *CASSIE Study Abroad Results - National Sample* infographic.

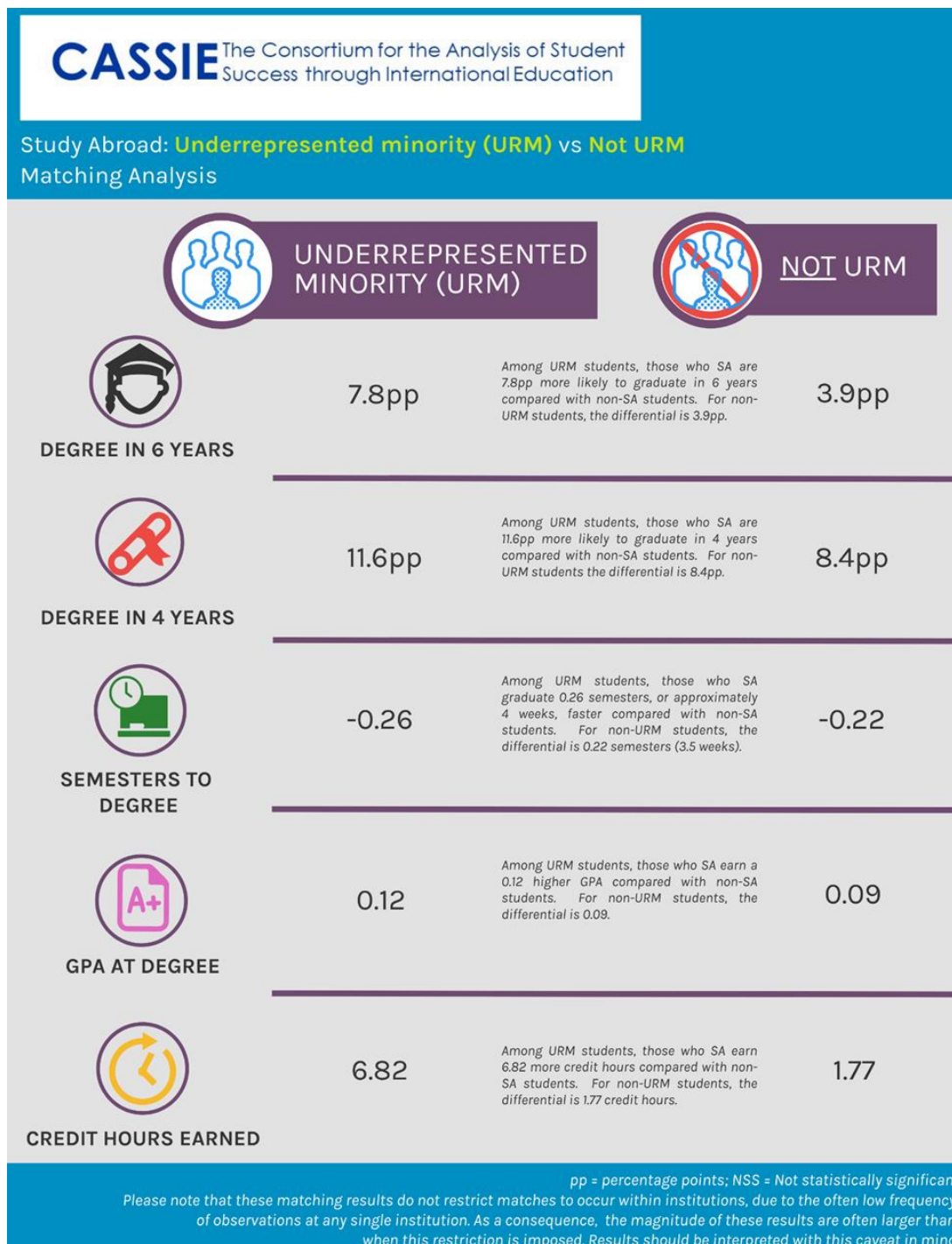


*Infographics designed by Coryn Shiflet. (From Bell et al. 2020.)

Turning to the matching analyses, the URM subpopulation matching analyses demonstrate the same patterns with regards to study abroad but reveal even greater differences than those seen with the entire national sample (see table 4). Among URM students, those who study abroad are even more likely to graduate in a timely manner and with a higher GPA. Among URM students,

compared to students who did not study abroad, those who studied abroad were (1) 7.8 percentage points more likely to graduate within 6 years, (2) 11.6 percentage points more likely to graduate within 4 years, (3) graduate 0.26 semesters—approximately 4 weeks—faster, (4) earn a 0.12 higher average GPA, and (5) earn 6.82 more credit hours. For a summary of the URM vs. non-URM subpopulation analyses results, see figure 2. For the full CASSIE sub-analyses of URM vs. non-URM infographic see [here](#).

Figure 2. Excerpt from *CASSIE Study Abroad Underrepresented Minority Subgroup Results - National Sample* infographic.



*Infographics designed by Coryn Shiflet. (From Bell et al. 2020.)

Since the URM subpopulation showed significantly better student outcomes for students who studied abroad, we then analyzed each racial/ethnic identity group individually. Looking at the descriptive information for each of the racial/ethnic identity groups (see tables 2 and 3), it is again evident for each racial/ethnic identity group that students who studied abroad had higher levels of academic preparedness (as evidenced by higher average SAT scores and high school GPAs). For example, Latinx students who studied abroad had a higher average high school GPA (3.57) and SAT score (1155) compared to Latinx students who did not study abroad (3.42 and 1081, respectively). Students who studied abroad also graduated in a timely fashion at higher rates; for example, 91.3 percent of Black students who studied abroad graduated within 6 years compared to 45.3 percent for those who did not study abroad.

The separate matching estimates for each racial/ethnic identity group are examined in turn, first by the groups that are categorized as URM (i.e., Black, Latinx, American Indian or Alaskan Native, Native Hawaiian or Pacific Islander) and then non-URM (i.e., White, Asian, two or more races, unknown). The matching estimates are provided by racial/ethnic identity group in table 4.

URM Student Matching Estimates

The largest representation included in the URM group are Black students, who made up 11.9 percent of the total sample and 4.7 percent of the study abroad sample. As table 4 indicates, after matching on the observed background and academic preparation variables, when compared to Black students who did not study abroad, Black students who studied abroad were 9.6 percentage points more likely to complete their degree within 6 years and 9.2 percentage points more likely to graduate within 4 years. Looking only at Black students who earned a degree within 6 years, those who studied abroad graduated earlier (0.16 fewer semesters), earned more credits (3.16 more credit hours), and had a higher average GPA at graduation (0.13 points higher) compared to Black students who did not study abroad.

Latinx students made up 9.6 percent of the total sample and 9.0 percent of the study abroad sample. Compared to Latinx students who did not study abroad, Latinx students who studied abroad were 7.4 percentage points more likely to complete their degree within 6 years and 13.4 percentage points more likely to complete their degree within 4 years. Looking only at Latinx students who earned a degree within 6 years, those who studied abroad graduated earlier (0.34 fewer semesters), earned more credits (9.29 more credits hours), and had a higher average GPA at graduation (0.13 points higher) compared to Latinx students who did not study abroad.

American Indian or Alaskan Native students made up 0.3 percent of the total sample and 0.3 percent of the study abroad sample. Due to the small sample size of this racial/ethnic identity group, the majority of the regression coefficients for this group failed to attain statistical significance. The one regression coefficient that did reach statistical significance was for GPA at degree; for students who earned a degree within 6 years, American Indian or Alaskan Native students who studied abroad earned GPAs an average of 0.16 points higher than students from this group who did not study abroad.

Table 4. Matching Estimates of URM and Non-URM

	Percent Bachelor's Degree in 6 Years	Percent Bachelor's Degree in 4 Years	Semesters to Degree	Cumulative GPA at Degree	Credit Hours earned at Degree
All Students	3.8*	6.2*	-0.16*	0.12*	2.19*
URM	7.6*	11.6*	-0.26*	0.12*	6.82*
American Indian or Alaskan Native	5.6*	7.5	0.03	0.16*	-1.67
Black	9.6*	9.2*	-0.16*	0.13*	3.16*
Latinx	7.4*	13.4*	-0.34*	0.13*	9.29*
Native Hawaiian or Other Pacific Islander	10.0	12.2	-0.27	0.12	19.96*
Non-URM	3.9*	8.4*	-0.22*	0.09*	1.77*
Asian	3.2*	6.0*	-0.22*	0.11*	3.65*
Two or More Races	8.8*	4.1	-0.23*	0.16*	1.32
Unknown	4.3*	8.8*	-0.24*	0.10*	3.14*
White	3.7*	8.6*	-0.22*	0.09*	1.43*

* Indicates statistical significance at $p < 0.05$ level

Native Hawaiian or Pacific Islander students were the smallest racial/ethnic identity group included in the URM category and made up 0.1 percent of the total sample and 0.04 percent of the study abroad sample. Due to the very small sample size of this group, the majority of the regression coefficients did not attain statistical significance despite their magnitude. The one exception to that pattern was for credit hours earned; for students who earned a degree within 6 years, Native Hawaiian or Pacific Islander students who studied abroad earned an average of nearly 20 more credits compared to those who did not study abroad.

Non-URM Student Matching Estimates

Turning to the sub-groups of students included in the non-URM group, White students were the largest racial/ethnic identity group in the sample at 64.2 percent of the total sample and 71.2 percent of the study abroad sample. Compared to White students who did not study abroad, White students who studied abroad were 3.7 percentage points more likely to graduate within 6 years and 8.6 percentage points more likely to graduate within 4 years. For White students who earned their degree within 6 years, those who studied abroad graduated earlier (0.22 semesters earlier), earned more credits (1.43 credit hours), and had a higher average GPA at graduation (0.09 points higher) than those who did not study abroad.

Asian students made up 7.1 percent of the total sample and 7.5 percent of the study abroad sample. Compared to Asian students who did not study abroad, Asian students who studied abroad were 3.2 percentage points more likely to graduate within 6 years and 6 percentage points more likely to graduate within 4 years. For Asian students who earned a degree within 6 years, those who studied abroad completed their degrees faster (0.22 fewer semesters), earned more credits (3.65 more

credit hours) and had a higher average GPA at graduation (0.11 points higher) than Asian students who did not study abroad.

Study abroad students who identified as two or more races made up 2.6 percent of the total sample and 2.4 percent of the study abroad sample. Compared to multiracial students who did not study abroad, those who studied abroad were 8.8 percentage points more likely to complete their degree within 6 years, though the effect was not statistically significant for completing a degree within 4 years. For multiracial students who graduated within 6 years, those who studied abroad completed their degrees faster (0.23 fewer semesters) and had a higher average GPA at graduation (0.16 points higher) relative to multiracial students who did not study abroad. However, the effect of studying abroad on the number of credit hours earned at graduation was not statistically significant.

Some study abroad students did not identify a specific racial/ethnic identity (i.e., the unknown category); these students made up 4.1 percent of the total sample and 4.9 percent of the study abroad sample. Compared to Unknown students who did not study abroad, those who studied abroad were 4.3 percentage points more likely to graduate within 6 years, and 8.8 percentage points more likely to graduate within 4 years. For students of unknown racial/ethnic identity, those who studied abroad completed their degree faster (0.24 fewer semesters), earned more credits (3.14 credit hours), and had a higher GPA at graduation (0.10 GPA).

Discussion

While lack of diversity and small sample sizes are noted obstacles in measuring the impact of study abroad on URM students (Lopez-McGee, Comp, and Contreras 2018), CASSIE addressed this barrier by pooling data from 36 institutions to create a large, diverse sample. For the overall sample, students who studied abroad came into college with higher high school GPAs and SAT scores, were majority female, and were less likely to receive need-based aid compared to students who did not study abroad. However, comparing the study abroad groups descriptively, URM students who studied abroad were disproportionately female, less academically prepared, and graduated at a lower rate than the non-URM students. Looking within the disaggregated racial/ethnic identity groups, students who studied abroad had higher levels of academic preparedness (e.g., SAT scores and high school GPA). These descriptive differences among groups illustrate the need for further analysis, due to the self-selection factors that may contribute to a student's success in high school, during university, and their decision to study abroad.

CASSIE's matching analysis reduced the impact of confounding variables and demonstrated that studying abroad affords advantages to all students on metrics of student success but provides an even further advantage to URM students. For the nationally aggregated sample, those who studied abroad realized only a small increase in credits earned at degree (one class or fewer); yet URM students who studied abroad saw an increase in 6 credits (about two classes). Compared to their peers who do not study abroad, the URM students who study abroad graduate faster and have increased GPAs at degree, take fewer semesters to complete their degree, and earn more college

credits. Looking at the individual subgroups, Black and Latinx students who studied abroad had a statistically significant benefit in all of the measured student success outcomes compared to their matched peers.

Of considerable note was the likelihood of graduation for Black students. Our research shows that the six-year graduation rate for Black students was more than double that of the full aggregated population, and the four-year rate was about 1.5 times that of the full population. For Latinx students, the advantage of study abroad was most dramatic for the four-year graduation rates, and more than double that of the full population. These findings are particularly significant given the lower rates at which these groups study abroad (Lopez-McGee, Comp, and Contreras 2018) and the historically lower college completion rates (Espinosa et al. 2019). For American Indian and Alaskan Native students and Native Hawaiian, the statistically significant effects were more limited due to low participation rates. This may be because CASSIE failed to recruit institutions that have higher rates of enrollment of Native American Indian, Alaskan, or Hawaiian students based on geographical location within the United States.

Upon further disaggregation, Latinx students had an even larger increase of about 9 credits (or three classes), and for Native Hawaiian or Pacific Islander students the increase was about 20 credit hours (nearly seven classes). This finding is perhaps because study abroad credits are being transferred back to the students' home institution as "additional" or "extra" credit and earned study abroad credits are not applied directly toward the students' particular degree requirements. This result is significant for institutional decision-makers as this increase in credit hours earned may indicate a less efficient path to degree and unnecessary financial costs.

Limitations

We acknowledge that we cannot claim causality of study abroad on student success. While advanced matching techniques helped to minimize the impact of confounding variables, other unobserved variables may have contributed to outcomes. Namely, while this research considers precollege preparation and academic achievement in the form of demographics and course-taking patterns, it does not measure psychological factors like willingness to take risks, global-mindedness, or task perseverance that may account for large proportions of variance in both access and tendency to study abroad and college success (Luo and Jamieson-Drake 2015). Further, it should be pointed out that utilizing Pell Grants as a proxy for a student's socioeconomic status is somewhat limiting in that it does not capture social, and in some cases, actual capital across the student's support network. Therefore, it is important to temper these results with the many unaccounted factors that influence student success and are also related to whether a student chooses to study abroad or not. Also, we were unable to restrict matches within the same institution as intended due to sample size limitations. Institutional practices around study abroad programming, such as advertising and funding, influence student participation in study abroad (Whatley and Stich 2021), so future work should endeavor to restrict matches by institution where possible.

It should also be noted that the employed analyses were conservative, and therefore we underestimated the effects of studying abroad on student outcomes. We reported the average treatment effect on the treated (ATT)—which is the effect on students who studied abroad compared to those who did not. If we had instead reported a less constrained average treatment effect on the untreated (ATU), the effect sizes for studying abroad would have been of greater magnitude. The distinction between ATT and ATU is important; international education advocates might argue that if students who were unlikely to participate in study abroad were specifically recruited, the impact on these students could be even more than this study reported.

We also recognize that while our sample is large and diverse, it is nevertheless lacking in some respects. In terms of institutional variety, the study includes mostly public institutions and only recruited three private institutions. Additionally, as the CASSIE study focused on first-time bachelor-degree-seeking students, we cannot speculate as to the impact of studying abroad for students outside of this group, including associate-degree-seeking students, transfer students, or nontraditional students.

Conclusion

The CASSIE study advances the field in demonstrating the value of study abroad on metrics of student success. While the CASSIE study cannot claim causality, our research does signify that study abroad is indeed a HIP and study abroad experiences particularly benefit URM students.

Previous research by Brux and Fry (2010) outlines possible best practices for increasing URM students' participation in study abroad. These include (1) targeting financial assistance, (2) conducting frank and constructive discussions of how some students have experienced and learned from racist reactions at study abroad destinations, (3) disseminating meaningful information about economic and life-enrichment return on investment in education abroad, (4) providing more opportunities to study at heritage culture destinations, (5) upgrading academic advising so that students can study abroad without fear of extending time to degree, and (6) talking with family members about how education abroad can promote their students' academic success rather than detracting from it. (For further discussion of how to achieve greater diversity in education abroad participation, see Kasravi 2018; Lopez-McGee, Comp, and Contreras 2018; and Schmelzer 2015). CASSIE results speak directly to the latter two best practices—highlighting the need for directed outreach to students and their families. Parents and families of students who may be skeptical about the impact of studying abroad will be comforted to learn of the findings reported by CASSIE.

Institutional decision-makers who are cognizant of student success metrics should be motivated by these findings and promote increased URM student participation in study abroad. Yet, in order to do more, the field needs better and more data. The CASSIE team's experience suggests that our institutional recruitment efforts were hindered by many prospective schools' lack of data infrastructure. Many institutions were not able to conduct the complex data compilation required because data were siloed, creating another layer of self-selection at the institution level. However,

since the findings relied on institutional data rather than student-level responses to surveys, it removed a source of response bias that may be present in other research studies. Our project points to the value of better integration between international education data and broader institutional student information system data. If data flows between study abroad records and student information systems could be automated, the availability of robust data could lead to a growth in studies and increased diversity of such studies. International education and institutional research offices should strive for greater communication and more systematic data collection efforts, whereby researchers and international educators could utilize additional methods, better understand the impact of studying abroad on URM students, and make improvements to support better student outcomes.

Future research could explore what types of programs—including program duration, location, language of instruction—are most beneficial for URM students. Considering the recommendation to provide more heritage culture destinations, location may be of value to encourage better representation in study abroad. Further investigation into the true and underlying financial cost (e.g., both real and in terms of missed earnings) of a study abroad experience for URM students could unlock further insights. Also, our data offer no basis for speculation as to why URM students who studied abroad earned more credit hours when compared with White students who studied abroad. Additional quantitative inquiry could investigate this and other mechanisms such as the role of changes in major, course-taking patterns, and course success after studying abroad.

In conclusion, while prior research demonstrates several advantages of studying abroad, overcoming small sample sizes due to the disproportional representation of URM students who study abroad and self-selection bias proved challenging. The CASSIE study made significant effort to overcome these obstacles. Our results indicate URM students who study abroad are associated with increased graduation rates and increased GPAs at degree without contributing to longer time to degree. Equipped with these findings, study abroad advocates, scholars, practitioners, and institutional decision-makers can have the renewed stamina needed to address issues of representation and consider further adaptations to practices that remove barriers to studying abroad for URM students.

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