

University of Nebraska - Lincoln

DigitalCommons@University of Nebraska - Lincoln

---

Chapters from NCHC Monographs Series

National Collegiate Honors Council

---

2019

## Honors Education Has a Positive Effect on College Student Success

Dulce Diaz

*University of Illinois at Chicago*, [bbottoms@uic.edu](mailto:bbottoms@uic.edu)

Susan P. Farruggia

*University of Illinois at Chicago*

Meredith E. Wellman

*Ohio State University*

Bette L. Bottoms

*University of Illinois at Chicago*

Follow this and additional works at: <https://digitalcommons.unl.edu/nchcmonochap>



Part of the [Curriculum and Instruction Commons](#), [Curriculum and Social Inquiry Commons](#), [Educational Methods Commons](#), [Higher Education Commons](#), [Higher Education Administration Commons](#), [Liberal Studies Commons](#), and the [Social and Philosophical Foundations of Education Commons](#)

---

Diaz, Dulce; Farruggia, Susan P.; Wellman, Meredith E.; and Bottoms, Bette L., "Honors Education Has a Positive Effect on College Student Success" (2019). *Chapters from NCHC Monographs Series*. 55. <https://digitalcommons.unl.edu/nchcmonochap/55>

This Article is brought to you for free and open access by the National Collegiate Honors Council at DigitalCommons@University of Nebraska - Lincoln. It has been accepted for inclusion in Chapters from NCHC Monographs Series by an authorized administrator of DigitalCommons@University of Nebraska - Lincoln.

## Honors Education Has a Positive Effect on College Student Success

DULCE DIAZ AND SUSAN P. FARRUGGIA  
THE UNIVERSITY OF ILLINOIS AT CHICAGO

MEREDITH E. WELLMAN  
THE OHIO STATE UNIVERSITY

BETTE L. BOTTOMS  
THE UNIVERSITY OF ILLINOIS AT CHICAGO

Over 1,500 U.S. universities and colleges have honors programs or honors colleges to provide extra support for their most prepared students (National Collegiate Honors Council 2018; Scott and Smith 2016). Honors programs typically provide additional financial support, faculty mentors, smaller class sizes, and other benefits compared to what institutions can typically offer all of their students. Students involved in an honors program usually earn higher GPAs compared to highly motivated students not in an honors program (Pritchard and Wilson 2003) and are more likely to stay in college and graduate within four years (Cosgrove 2004).

The additional success of honors students compared to non-honors students is often attributed to their experiences in the

honors program itself. But it could be argued that honors students are more successful simply because they arrived at a university with better preparation or higher socioeconomic status. Of course, no explanation can be definitive without a randomized control trial, which would be difficult if not impossible in real-world situations, but converging evidence from multiple sources can provide a reasonable answer (Bottoms and McCloud 2018). Considerable research to date on the impact of honors education lacks the appropriate controls to account for alternative explanations for the differences often observed in the success of honors versus non-honors students. The present study tests the impact of an honors college on the successes of a diverse, urban student sample while statistically accounting for pre-matriculation background factors and student characteristics, thereby ruling out many key alternative explanations for the association between honors education and college student success.

### **PRIOR RESEARCH ON THE IMPACT OF HONORS EXPERIENCES**

Many researchers have found a positive association between honors colleges and college success. For example, Hébert and McBee (2007) found that honors programs and the community they create allowed students to become involved in more than academics and to develop intrinsic motivation and self-efficacy. Castro-Johnson and Wang (2003) found that honors students had a higher first-year GPA and higher emotional intelligence scores than their non-honors peers, and they also had higher entering high school GPA and ACT scores. Cosgrove (2004) compared students who stayed in an honors program throughout their college career to (a) other high-achieving students not in the honors program and (b) students who started out in the program but failed to complete it. Those who stayed in the program had higher GPAs and shorter times to degree completion compared to both other groups. Keller and Lacy (2013) found that compared to similar non-honors students, students who participated in an honors program had higher rates of first-to-second-year retention, as well as higher four-, five-, and six-year graduation rates. Such studies are useful in forming

a growing body of converging evidence illustrating the value of honors programs, but they are often limited by examining only one cohort, including samples that are not ethnically diverse, and not controlling for potentially confounded and explanatory factors.

Why might honors programs promote student success? Honors colleges and programs might promote student success because they provide students with myriad supports across many domains: social, emotional, informational, financial, and academic. For example, Hébert and McBee's (2007) qualitative study concluded that honors programs can provide students with intellectual and psychosocial growth, especially by providing faculty mentors. Another hallmark of the academic experience provided by most honors programs is the use of what Kuh (2008) referred to as "high-impact practices," including first-year seminars, learning communities, collaborative assignments and projects, problem-based learning, undergraduate research, service learning, and capstone courses or projects. (For reviews of work addressing such activities, see Kuh, Kinzie, Schuh, Whitt, and Associates 2010; Mayhew, Rockenbach, Bowman, Seifert, Wolniak, Pascarella, and Terenzini 2016; McKay and Estrella 2008). High-impact practices lead to greater student retention and graduation rates because, compared to standard educational practices, they engage students more in their college work and with faculty members, their peers, and their campus so that they feel a greater sense of academic and social belonging to their campus. Having a greater sense of belonging to the campus has been positively associated with personal motivation, perceptions of professors, and a greater sense of social acceptance (Freeman, Anderman, and Jensen 2007). For example, a typical centerpiece of honors education is undergraduate research experiences, especially a capstone project. Considered a high-impact practice, research increases student engagement with faculty members and peers on campus (Hartmann, Widner, and Carrick 2013; Kuh 2008) and is related to academic achievement (Webber, Laird, and BrckaLorenz 2013). Students have reported satisfaction from connecting their research to real life, developing a community with other students, finding mentors among the faculty involved, and gaining ownership over their learning experiences (Falconer and Holcomb 2008).

## **RACIAL / ETHNIC DISPARITIES IN COLLEGE STUDENT SUCCESS**

Much research has examined racial/ethnic disparities in college student success, especially the tendency for African American and Latino/a students to graduate at substantially lower rates compared to White and Asian American students (National Center for Education Statistics 2013). Underrepresented minority students are typically considered to be “at risk” (Schreiner, Noel, Anderson, and Cantwell 2011), risk that is often explained by background characteristics such as being the first in their family to attend college, coming from a lower socioeconomic status, or being an ethnic minority student enrolled in a predominantly White institution (e.g., Bryan and Simmons 2009; Walpole 2008; Zwick and Sklar 2005). Compared to their White peers, underrepresented minority students might have lower social capital and less access to networks that can provide support for college students, and as a result they have less access to resources such as money and academic and socioemotional supports (Bastedo and Gumpert 2003).

Because of such disadvantages, participation in a supportive environment such as an honors program might provide Latino/a and African American students with support and resources that they do not have access to otherwise, perhaps even disproportionately more so than White students. In fact, Seifert, Pascarella, Colangelo, and Assouline (2007) found that underrepresented students in an honors program scored higher on a reading comprehension exam than those not involved in honors, while there was no difference in scores between the White students who were in the honors program versus those who were not. Honors programs might be particularly helpful for ethnic minority students who generally report fewer and less satisfying interactions with faculty, both socially and academically. In fact, Inkelas and Weisman (2003) found that students within an honors program were more likely than non-honors students to discuss academic issues and concerns with faculty and peers.

Further, positive faculty-student interaction is associated with successful academic performance (Anaya and Cole 2001) and varies according to minority status. McKay and Estrella (2008)

found that service learning helped first-generation students succeed academically via greater engagement in course material with faculty members. Anaya and Cole (2001) noted that underrepresented minority students might be less likely to engage with faculty than their White counterparts, which could explain some of the disparity in their college success. Lundberg and Schreiner (2004) found that African American students reported lower levels of satisfaction with faculty relationships compared to White students. African American students and Native American students reported the most interaction with faculty, but they felt they had to push themselves harder than White students to meet faculty expectations. They also reported less satisfying relationships with faculty. Thus students of varying racial/ethnic backgrounds perceive differences in experiences with faculty, experiences that are important to college success. Again, because honors colleges and programs promote high-quality faculty/student interaction, honors education might have even more influence on underrepresented minorities than on other students.

As previously mentioned, increased honors student success might be due to stronger feelings of belonging on campus, something that might also be more important for underrepresented students than White students, again providing reason to expect honors education to provide even more benefit for underrepresented students. For example, Nora, Barlow, and Crisp (2006) found that one of the reasons why minority students were not retained is that they did not have a strong sense of belonging. Similarly, Lundberg and Schreiner (2004) found that for many African American students, dropping out of college was less related to GPA than to feeling isolated and not supported on campus. Kuh (2008) and others claim that for this sense of belonging to occur, students must feel that there is a “critical mass” of students like them on campus. One could argue that an honors program provides minority students with a different type of critical mass to identify with—close peers of a similar high-achieving mindset. In support, Fries-Britt (1998) found that African American students in a merit-based scholarship program did not feel a sense of belonging and community with non-honors

African American peers, feeling instead more connected to other high-achieving students, even those from different racial/ethnic backgrounds. The students reported believing that the non-honors African American community thought that program participants had special treatment over them, but the students in the program believed that they benefitted from having the additional resources provided to them, having a community of high-achieving African Americans to interact with and gain support from, and having faculty with high expectations of them. Therefore, honors programs might isolate students from others not in similar programs, but they can also foster a sense of belonging and social support.

## **STUDY RATIONALE AND HYPOTHESES**

Little research addresses ethnic/racial group differences in student success in the context of honors education (for a discussion, see Coleman, Kotinek, and Oda 2017). This gap is probably because most honors programs admit relatively few underrepresented students, although we know of no studies specifically documenting this situation. Studies that do include race and ethnicity rarely have a truly diverse population, often have a disproportionately high White demographic, describe their sample broadly as “White” and “non-White” (Singell and Tang 2012; Keller and Lacy 2013; Furtwengler 2015), or provide a detailed breakdown without providing separate results for each group (Pritchard and Wilson 2003). In addition, most studies do not control for other student background factors, such as high school performance, parent income, and parent education. For example, Furtwengler (2015) found that students who were typically less likely to enroll in an honors college program (calculated using a propensity score) were those who benefitted most from the program in terms of higher GPA, yet this study failed to control for parent socioeconomic status and parent education, nor did it include measures of retention and time to graduation. Our study meets the need for more studies of ethnically diverse populations within honors and is especially important given the unique experiences and needs of ethnic minority students in universities.

To preview, we used statistical analyses to test the association of honors involvement with greater academic success once other potentially explanatory background variables were accounted for and to determine whether underrepresented minority students benefitted more from honors education than did other students. We hypothesized that when student background variables were accounted for, compared to non-honors students, students in a university honors program would (1) have higher first-term college GPA, (2) earn more credits during the first year, (3) be more likely to persist from the first to second year, and (4) be more likely to graduate at four and six years after matriculation. (Most honors students who graduate do so in four years; see Cosgrove 2004.) We included first-term GPA, first-year credits earned, and first-to-second-year retention as outcomes because success in the first year of college is an important predictor of graduation and success in college (Tinto 1993). In addition, we predicted that the effects for Latino/a and African American students compared to their Asian American and White peers would be larger. Finally, we also explored for differences in the associations between honors participation and student outcomes based on the student's point of entry into the honors program and how long students were in the honors program. That is, while many students began their time in honors programs during the first semester of their first year, some students at the university entered later after demonstrating academic success at the institution. (We did not include students who transferred into the university from other institutions.) We expected that more time in an honors program would lead to even more positive academic outcomes.

## **THE RESEARCH CONTEXT**

We conducted research at the University of Illinois at Chicago (UIC), a large, Midwestern, public, urban research university with over 17,000 undergraduate students and a well-established honors college. Although students may apply to this honors college any time before their penultimate semester in college, most enter as first-year students. Students in the honors college are selected in a



holistic manner that considers background characteristics such as high school grades, record of civic engagement and other extra- and co-curricular activities, various aspects of verbal and interpersonal performance during an in-person interview, the quality of essays written at two different times, diversity considerations broadly defined and consistent with considerations laid out in *Grutter v. Bollinger* (2003) and upheld in later decisions such as *Fisher v. University of Texas* (2016), and to a lesser extent ACT scores. Any high school seniors may apply to the honors college as a part of their college application or later in early spring before university matriculation. Those who have reasonably strong academic backgrounds (usually high school grades of B or higher, but not necessarily high ACT scores) are invited to participate in an in-person interview, which is conducted and assessed by trained interviewers, and to complete written essays to allow for the assessment of other criteria.

This honors college provides a host of supportive experiences for students, including high-impact academic practices such as two required small, interactive, honors-only, three-credit general-education first-year seminars, which include field trips, projects, and papers that engage students with each other and their professor. (For details, see Bottoms, Mehta, and McCloud [Williams] 2015.) Honors college first-year students also take one-credit first-year-experience seminars that prepare students to take advantage of what the university and honors college offer, facilitated by a peer mentor and often taught by the students' professional honors advisor (Chang, Hall, and Bottoms 2016). This advisor provides academic, informational, and socioemotional support throughout the students' years in college. Co-curricular and extracurricular activities with academic components are also a necessary aspect of membership in the honors college, with 45 hours of honors activity being required of the students each semester. These activities range broadly given student interest, and they include student organization leadership, community service learning projects, one-credit advanced honors seminars, study abroad, extra projects contracted in existing courses, research and other creative independent studies, and internships. All honors college students are also required to participate in research or other comparable scholarship in their

discipline, including an independent senior capstone project with faculty oversight. Honors college students also receive extra academic and disciplinary advising and mentoring from an assigned honors college Faculty Fellow, with whom they meet at least twice per semester for academic and career guidance and support. The honors college also provides myriad other supports, such as hosting lectures and activities where students and faculty interact, field trips to major cultural events in the city, and access to special facilities such as computer and study rooms and living-learning communities in the residence halls. The curriculum and programs often include specific attention to diversity, broadly defined, reflecting the nature of the college's unusually diverse student body (Chang et al. 2016).

Previous research at this university on the impact of pre-matriculation characteristics on student success has demonstrated that high school grades, Advanced Placement (AP) credits earned, and race/ethnicity have consistent and significant associations with grades, retention, and graduation (Farruggia, Bottoms, Leighton, Wellman, and Moss 2016; Farruggia, Han, Watson, Moss, and Bottoms 2016). Although with very small effects and not consistent across all outcomes, gender, age, parent education, parent income, ACT score, and placement were also sometimes associated with student success at this university.

## **METHOD**

### **Participants**

The sample comprised all full-time first-year students who entered the university in the fall terms between 2006 and 2012 (inclusive) ( $N = 21,723$ ). The group (55% female,  $M$  age = 18 years,  $SD = .79$ ) was ethnically diverse (35% white, 24% Asian American, 21% Latino/a, 10% African American, and 10% other) and socioeconomically diverse (37% first-generation college students; 45 percent eligible to receive Federal Pell Grant funding; parental income  $M = \$67,037$ ). Fourteen percent of the students were in the honors college for at least one term during their time at the university.

## Measures and Procedure

All data were archival, downloaded from the university data warehouse in keeping with an approved university Institutional Review Board protocol and consent from the Provost, Director of Financial Aid, and the Vice Chancellor for Students. Student background data included gender, race/ethnicity, and age (in years). Parent background data included parent income in dollars and parent education, with the latter used to code students as being first generation in college = 1 (neither parent having graduated from college) or not first generation in college = 0 (one or both parents had graduated from college).

Pre-college-matriculation data (i.e., high school achievement data) included students' high school GPA, number of AP credits earned, ACT Composite scores, and writing-course placement scores. High school GPA was unweighted and measured on a 4-point scale (where 4 was highest). Number of AP credits earned reflected the total number of UIC credits awarded to a student based on AP tests taken in high school, as well as dual enrollment credits earned (which were rare). Writing-course placement scores came from either (a) placement exams taken the summer before the first semester in college or (b) on the basis of automatic placements based on AP test scores, ACT/SAT scores, or community college credits. A score of 1 indicated that the student was assigned to the most introductory, non-credit-bearing writing course level, and a score of 5 was the most advanced writing course level. Data were largely complete (99%+) for all of these indicators.

We measured honors college participation in three ways: (1) dichotomously: whether the student was in the honors college starting the first semester of the first year in college (yes = 1, no = 0); (2) as a ratio term: the sum of the number of semesters the student was in the honors college divided by the total number of semesters at UIC; and (3) dichotomously: whether a student was ever in the UIC Honors College during any semester (yes = 1, no = 0). (First-year students could enter the honors college after the first semester.)

We measured success in terms of first-semester GPA, credits earned in the first year, first-to-second-year retention, four-year

college graduation, and six-year college graduation for the first measure of honors participation. For the ratio term and whether the student was ever in the honors college, we measured success in terms of four-year college graduation and six-year college participation. First-term GPA was based on a 4.0 scale and was the average of grades earned in all credit-bearing courses in the first semester as calculated by the university. Credits earned in the first year reflected the cumulative credits earned by the end of the first year, including summer session if taken prior to freshman year. First-to-second-year retention, four-year graduation, and six-year graduation were dichotomous variables indicating whether the student was retained or had graduated (yes = 1, no = 0).

### **Detailed Plan of Analysis**

Independent samples *t*-tests and chi-square analyses tested for significant differences between honors and non-honors college students in terms of gender, age, race/ethnicity, parent education, parent income, high school GPA, AP credits earned, ACT Composite score, writing placement test, first-term GPA, credits earned in the first year, first-to-second-year retention, four-year graduation, and six-year graduation. We used logistic regression to examine differences between honors college and non-honors college students simultaneously with student and family background to determine if some of these were no longer significant when examined simultaneously. We coded race/ethnicity using dummy codes where Asian American students were the reference group. To determine if participation in the honors college was associated with greater student success, hierarchical linear regression and logistic regression analyses examined success outcome variables. This approach allows for controlling of background variables to understand the unique contribution of honors college participation above and beyond effects that might be associated with other variables. Specifically, for first-term GPA and number of credits earned, we used hierarchical regression, controlling for background characteristics. Honors college participation was measured in this model by whether the student was in the honors college his or her first

semester. Predictors were entered into six blocks: block 1, age and gender; block 2, racial/ethnic background; block 3, parent income and whether or not students were first-generation students; block 4, high school background characteristics (high school GPA, number of AP credits, ACT Composite scores, and writing placement scores); and block 5, honors college participation in the first semester. We separated race/ethnicity from age and gender into different blocks so we could clearly see if race/ethnicity had a direct effect on the outcome variables. We performed independent regressions for the separate outcomes of first-term GPA and number of credits earned in the first year. For the dichotomously measured outcomes of first-to-second-year retention and four- and six-year graduation, we performed separate logistic regression analyses, but otherwise the models were similar, with background characteristics controlled.

Given that Latino/a and African American students typically have lower rates of success compared to Asian American and white students, we were interested in determining whether honors college education would help to close the achievement gap. To determine if honors college participation had a greater effect on Latino/a and African American students, as mentioned previously, we created dummy codes with Asian American students as the reference group because they had the highest overall success of the four racial/ethnic groups in the general student population. Then, we created three interaction terms by multiplying the race/ethnicity dummy code by the honor college participation variable. Similar regression analyses were conducted a second time to add these interaction terms (in block 6). By keeping these interaction terms separate from both race/ethnicity and honors college participation variables, the analysis could test whether those additional variables significantly added to the model.

To examine if more time in the honors college was associated with better student success outcomes, which was only relevant for the dependent measures of 4- and 6-year graduation, we calculated a ratio variable: the sum of the number of semesters that the student was in the honors college divided by the total number of semesters

that the student was at UIC. We created interaction terms with this ratio variable and the race/ethnicity dummy variables. Regressions tested models similar to those just explained except that (1) the ratio variable replaced the honors college participation variable in block 5, (2) the corresponding interaction terms replaced prior interaction terms in block 6, and (3) the models were used to predict only the dependent variables of four- and six-year graduation.

A third set of regression analyses using similar models with new dependent measures tested whether participation at any time in the honors college was associated with better student outcomes as measured by 4- and 6-year graduation. We created interaction terms that crossed any honors college attendance with the race/ethnicity dummy variables. Finally, we conducted additional regression analyses using models similar to those previously explained except that the honors college participation variable was replaced in block 5 and corresponding interaction terms were entered in block 6.

## RESULTS

### Preliminary Analyses

Preliminary analyses considering direct relations between honors college membership and each variable separately (without simultaneously controlling for other variables) provided zero-order relations and informed our choice of variables to use as controls in our main model-testing analyses presented below. Specifically, a series of  $\chi^2$  tests and *t*-tests revealed statistically significant differences between honors college and non-honors college students for gender, age, race/ethnicity, first-generation college students, parent income, high school GPA, AP credits earned, ACT Composite, first-term GPA in college, first-to-second-year retention, four-year graduation, and six-year graduation. Table 1 shows statistically significant differences in the demographic characteristics of students who were in versus not in the honors college (all *p*'s  $\leq .001$ ). Honors students were disproportionately more likely than non-honors students to be women. African American and Latino/a students were disproportionately not in the honors college, whereas Asian

American students were disproportionately in the honors college; White students were equally likely to be in the honors college as not. There were proportionally fewer first-generation college students among honors students than non-honors students; however, the average family income was lower for honors than non-honors students. In terms of academic preparedness for college, not surprisingly, honors students were much better prepared as reflected in significantly higher high school grades, more AP credits earned, and higher ACT scores (all  $p$ 's  $\leq .001$ ). When examining honors college membership, logistic regression revealed that all these factors were significant in the statistical model. Specifically, honors college membership was predicted by being a woman, being slightly older, not being an underrepresented minority student, having a lower family income, not being a first-generation college student, having a higher high school GPA, earning more AP credits, having a higher ACT composite score, and having a higher writing placement, all significant  $p$ 's  $\leq .001$ . Finally, in terms of outcome variables, Table 1 shows that honors college students also had far greater academic success than non-honors students. As expected, they earned higher grades in their first term; earned more credits in their first year; and had higher first-to-second-year retention, four-year graduation (notably 69% versus 24%), and six-year graduation rates (85% versus 53%).

## **Effects of Honors College Participation Starting in the First Semester of College on Measures of Success**

### *First-Term GPA*

Our main model-testing analyses revealed that, as predicted, even after statistically controlling for student background characteristics, participation in the honors college that started during the student's first semester was positively associated with greater student success in terms of first-term GPA, first-to-second-year retention, credits earned in the first year, and graduation within four years and six years. (Final steps of models are presented in Table 2.) Specifically, we used hierarchical multiple regression to

examine the associations for first-term GPA. Age and gender were entered in the first step of the model, and gender was a significant predictor ( $R^2 = .004, F(2, 15106) = 27.19, p \leq .001$ ), such that women earned a higher GPA than men. In the second step, race/ethnicity variables were added to the model and were significant predictors ( $\Delta R^2 = .037, F(3, 15103) = 129.15, p \leq .001$ ), with Latino/a and African American students earning lower first-term grades than other students. In the third step, parent income and first generation in

**TABLE 1. MEANS AND PERCENTAGES FOR ALL STUDY VARIABLES**

Demographics	Honors College	Non-Honors College	$X^2$	<i>t</i> -test
Gender				
<i>Male</i>	38%	46%	48.94***	
<i>Female</i>	62%	54%		
Age in years	18.0	18.1		6.27***
Race/ethnicity <sup>a</sup>				
<i>White</i>	37%	37%	0.19	
<i>African American</i>	5%	10%	76.32***	
<i>Asian American</i>	39%	23%	311.30***	
<i>Latino/a</i>	11%	23%	184.28***	
First-generation students	21%	40%	289.81***	
Parent income	\$64,461	\$85,836		15.84***
High school GPA	3.52	3.12		-47.29***
AP credits earned	0.76	0.18		-65.12***
ACT composite	28.75	23.32		-47.94***
Writing placement	4.75	3.99		-62.09***
First-term GPA	3.57	2.56		-50.32***
First-year credits earned	30.06	22.45		-24.59***
First-to-second-year retention	96%	77%	475.65***	
Four-year graduation	69%	24%	1,292.61***	
Six-year graduation	85%	53%	266.81***	

\* $p \leq .05$ , \*\* $p \leq .01$ , \*\*\* $p \leq .001$

<sup>a</sup>Race/ethnicity was dummy coded so that Asian American was the comparison group.



**TABLE 2. FINAL STEP OF HIERARCHICAL AND LOGISTIC REGRESSION FOR VARIABLES HONORS COLLEGE PARTICIPATION IN FIRST TERM**

Predictors	First-Term GPA <sup>b</sup>			First-Year Credits Earned		
	B	SE(B)	$\beta$	B	SE(B)	$\beta$
(Constant)	0.24	0.29		10.32	2.89	
Age	-0.01	0.02	-0.01	-0.32	0.15	-0.02*
Gender (Male = 0)	0.08	0.01	0.04***	0.44	0.15	0.02***
Race/ethnicity <sup>a</sup>						
<i>African American</i>	-0.26	0.03	-0.08***	-3.78	0.28	-0.12***
<i>White</i>	0.10	0.02	0.05***	-0.76	0.18	-0.04***
<i>Latino/a</i>	-0.09	0.02	-0.04***	-2.98	0.21	-0.13***
Parent income	0.00	0.00	0.03***	0.00	0.00	0.01
First generation in college	-0.09	0.02	-0.04***	-0.83	0.16	-0.04***
High school GPA	0.68	0.02	0.29***	4.52	0.18	0.21***
AP credits earned	0.27	0.02	0.13***	1.95	0.18	0.10***
ACT composite	0.01	0.00	0.04***	0.16	0.03	0.06***
Writing placement	0.05	0.01	0.03***	0.26	0.12	0.02*
Honors college first term	0.19	0.04	0.06***	1.68	0.38	0.05***
Honors $\times$ African American	0.37	0.11	0.03***	4.49	1.08	0.03***
Honors $\times$ White	0.00	0.05	0.00	0.52	0.52	0.01
Honors $\times$ Latino/a	0.14	0.08	0.02 <sup>†</sup>	2.52	0.77	0.03***
Total $R^2$			0.21			0.16
<i>n</i>			15,109			15,109

\* $p \leq .05$ , \*\* $p \leq .01$ , \*\*\* $p \leq .001$ , <sup>†</sup> $p \leq .06$

<sup>a</sup> Race/ethnicity was dummy coded so that Asian American was the comparison group.

<sup>b</sup> The analysis included different cohorts of students for each outcome variable: First-Term GPA (started between 2006–2012, inclusive), 4-Year Graduation (started 2006–2009, inclusive), and 6-Year Graduation (started 2006–2012, inclusive).

PREDICTING COLLEGE SUCCESS USING FIVE DIFFERENT OUTCOME VARIABLES AND

1st- to 2nd-Year Retention			4-Year Graduation			6-Year Graduation		
B	SE(B)	Odds Ratio ( $e^{\beta}$ )	B	SE(B)	Odds Ratio ( $e^{\beta}$ )	B	SE(B)	Odds Ratio ( $e^{\beta}$ )
-0.17	0.90	0.85	-2.82	1.13	0.06**	-1.32	1.39	0.27
0.00	0.05	1.00	-0.15	0.06	0.86**	-0.07	0.07	0.93
-0.05	0.04	0.95	0.34	0.05	1.41***	-0.09	0.07	0.91
-0.53	0.08	0.59***	-0.48	0.11	0.62***	-0.46	0.13	0.63***
-0.43	0.06	0.65***	0.13	0.07	1.14 <sup>†</sup>	-0.08	0.09	0.92
-0.49	0.07	0.61***	-0.48	0.09	0.62***	-0.22	0.11	0.80*
0.00	0.00	1.00	0.00	0.00	1.00***	0.00	0.00	1.00
-0.10	0.05	0.91*	-0.10	0.06	0.90	-0.10	0.07	0.90
0.73	0.05	2.08***	0.95	0.07	2.60***	0.91	0.09	2.48***
0.68	0.06	1.98***	0.80	0.06	2.22***	0.69	0.09	1.99***
0.00	0.01	1.00	0.01	0.01	1.01	0.00	0.01	1.00
-0.07	0.04	0.94	0.17	0.05	1.19***	0.02	0.06	1.02
0.62	0.19	1.87***	0.79	0.14	2.20***	0.68	0.27	1.98*
0.78	0.55	2.18	0.37	0.40	1.45	-0.44	0.65	0.64
-0.28	0.24	0.76	-0.11	0.20	0.89	-0.71	0.34	0.49*
-0.22	0.32	0.80	0.02	0.31	1.02	-0.22	0.73	0.81
		0.09			0.22			0.11
		15,109			9,200			4,055

2006 and 2012, inclusive), First-Year Credits Earned (started between 2006 and 2012), 1st- to 2nd-Year Retention 2006-2007, inclusive).

college were added and were significant ( $\Delta R^2 = .009$ ,  $F(2, 15101) = 112.68$ ,  $p \leq .001$ ), such that students with higher parent income and who were not first generation earned higher grades than others. In the fourth step, high school background characteristics (high school GPA, number of AP credits earned, ACT Composite scores, writing placement) were positively associated with first-term grades ( $\Delta R^2 = .156$ ,  $F(4, 15097) = 354.37$ ,  $p \leq .001$ ). In the fifth step, honors college participation was added and had a statistically significant effect ( $\Delta R^2 = .004$ ,  $F(1, 15096) = 331.93$ ,  $p \leq .001$ )—even after accounting for the variance associated with the other variables—with honors participation being associated with higher grades. In the sixth step, the interaction terms between race/ethnicity and honors college participation were added, and the interaction term for African American was significant ( $\beta = .03$ ;  $\Delta R^2 = .001$ ,  $F(1, 15093) = 266.74$ ,  $p \leq .001$ , total  $R^2 = .21$ ), indicating that the statistical effect of honors involvement was larger for African American students compared to Asian American students. The positive effect of honors college involvement in the first term was larger for African American students when compared to Asian American students. African American students in the honors college their first semester saw a 0.37 increase in first-semester GPA compared to African American students not in the honors college.

### *First-Year Credits Earned*

We used the same analytic approach (with the same variables entered in the same steps) for the different dependent measure of credits earned during the first year. A similar pattern of findings emerged (see Table 2 for the final step of hierarchical multiple regression analysis) with two exceptions: (1) parent income was not significantly associated with first-year credits earned, and (2) in the final step, both the interaction between honors participation and Latino/a student ethnicity and the interaction of honors participation and African American race were statistically significant ( $F(1, 15093) = 190.95$ ,  $p \leq .001$ , total  $R^2 = .16$ ). That is, the positive effect of honors college involvement was significantly larger for Latino/a students as well as for African American students compared to

Asian American students. African American students in the honors college their first semester, on average, earned 4.49 more credits in the first year compared to African American students who were not in the honors college, while Latino/a students earned 2.52 more credits in their first year when compared to Latino/a students not in the honors college.

### *Retention and Graduation*

We used logistic regression to examine the association of honors college participation on first-to-second-year retention, four-year graduation, and six-year graduation (Table 2). For all three, honors involvement was statistically significant: students who participated in the honors college had a higher likelihood (almost two times more likely) of persisting to the sophomore year (odds ratio [OR] = 1.87), and of graduating at four (OR = 2.20) and six years (OR = 1.98), even after accounting for the other factors included in the model. In addition, high school GPA and AP credits earned, as well as some race/ethnicity variables, were also significantly associated with retention and four- and six-year graduation. The interaction terms between racial/ethnic groups and honors college participation were largely not significant, as was ACT composite score, indicating that these were not statistically associated with retention and graduation. Analyses testing the model predicting four-year graduation revealed that some additional variables were significantly related, including age (younger students were more likely to graduate within four years than older students), gender (women were more likely to graduate within four years than men), parent income (students with higher parent income were more likely to graduate within four years than students with lower parent income), and writing placement (those with higher scores were more likely to graduate within four years than those with lower scores). But these variables were not significantly associated with retention nor six-year graduation.

## **Effects of Proportion of Time Spent in the Honors College on Measures of Success**

The next series of logistic regression analyses tested a similar model that had the same steps as above, but this series used as the main predictor variable the proportion of time that each student spent in the honors college (instead of the independent variable of whether students had entered the honors college in their first year). For both four- and six-year graduation, increased time in the honors college was associated with greater likelihood of graduation (Table 3). Students who were in the honors college for a greater proportion of their time in college were four times more likely to graduate within four years (OR = 4.10) and almost three times more likely to graduate within six years (OR = 2.83). No interaction terms were significant in either analysis. Control variables in this model followed the same pattern as reported above for analyses using honors college participation defined as college membership starting in the first term of college.

## **Effects of Honors College Participation at Any Point on Measures of Success**

In the next analyses, we used logistic regression to determine if honors college membership at any time during a student's college tenure affected four- and six-year graduation (Table 4). Honors students were significantly more likely—three times more likely—to graduate within four years than non-honors students (OR = 3.10). No interaction terms were statistically significant. Other control variables in this model followed the same pattern for four-year graduation as reported above when the honors college variable was defined as participation starting in the first term of college.

A similar logistic regression also revealed that students who were in the honors college at any time during college were three times more likely to graduate within six years than those who were not in the honors college (OR = 3.29). No interaction terms were statistically significant. Again, the other variables in this model followed the same pattern for six-year graduation as when the honors

college variable was defined as participation starting in the first semester.

## DISCUSSION

Without question honors college students are more successful than non-honors students. Some critics have argued that the enhanced success of honors students is not due to honors education per se, but instead due to the preexisting characteristics of honors students themselves: they are better prepared and socioeconomically advantaged, they have higher entering standardized test scores, and they are more likely to be white or Asian. On the contrary, our analyses show that such an explanation, which leaves little justification for supporting honors colleges and programs on university campuses, is not accurate. Indeed, this study shows that honors education has a statistically significant positive effect on student success above and beyond all other background characteristics studied, including prior academic preparation (e.g., as reflected in high school grades, writing class placement, and ACT scores) and student and parent demographics (e.g., first generation in college). This was true for success defined five different ways: grades earned in the first semester, credits earned in the first year, first-to-second-year retention, 4-year graduation, and 6-year graduation. Furthermore, and of great importance in a nation where a significant gap in the success of underrepresented students versus others exists, we found that the positive effects of honors college membership were more pronounced for African American and Latino/a students for some indicators of success.

Although our goal was not to identify the specific components of honors programs that increase academic success, theoretically, the explanation might lie in the centerpiece of honors education: the many academically and socioemotionally supportive practices. These include high-impact practices such as small interactive classes, first-year seminars, service activity requirements, and capstone research requirements; all of these practices help students engage more with college, their peers, and their professors (Inkelas and Weisman 2003; Freeman et al. 2007; Kuh 2008; Mayhew et al.

**TABLE 3. LOGISTIC REGRESSION FOR VARIABLES PREDICTING COLLEGE SUCCESS USING TWO DIFFERENT OUTCOME VARIABLES AND RATIO OF TERMS SPENT IN HONORS COLLEGE DIVIDED BY TOTAL TERMS IN THE UNIVERSITY**

Predictors	4-Year Graduation <sup>b</sup>			Six-Year Graduation		
	B	SE(B)	Odds Ratio (e <sup>b</sup> )	B	SE(B)	Odds Ratio (e <sup>b</sup> )
(Constant)	-2.64	1.13	0.07*	-1.21	1.39	0.30
Age	-0.14	0.06	0.87*	-0.06	0.07	0.94
Gender (Male = 0)	0.34	0.06	1.40***	-0.10	0.07	0.91
Race/ethnicity <sup>a</sup>						
<i>African American</i>	-0.49	0.12	0.61***	-0.46	0.13	0.63***
<i>White</i>	0.15	0.07	1.16*	-0.07	0.09	0.94
<i>Latino/a</i>	-0.47	0.09	0.62***	-0.21	0.11	0.81 <sup>†</sup>
Parent income	0.00	0.00	1.00***	0.00	0.00	1.00
First generation in college	-0.07	0.06	0.93	-0.09	0.07	0.92
High school GPA	0.86	0.07	2.36***	0.86	0.09	2.37***
AP credits earned	0.73	0.06	2.08***	0.65	0.09	1.92***
ACT composite	0.01	0.01	1.01	-0.01	0.01	0.99
Writing placement	0.15	0.05	1.17***	0.01	0.06	1.01
Honors college ratio	1.41	0.17	4.10***	1.04	0.30	2.83***
Honors ratio × African American	0.11	0.40	1.12	-0.56	0.59	0.57

Honors ratio × White	-0.30	0.21	0.74	-0.72	0.36	0.49
Honors ratio × Latino/a	0.00	0.33	1.00	-0.09	0.70	0.91
Total R <sup>2</sup>			0.24			0.13
n			9,200			4,055

\*\*\* $p \leq .001$ , \*\* $p \leq .01$ , \* $p \leq .05$ , † $p \leq .06$

<sup>a</sup> Race/ethnicity was dummy coded so that Asian American was the comparison group.

<sup>b</sup> The analysis included different first-year cohorts of students for each outcome variable: 4-Year Graduation (started 2006–2009, inclusive), and 6-Year Graduation (started between 2006–2007, inclusive).



**TABLE 4. LOGISTIC REGRESSION FOR VARIABLES PREDICTING COLLEGE SUCCESS USING TWO DIFFERENT OUTCOME VARIABLES AND ANY HONORS COLLEGE PARTICIPATION (NOT ONLY FIRST SEMESTER)**

Predictors	4-Year Graduation <sup>b</sup>			Six-Year Graduation		
	B	SE(B)	Odds Ratio (e <sup>b</sup> )	B	SE(B)	Odds Ratio (e <sup>b</sup> )
(Constant)	-2.47	1.14	0.08*	-0.88	1.40	0.41
Age	-0.14	0.06	0.87*	-0.06	0.07	0.94
Gender (Male = 0)	0.33	0.06	1.39***	-0.11	0.07	0.90
Race/ethnicity <sup>a</sup>						
<i>African American</i>	-0.50	0.12	0.61***	-0.45	0.13	0.64***
<i>White</i>	0.13	0.07	1.14 <sup>†</sup>	-0.07	0.09	0.93
<i>Latino/a</i>	-0.48	0.09	0.62***	-0.22	0.11	0.80*
Parent income	0.00	0.00	1.00***	0.00	0.00	1.00
First generation in college	-0.06	0.06	0.94	-0.08	0.08	0.93
High school GPA	0.01	0.01	1.01	0.81	0.09	2.24***
AP credits earned	0.85	0.07	2.33***	0.61	0.09	1.85***
ACT composite	0.74	0.06	2.09***	-0.01	0.01	0.99
Writing placement	0.15	0.05	1.16***	0.00	0.06	1.00
Any honors college participation	1.13	0.12	3.10***	1.19	0.23	3.29***
Honors × African American	0.22	0.31	1.25	-0.64	0.51	0.53

Honors × White	0.08	0.17	1.08	-0.35	0.30	0.71
Honors × Latino/a	0.11	0.25	1.12	0.58	0.66	1.79
Total R <sup>2</sup>			0.25			0.13
n			9,200			4,055

\*\*\* $p \leq .001$ , \*\* $p \leq .01$ , \* $p \leq .05$ , †  $p \leq .06$

<sup>a</sup> Race/ethnicity was dummy coded so that Asian American was the comparison group.

<sup>b</sup> The analysis included different first-year cohorts of students for each outcome variable: 4-Year Graduation (started 2006–2009, inclusive), and 6-Year Graduation (started between 2006–2007, inclusive).

2016). For example, this particular university honors college has a mandatory honors freshman seminar, which focuses on campus resources and engagement, and required first-year core seminars, both of which help build relationships between students and faculty and advisors. In turn, these enhanced relationships might help students feel an increased sense of belonging—an important component of academic mindsets, which is strongly associated with academic achievement in college and persistence to the second year (Han, Farruggia, and Moss 2017; Walton and Cohen 2011). Other honors experiences (e.g., community projects, student organizations, and leadership) also promote more engagement and probably more perceived support and belonging.

One could argue that there are additional individual differences between honors and non-honors students that we did not account for. For example, Seifert et al. (2007) found that students who participate in an honors program had increased critical thinking skills, skills in mathematics, and composite cognitive development, and Scager et al. (2012) found that honors students had more desire to learn, drive to excel, and creativity compared to non-honors peers. Perhaps honors college students are more inherently motivated, both to apply to and gain admission to college and to study and be successful once there. While no study can control for everything, future studies should certainly include such variables. Even so, there are several good reasons for not expecting such potential differences to explain our effects. For example, students' high school grades were statistically controlled, and grades reflect a strong motivational component. Of even more importance, although honors college participation at any point in the students' college careers led to a higher chance of graduating in four or six years, the more time students spent in this honors college, the more successful they were in terms of the likelihood of graduating. This would not be true if the honors college programs and resources, which included required honors activities each semester, were not at least partially responsible for the increased success. Thus, we have confidence that the background characteristics we included are reasonable proxies for a host of factors, such as those considered in holistic admissions

processes, that, when controlled, help us to better understand the unique association between honors participation and college success.

It is interesting that the impact of honors college participation is stronger for indicators of persistence in college (retention and graduation—arguably the most important variables we studied) rather than academic performance as measured by first-term GPA and first-year credits earned. (Statistically, this is indicated by the relatively small, but statistically significant and consistent,  $\beta$ 's and small amounts of variance explained for performance, but larger  $\text{Exp } \beta$ 's for retention.) The types of support provided by the honors college may help students manage barriers to college graduation more so than the barriers to academic performance in college. This interpretation is logical, given that honors college students are generally highly academically prepared, but they will still face other challenges that all students face, such as economic barriers and developing social relationships.

The statistically significant interactions between racial/ethnic background and honors college membership are particularly interesting and important. Honors involvement was beneficial for all students, but it was especially important for African American students in terms of first-term GPA, and for African American and Latino/a students in terms of number of first-year credits earned. Seifert et al. (2007) found a similar effect regarding first-year outcomes, but failed to examine long-term outcomes, such as graduation, as we did. As previous research has indicated, regardless of honors involvement, racial and ethnic minority students, compared to White students, tend to engage less with faculty (Anaya and Cole 2001) and to have less access to resources including money for tuition (Bastedo and Gumport 2003). Honors programs provide such resources—more opportunities for faculty engagement, more resources that help academically, and often more scholarships—all of which are needed more by underrepresented students as a group than by other students. Thus, underrepresented students benefit even more than others from an honors college. Given the significant achievement gap between underrepresented and majority students

in this country, it would have been encouraging in this study simply to see equivalence in the effects—our finding of greater impact for African American and Latino/a students is truly important in a meaningful, practical sense.

## CONCLUSIONS AND FUTURE DIRECTIONS

This research documents the positive association between honors education and student success over and above other factors, and it demonstrates that honors education is even more beneficial for underrepresented minority students than for some other students. Honors programs are campus models for undergraduate success programming, not simply unneeded extra resources for students who already have a competitive advantage.

Future research could expand the definition of student success to include elements such as lifelong learning, later-life civic engagement, graduate and professional school matriculation and success, or career development, and it could begin to tease apart the various features of the honors experience that contribute most to student success, with qualitative and quantitative methods. Future research should also continue to identify factors that explain student success of both honors and non-honors students. We have identified one important piece of the complex, multiply determined puzzle, but more research is needed to expand the growing evidence converging on a complete answer to the question of what makes students successful.

## REFERENCES

- Anaya, Guadalupe, and Darnell G. Cole. 2001. "Latina(o) Student Achievement: Exploring the Influence of Student-Faculty Interactions on College Grades." *Journal of College Student Development* 42:3–14.
- Bastedo, Michael N., and Patricia J. Gumport. 2003. "Access to What? Mission Differentiation and Academic Stratification in U.S. Public Higher Education." *Higher Education* 46:341–59.

- Bottoms, Bette L., and Stacie L. McCloud. 2018. "Proving the Value of Honors Education: The Right Data and the Right Messaging." Pp. 41–58 in *The Demonstrable Value of Honors Education: New Research Evidence*, edited by A. J. Cognard-Black, J. Herron, and P. J. Smith. National Collegiate Honors Council Monograph Series. Lincoln, NE: National Collegiate Honors Council.
- Bottoms, Bette L., Sara Mehta, and Stacie McCloud (Williams). 2015. "UIC Honors College Annual Report 2014/2015." Honors College, University of Illinois at Chicago. Retrieved March 17, 2018 <<http://www.honors.uic.edu/annual-report-2014-2015.pdf>>.
- Bryan, Elizabeth, and Leigh Ann Simmons. 2009. "Family Involvement: Impacts on Post-Secondary Educational Success for First-Generation Appalachian College Students." *Journal of College Student Development* 50:391–406. doi:10.1353/csd.0.0081.
- Castro-Johnson, Malaika, and Alvin Wang. 2003. "Emotional Intelligence and Academic Performance of College Honors and Non-Honors Freshmen." *Journal of the National Collegiate Honors Council* 4:105–14.
- Chang, Hui-Ching, Sara Hall, and Bette L. Bottoms. 2016. "Promoting Diversity in an Honors Curriculum." *Honors in Higher Education* 1:51–74. Retrieved June 6, 2018 <<https://journals.psu.edu/hhe/article/view/60068/59887>>.
- Coleman, Lisa, Jonathan D. Kotinek, and Alan Y. Oda, eds. 2017. *Occupy Honors Education*. National Collegiate Honors Council Monograph Series, Lincoln, NE: National Collegiate Honors Council.
- Cosgrove, John. 2004. "The Impact of Honors Programs on Undergraduate Academic Performance, Retention, and Graduation." *Journal of the National Collegiate Honors Council* 5(2):45–53.
- Falconer, John, and Dianne Holcomb. 2008. "Understanding Undergraduate Research Experiences from the Student Perspective: A Phenomenological Study of a Summer Student Research Program." *College Student Journal* 42:869–78.

- Farruggia, Susan P., Bette L. Bottoms, Mary Leighton, Meredith Wellman, and Thomas P. Moss. 2016. "Student, Family, and Pre-Matriculation Achievement Factors Predicting Student Success in a Diverse, Urban University." Pp. 179–200 in *Progress in Education*, vol. 41, edited by R. V. Nata. Hauppauge, NY: Nova Science Publishers.
- Farruggia, Susan P., Cheon-Woo Han, Lakeshia Watson, Thomas P. Moss, and Bette L. Bottoms. 2016. "Noncognitive Factors and College Student Success." *Journal of College Student Retention: Research, Theory & Practice* 50:391–406.
- Fisher v. University of Texas*, 579 U.S. (2016).
- Freeman, Tierra M., Lynley H. Anderman, and Jane M. Jensen. 2007. "Sense of Belonging in College Freshmen at the Classroom and Campus Levels." *Journal of Experimental Education* 75:203–20. doi:10.3200/JEXE.75.3.203-220.
- Fries-Britt, Sharon. 1998. "Moving beyond Black Achiever Isolation: Experiences of Black Collegians." *Journal of Higher Education* 69:556–76. doi:10.2307/2649110.
- Furtwengler, Scott R. 2015. "Effects of Participation in a Post-Secondary Honors Program with Covariate Adjustment Using Propensity Score." *Journal of Advanced Academics* 26(4):274–93. doi:10.1177/1932202X15603365.
- Grutter v. Bollinger*, 539 U.S. 306 (2003).
- Han, Cheon-Woo, Susan P. Farruggia, and Thomas P. Moss. 2017. "Effects of Academic Mindsets on College Students' Achievement and Retention." *Journal of College Student Development* 58(8):1119–34.
- Hartmann, J. Quentin, Sabina C. Widner, and Chad Carrick. 2013. "Strong Faculty Relationship and Academic Motivation as Potential Outcomes of Undergraduate Research." *North American Journal of Psychology* 15:215–34.

- Hébert, Thomas P., and Matthew T. McBee. 2007. "The Impact of an Undergraduate Honors Program on Gifted University Students." *Gifted Child Quarterly* 51(2):136–51.
- Inkelas, Karen Kurotsuchi, and Jennifer L. Weisman. 2003. "Different by Design: An Examination of Student Outcomes among Participants in Three Types of Living-Learning Programs." *Journal of College Student Development* 44:335–68. doi:10.1353/csd.2003.0027.
- Keller, Robert R., and Michael G. Lacy. 2013. "Propensity Score Analysis of an Honors Program's Contribution to Students' Retention and Graduation Outcomes." *Journal of the National Collegiate Honors Council* 14(2):73–84.
- Kuh, George D. 2008. *High-Impact Educational Practices: What They Are, Who Has Access to Them, and Why They Matter*. Washington, DC: Association of American Colleges and Universities.
- Kuh, George D., Jillian Kinzie, John H. Schuh, Elizabeth J. Whitt, and Associates. 2010. *Student Success in College: Creating Conditions That Matter*. San Francisco: Jossey-Bass.
- Lundberg, Carol A., and Laurie A. Schreiner. 2004. "Quality and Frequency of Faculty-Student Interaction as Predictors of Learning: An Analysis by Student Race/Ethnicity." *Journal of College Student Development* 45:549–65.
- Mayhew, Matthew J., Alyssa N. Rockenbach, Nicholas A. Bowman, Tricia A. Seifert, and Gregory C. Wolniak, with Ernest T. Pascarella and Patrick T. Terenzini. 2016. *How College Affects Students: 21st Century Evidence that Higher Education Works*, vol. 3. New York: Jossey-Bass.
- McKay, Valerie C., and Jeremy Estrella. 2008. "First-Generation Student Success: The Role of Faculty Interaction in Service Learning Courses." *Communication Education* 57:356–72. doi:10.1080/03634520801966123.



- National Center for Education Statistics. 2013. *Digest of Education Statistics: 2012*. NCES Publication No. 2014-015. Washington, DC: U.S. Department of Education.
- National Collegiate Honors Council. 2018. NCHC Online Guide. Retrieved June 6, 2018 <<http://www.nchcguide.com/nchc-directory/#more-52>>.
- Nora, Amaury, Libby Barlow, and Gloria Crisp. 2006. "Examining the Tangible and Psychosocial Benefits of Financial Aid with Student Access, Engagement, and Degree Attainment." *American Behavioral Scientist* 49:1636–51. doi:10.1177/0002764206289143.
- Pritchard, Mary E., and Gregory S. Wilson. 2003. "Using Emotional and Social Factors to Predict Student Success." *Journal of College Student Development* 44:18–28. doi.org/10.1353/csd.2003.0008.
- Scager, Karin, Sanne F. Akkerman, Fried Keesen, M. Tim Mainhard, Albert Pilot, and Theo Wubbels. 2012. "Do Honors Students Have More Potential for Excellence in Their Professional Lives?" *Higher Education* 64:19–39. doi:10.1007/s10734-011-9478-z.
- Schreiner, Laurie A., Patrice Noel, Edward Anderson, and Linda Cantwell. 2011. "The Impact of Faculty and Staff on High-Risk College Student Persistence." *Journal of College Student Development* 52:321–38. doi:10.1353/csd.2011.0044.
- Scott, Richard I., and Patricia J. Smith. 2016. "Demography of Honors: The National Landscape of Honors Education." *Journal of the National Collegiate Honors Council* 17(1):73–91.
- Seifert, Tricia A., Ernest T. Pascarella, Nicholas Colangelo, and Susan G. Assouline. 2007. "The Effects of Honors Program Participation on Experiences of Good Practices and Learning Outcomes." *Journal of College Student Development* 48:57–74. doi:10.1353/csd.2007.0007.
- Singell, Larry D., and Hui-Hsuan Tang. 2012. "The Pursuit of Excellence: An Analysis of the Honors College Application and

- Enrollment Decision for a Large Public University.” *Research in Higher Education* 53:717–37. doi:10.1007/s11162-012-9255-6.
- Tinto, Vincent. 1993. *Leaving College: Rethinking the Causes and Cures of Student Attrition*. 2nd ed. Chicago: University of Chicago Press.
- Walpole, MaryBeth. 2008. “Emerging from the Pipeline: African American Students, Socioeconomic Status, and College Experiences and Outcomes.” *Research in Higher Education* 49(3):237–55.
- Walton, Gregory M., and Geoffrey L. Cohen. 2011. “A Brief Social-Belonging Intervention Improves Academic and Health Outcomes of Minority Students.” *Science* 331:1447–51. doi:10.1126/science.1198364.
- Webber, Karen L., Thomas F. Nelson Laird, and Allison M. Brck-aLorenz. 2013. “Student and Faculty Member Engagement in Undergraduate Research.” *Research in Higher Education* 54:227–49. doi:10.1007/s11162-012-9280-5.
- Zwick, Rebecca, and Jeffrey C. Sklar. 2005. “Predicting College Grades and Degree Completion Using High School Grades and SAT Scores: The Role of Student Ethnicity and First Language.” *American Educational Research Journal* 42(3):439–64.
- 

Address correspondence to Bette L. Bottoms at  
[bbottoms@uic.edu](mailto:bbottoms@uic.edu).

