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The Positive Effects of Service-Learning on Transfer Students' Sense of Belonging: A Multi-Institutional Analysis

Travis T. York Frank Fernandez

More than 1 in 3 undergraduate students transfers from one college or university to another, but many do not go on to graduate. Literature suggests that service-learning pedagogy supports both social and academic integration; therefore, we examined whether transfer students' participation in service-learning courses is related to sense of belonging—an important predictor of graduation. We conducted ordinary least squares estimation with institution fixed effects and found that students who participated in service-learning courses posttransfer had a higher sense of belonging. We also found that the relationship between service-learning and sense of belonging may be curvilinear.

Of the 3.6 million students who enrolled in American postsecondary institutions for the first time in Fall 2008, 37.2% transferred at least once within 6 years of enrollment (Kena et al., 2015); however, too few of these students succeed at their new institutions. In a national study of more than 2.6 million students, Shapiro, Dundar, Wakhungu, Yuan, and Harrell (2015) found a striking difference in the 6-year persistence rates between students who did not transfer between institutions (42.1%) and students who did transfer (13.0%). Given the number of transfer students in the US, the 29.1% disparity in persistence rates means that thousands of transfer students never earn bachelor's degrees. For decades, educational

researchers have found that students leave college due to a lack of academic or social integration—both of which are central aspects of students' sense of belonging (Bean, 1983; Braxton, Milem, & Sullivan, 2000; Cabrera, Nora, & Castañeda, 1993; Nora, Attinasi, & Matonak, 1990; Tinto, 1993, 2012). While much of this research focused on nontransfer students, valuable insights have been provided about factors leading to attrition and ways to mitigate that process. For instance, scholars have found that service-learning is an active learning pedagogy that is positively related to students' social integration, institutional commitment, retention, academic success, and acquisition of higher order cognitive skills (Astin, Vogelgesang, Ikeda, & Yee, 2000; Braxton et al., 2000; Eyler & Giles, 1999; Naude, 2015; Vogelgesang & Astin, 2000; York, 2016). These insights led us to consider whether service-learning as an active learning pedagogy may be a means to increasing the retention of college transfer students.

We address the question: Do college students who participate in service-learning courses after transferring from one college to another tend to have an increased sense of belonging at their new institution? Much of the empiric literature on service-learning has focused on White students from middle-class and upper-class backgrounds who attended 4-year institutions (Butin, 2006). Past research on transfer students was often

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limited to one institution or one type of transfer pattern (Hossler et al., 2012). We address these gaps in the literature by examining data for nearly 500 transfer students at 9 posttransfer institutions across the US. Based on our review of literature on student development, we argue that the relationship between service-learning and sense of belonging may be curvilinear. We used ordinary least squares (OLS) estimation with institution fixed effects to demonstrate that taking service-learning courses is positively related to transfer students' sense of belonging. We also show that the effects of service-learning are robust and independent of the effects of taking several other types of courses that foster diverse learning environments (e.g., courses that encourage intensive dialogue between students around discourses of difference or that address issues related to gender, race, privilege, and class differences).

BACKGROUND

Tinto's (1993) theory of undergraduate retention theoretically guides this study, suggesting that decisions to exit an institution result from a combination of academic and social integration. We apply Tinto's theory within Terenzini and Reason's (2005) comprehensive model of influences on student learning and persistence to guide our conceptual approach to this study. Terenzini and Reason argued that while an enormous body of literature has demonstrated that individual student experiences are clearly related to student learning and persistence,

the effects of these experiences, however, are often treated conceptually and empirically in a highly segmented and often discrete fashion, as if certain experiences (or sets of experiences) were the only factors at work shaping student learning, change, or persistence. Such studies produce only a partial picture of the forces at work. (p. 12)

Researchers have suggested that transfer students do not conceptualize or experience academic and social integration separately (Lester, Leonard, & Mathias, 2013; Townsend & Wilson, 2009). Moreover, the literature on service-learning suggests that in-class and out-of-class experiences are inextricably linked (Eyler & Giles, 1999). In service-learning courses students are often challenged to connect their personal experiences with the curriculum. Based on our review, we argue that service-learning courses sit at the intersection of three elements of Terenzini and Reason's model that are connected to persistence: (a) classroom experiences, (b) out-of-classroom experiences, and (c) curricular experiences. We apply Terenzini and Reason's model to test whether service-learning—a pedagogy that attends to academic and social integration—is related to students' sense of belonging and thereby may increase transfer students' success.

Service-learning is a pedagogy that engages students with organized community service activities to achieve a course's intended learning outcomes. Service-learning courses use a variety of opportunities outside of the classroom and include reflective processes to allow students to connect, apply, and integrate course content to their service experiences (Mayhew & Engberg, 2011). A growing body of research has indicated that students who participated in service-learning courses had significant gains in several academic and affective outcomes, including college GPA, cognitive development, diversity skills, reduced stereotyped thinking, and civic awareness (Astin et al., 2000; Brandenberger, 2013; Campus Compact, 2011, 2012; Eyler & Giles, 1999; Jones & Abes, 2003; Jones & Hill, 2001; Vogelgesang & Astin, 2000; York, 2016).

Scholars have largely ignored the effects of service-learning participation on students' *sense of belonging*, an affective outcome defined as a student's "psychological sense that one is

a valued member of the college community” (Hausmann, Schofield, & Woods, 2007, p. 804). In their study examining factors related to African American and White students’ first-year-to-second-year retention, Hausman et al. concluded that sense of belonging should be examined as an independent construct related to student persistence. Similarly, in a study on Latina/o students’ transition to college, Hurtado and Carter (1997) found that sense of belonging was a significant aspect of students’ persistence and that it was likely cultivated by activities that merged students’ academic and social interactions. While sense of belonging is important for all students, we examined this construct among transfer students for its potential to counteract issues of transition and adjustment (Eggleston & Laanan, 2001).

TRANSFER STUDENTS’ ENGAGEMENT AND SENSE OF BELONGING

The process of transferring can be difficult, and too often transfer students exit college before completing the baccalaureate. The transfer student adjustment process is sometimes referred to as “transfer shock” and is accompanied by a temporary dip in GPA, relative to students’ pretransfer grades (Hills, 1965). Although there is a large body of work with analyses of background characteristics and experiences that are related to whether community college students transfer to 4-year universities, few scholars have examined student engagement or integration after transfer (Lester et al., 2013), and few have empirically examined transfer student engagement in 4-year universities (e.g., Kirk-Kuwaye & Kirk-Kuwaye, 2007; Lester et al., 2013; Townsend & Wilson, 2009).

Scholars have found that academic and social engagement or integration are related to transfer students’ success and sense of belong-

ing at their new institutions. Scholars have also argued that transfer students experience academic and social integration differently than students who matriculated at the 4-year college as first-year students. For example, Townsend and Wilson (2009) interviewed community college students around the time they transferred to a research university and conducted follow-up interviews 2 years later. They found that many transfer students do not spend time pursuing social integration on campus because they commute to classes, have networks of support outside school, and regularly work off campus. Therefore, transfer student participants developed social integration through their course-based academic experiences (p. 418). Among transfer students, social integration does not tend to include typical student life or student affairs experiences, such as taking leadership roles in extracurricular student organizations (Pascarella, Smart, & Ethington, 1986).

Similarly, Lester et al. (2013) interviewed students at George Mason University and found that transfer students described feeling a sense of belonging, which they attributed to their academic experiences. Furthermore, the transfer students did not distinguish between academically and socially engaging experiences, with the authors concluding: “Factors that influence transfer student success and retention may be linked more to academic engagement . . . than to social engagement as *traditionally defined* [emphasis added] in the literature” and recommending that “active learning pedagogies may be a stronger investment for student success than campus activities” (p. 219).

SERVICE-LEARNING AS ACCULTURATION

Service-learning pedagogy seeks to aid student learning by connecting course activities with their sociocultural backgrounds (Jones,

2002; Taylor et al., 2017). Through service experiences, students are able to take what may otherwise be abstract course content and better understand their communities, themselves, and their positionality in society. Although service-learning opportunities may be understood as “teachable moments,” they are perhaps better understood as developmental processes that occur over time, particularly if students take multiple service-learning courses (Blankson, Rochester, & Watkins, 2015; Taylor et al., 2017).

Nontraditional students cannot simply be told how to acculturate to academic norms in new institutions; instead, students need transition experiences that lead to greater engagement and learning. Bruffee (1999) found that students who were struggling in new academic settings were able to learn better when they could connect seemingly esoteric readings with their own lives. Service-learning pedagogy should create transition experiences that facilitate acculturation. Through her comprehensive review of service-learning literature, Mitchell (2008) found that “critical service-learning experiences look to knowledge from . . . the students themselves” (p. 57). Through meaningful dialogue, service-learning courses can help students develop a critical perspective of the world “that connects to personal histories” (Mitchell, 2008, p. 61). Thus, service-learning pedagogy views students’ past experiences as integral elements in student learning and development, especially when these experiences serve as the foundation for students’ interactions with new and diverse experiences (Eyler & Giles, 1999).

Although service-learning as an experiential learning pedagogy may help students acculturate to their new environment, the literature suggests that critical learning experiences can personally challenge students in ways that traditional academic courses may not (e.g., Bowman, 2010; Mitchell, 2008).

When students take courses where they grapple with issues of diversity, inequity, social justice, and privilege, they either reject course content or reconcile their new, critical understanding of society with their previous world views. For instance, studies of diversity courses and courses that promote discussion across differences have shown that critical learning experiences can be psychologically challenging, and students who take a single diversity course often do not have affective outcomes that are significantly better than students who do not take such courses; however, when students have repeated experiences with diversity, they are more likely to be comfortable with diversity and have higher levels of psychological well-being, leadership skills, and intellectual engagement (Bowman, 2010, 2013). Bowman (2010, 2013) concluded that the relationship between interactions with diversity and educational benefits was best described as curvilinear. Bowman’s findings suggest that we might expect the relationship between service-learning and sense of belonging to vary according to how much students have been exposed to service-learning pedagogy.

DATA AND METHODS

We used data collected by the Higher Education Research Institute’s (HERI) 2011 Diverse Learning Environments survey (DLE), which surveyed 494 transfer students about their pretransfer and posttransfer undergraduate experiences. We selected the DLE instead of other national datasets for two reasons: (1) the DLE was the only survey we found that asked respondents about the number of service-learning courses they took; and (2), the DLE requests information from students regarding pretransfer and posttransfer experiences. The sample included 382 students who completed a vertical transfer (from a 2-year to a 4-year institution) and 113 students who completed

a horizontal transfer (from a 4-year to another 4-year institution). Students who transferred from one community college to another were not included in this dataset. Of the 494 transfer students in the DLE, 39.5% ($n = 195$) enrolled in at least one service-learning course.

Compared to other data sets, the DLE allowed us to better measure a student's exposure to service-learning pedagogy. The wording of the DLE variable specifically asks participants if they have taken a service-learning course at their current institution, which meant that we could compare sense of belonging and service-learning in reference to students' posttransfer campuses. Moreover, the DLE variable was based on a question that asked students if they had "opportunities to study and serve communities in need (e.g., service-learning)." Service-learning literature draws a distinction between community service and service-learning, the latter of which is more congruent with the DLE's "study and serve" definition (Mitchell, 2008). Thus, the DLE question creates a valid measure for testing the effects of service-learning (HERI, 2011).

Variables

We used DLE's sense of belonging construct as our dependent variable, which "measures the extent to which students feel a psychological sense of integration on campus" and was developed and validated by the Cooperative Institutional Research Program (Hurtado & Guillermo-Wann, 2013, p. 16). This definition fit with our theoretical argument that college curriculums and service-learning pedagogy may help nontraditional students acculturate to new academic environments (Bruffee, 1999; Mitchell, 2008). HERI constructed continuous sense of belonging factor scores using three survey items (e.g., students' agreement with "I see myself as part of the campus community"). Hurtado and Guillermo-Wann (2013) have since confirmed

the reliability of the sense of belonging factor ($\alpha = .915$) and sense of belonging has been examined in prior studies examining college students' transition (Hurtado & Carter, 1997).

Our independent variables of interest are a vector of three dichotomous variables that we collectively refer to as *service-learning courses*. The DLE used an ordinal variable to record whether students had (a) not taken any service-learning courses; (b) taken 1 service-learning course; (c) taken 2, 3, or 4 service-learning courses; (d) taken 5 or more service-learning courses. The context in which participants took their service-learning courses is not known from this data; for instance, whether their service-learning courses were taken as part of a program of study or simply selected by the participants. Past research has indicated, however, that prior exposure to service-learning and/or community service is a significant predictor for future participation (Astin & Sax, 1998; Astin et al., 2000; York, 2015). We created dummy variables for each possible response to the DLE's categorical variable because we wanted to test whether there was a nonlinear relationship between exposure to service-learning pedagogy and sense of belonging. In other words, our review of the literature (e.g., Bowman, 2013; Mitchell, 2008) suggested that the relationship between service-learning and sense of belonging might differ depending on the number of service-learning courses students took. We selected students who did not enroll in any service-learning courses as a reference group and used dichotomous variables to indicate students who enrolled in various levels of service-learning courses (i.e., 1, 2–4, and 5+).

The literature has suggested that sense of belonging and service-learning courses would be related to students' pre-college characteristics, transfer experiences, and enrollment in service-learning courses (Fleishman, Brezicha, & York,

2014; Hurtado & Carter, 1997; Pascarella & Terenzini, 2005; York, 2015). Research on retention (Ternezini & Reason, 2005; Tinto, 1993), sense of belonging (Hurtado & Carter, 1997; Hurtado & Guillermo-Wann, 2013), and transfer students (Laanan, 2004, 2007; Lester et al., 2013; Townsend & Wilson, 2009), guided the use of several variables to control for individual-level factors that might affect sense of belonging and participation in service-learning courses. We selected several demographic controls including variables such as age, high school GPA, dummy variables representing racial or ethnic backgrounds (reference: White), sex (reference: female), first-generation status and low-income status. We also used dummy variables to control for students' class standing (reference first-year) because students' class standing would have been related to their exposure to campus (read sense of belonging) and their opportunities to enroll in service-learning courses. The coding for the control variables is provided in Table 1.

Finally, because previous literature has suggested that transfer patterns are related to transfer student engagement (e.g., Kirk-Kuwaye & Kirk-Kuwaye, 2007) we selected several variables that were related to the transfer student experience. Vertical transfer was a dummy variable that accounted for whether students transferred from a 2-year institution (reference horizontal transfers; students who transferred from a 4-year institution). We included two items as indicators of respondents' experiences as transfer students at their new campuses. The first item asked students to rate the extent to which they "received helpful advice about how to succeed here"; and the second item asked students how strongly they agreed with the statement: "Faculty here take an interest in the success of transfer students" (HERI, 2011). We labeled the first Likert-type scale control variable helpful advice and named the second

control variable faculty interest; these variables control for experiences that may confound our estimates related to service-learning courses (e.g., Laanan, 2004, 2007). Table 1 includes descriptive statistics for our dependent, independent, and control variables.

HERI blinded the identity of institutions participating in the DLE precluding the use of Integrated Postsecondary Education Data System (IPEDS) data. (According to HERI, 2 institutions were publicly controlled and 7 institutions were privately controlled; 2 of the private institutions were religiously affiliated.) Institution-level characteristics may, however, be related to students' sense of belonging and whether students enrolled in service-learning courses (e.g., the number of service-learning courses offered at each college or university). We added an array of dummy variables as institutional fixed effects to account for unobserved variance that occurred at the campus level. Control variables for the institutional characteristics were not included in Table 1 or in the tables that follow, but they were used in our analysis to increase the validity of our study (Langbein, 2012).

ANALYTIC STRATEGY

We used Stata 13 to analyze our data and address our research question. We began by analyzing bivariate plots to determine whether students' sense of belonging differed among students who enrolled in different numbers of service-learning courses. We then estimated a multivariate regression model, using institutional fixed effects to increase the internal validity of our study. Because the dependent variable was a continuous measure, and because the data were cross-sectional in nature, we used OLS regression. Missing data constituted less than 5% of cases and were accounted for using listwise deletion.

FINDINGS

We began our analysis by plotting the bivariate relationship between the dependent and independent variables. Figure 1 provides a

box plot of students' sense of belonging scores grouped by the number of service-learning courses they took after transferring to new institutions. Figure 1 suggests that there is a curvilinear relationship between service-

TABLE 1.

Descriptive Statistics for Respondents to the 2011 Diverse Learning Environments Survey

Variable	M	SD	Min	Max
<i>Dependent Variable</i>				
Sense of Belonging Score	48.28	11.85	15.43	66.18
<i>Transfer Student Experience Variables</i>				
Received Helpful Advice About How to Succeed at New Institution	2.72	0.81	1 (<i>Strongly Disagree</i>)	4 (<i>Strongly Agree</i>)
Faculty Take an Interest in Transfer Student Success	2.82	0.77	1 (<i>Strongly Disagree</i>)	4 (<i>Strongly Agree</i>)
<i>Demographic Control Variables</i>				
Age (DLE coded)	6.42	1.18	2 (17 yrs)	10 (≥55 yrs)
High School GPA (DLE coded)	5.77	1.87	1 (C avg)	8 (A or A+)
Other Control Variables (Dichotomous)		n		
Vertical Transfer (2-Year to 4-Year)	382			
First-Generation ^a	114			
Male	176			
Asian	65			
Black	23			
Hispanic	105			
Other Race or Ethnicity	40			
Low-Income ^b	208			
Second-Year Student	40			
Third-Year Student	202			
Fourth-Year Student	158			
Fifth-Year (or +) Student	87			
<i>Independent Variable (Dichotomous)</i>				
1 Service-Learning Course	106			
2–4 Service-Learning Courses	71			
5+ Service-Learning Courses	18			

^a DLE defined first-generation as parents had less than some college.

^b Low-income was coded as 1 if students estimated their family income at less than \$30,000 (Choy, 2000). We also estimated the model with an untransformed income variable and with the natural log of the DLE income variable (neither of which was significant). The parameter estimates presented in Table 3 for the key independent variable of interest, service-learning courses, were robust—or not sensitive—to the alternate measures of income.

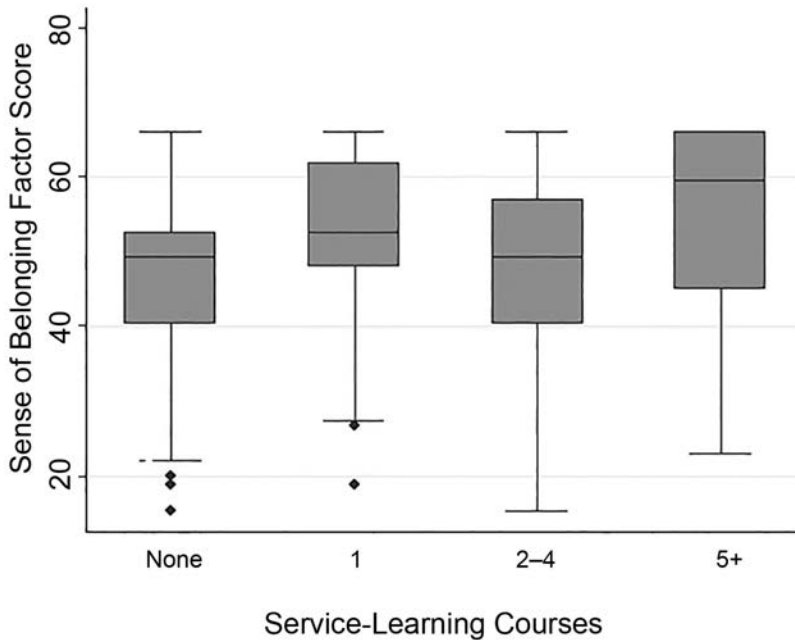


FIGURE 1. Students' Sense of Belonging by Number of Service-Learning Courses Taken

The shaded boxes include the 25th and 75th percentiles of *Sense of Belonging* scores. The horizontal lines within the shaded boxes represent means or averages for each group of students. The whiskers extend to include the sense of belonging scores at the 5th and 95th percentiles. Dots represent outlying values. We also used histograms and calculated skewness and found that skewness was not a problem for the sense of belonging variable.

learning courses and sense of belonging. Transfer students who participated in 1 service-learning course tended to have higher sense of belonging scores ($n = 102$, $M = 52.84$, $SD = 10.22$) than students who did not enroll in any service-learning courses ($n = 291$, $M = 47.38$, $SD = 10.60$). Interestingly, students who participated in 2–4 service-learning courses typically had lower sense of belonging scores ($n = 71$, $M = 28.05$, $SD = 12.75$) than those who took a single service-learning course; however, students who took 5+ service-learning courses, tended to have higher scores ($n = 18$, $M = 54.65$, $SD = 12.65$) than the rest of their peers.

We used a one-way analysis of variance (ANOVA) test to determine that differences in means among these groups of students were statistically significant, $F(3, 478) = 8.08$, $p < 0.001$. This preliminary step was equivalent

to using least squares estimation to regress the independent variable (sense of belonging) on the categories of the independent variable (service-learning courses) without additional covariates or controls. We then conducted post hoc analysis using reverse Helmert coding to conduct a contrast test between the mean of each category and the mean of the preceding category. Results for the reverse Helmert post hoc test are displayed in Table 2. The numbers in the Contrast column represent the differences in means between the two groups of students. Students who took 1 service-learning course had sense of belonging scores that were higher on average by more than 5.0 points, when compared to students who did not take any service-learning courses. Conversely, students who took 2–4 service-learning courses had mean sense of belonging scores that were approximately 4.0 points lower than students

TABLE 2.
Reverse Helmert Contrasts for Categorical Service-Learning Variable

Service-Learning Courses Taken	Contrast	SE	95% CI	df	F	p > F
1 vs. None	5.26	1.32	2.66, 7.85	1	15.84	0.00
2-4 vs. 1	-3.89	1.79	-7.40, -0.37	1	4.73	0.03
5+ vs. 2-4	6.60	3.07	0.56, 12.63	1	4.61	0.03
Joint Test of Contrasts				3	7.14	0.00

Note. Denominator degrees of freedom = 488; factors treated as observed (not as balanced) in the marginal mean calculations.

TABLE 3.
OLS Estimated Effects of Service-Learning on
Transfer Students' Sense of Belonging (N = 474)

Variable	Coef. (B)	SE	t	p	β
Constant	26.48	6.21	4.26	0.00	
<i>Demographics</i>					
First-Generation	1.28	1.14	1.12	0.26	0.05
Age	-0.05	0.44	-0.12	0.90	-0.01
Male	0.44	0.99	0.44	0.66	0.02
Asian	-1.81	1.44	-1.25	0.21	-0.05
Black	0.03	2.19	0.02	0.99	0.00
Hispanic	-0.09	1.26	-0.07	0.94	0.00
Other Race	-0.06	1.70	-0.03	0.97	0.00
High School GPA	0.10	0.25	0.39	0.69	0.02
Low-Income	-2.04	0.96	-2.11	0.04*	-0.09
<i>College Experience</i>					
Vertical Transfer	0.25	1.19	0.21	0.83	0.01
Second-Year Student	2.05	3.91	0.52	0.60	-0.08
Third-Year Student	-1.83	3.73	-0.49	0.62	-0.08
Fourth-Year Student	-0.21	3.75	-0.06	0.96	-0.01
Fifth-Year (or +) Student	-3.82	3.83	-1.00	0.32	-0.12
<i>Posttransfer Experience</i>					
Helpful Advice	1.97	0.73	2.70	0.01**	0.14
Faculty Interest	5.51	0.76	7.27	0.00**	0.37
<i>Service-Learning Courses Taken</i>					
1	3.23	1.11	2.82	0.01*	0.11
2-4	2.77	1.35	2.06	0.04*	0.08
5+	5.84	2.42	2.42	0.02*	0.10
<i>R</i> ²			0.37		

Note: We included institutional fixed effects in the model but excluded them from Table 3.

*p ≤ 0.05. **p ≤ 0.01.

who took 1 service-learning course. The group of students who took 5+ service-learning courses had sense of belonging scores that were 6.6 points higher, compared to the group of students who took 2–4 courses. The dip among students who took 2–4 service-learning courses again suggests that service-learning may have a nonlinear relationship with sense of belonging.

We proceeded with multivariate analysis using OLS estimation to regress sense of belonging on service-learning courses with the control variables listed above. We dropped outlier observations (defined as those outside the 95th percentile) and checked correlations to ensure that collinearity among variables was not a problem. We re-estimated our analyses including the outlier observations, and results were not significantly different. Our descriptive analysis demonstrated a curvilinear relationship between service-learning pedagogy and students' sense of belonging, so we used dichotomous variables to represent different levels of exposure to service-learning courses. Regression results indicated that aside from positive transfer experiences (receiving helpful advice and perceiving that faculty are interested in transfer student success), service-learning courses were the only statistically significant, positive predictor of students' sense of belonging. The only control variable that was negatively, and statistically significantly that related to students' sense of belonging was the dichotomous variable that identified students from low-income backgrounds. See Table 3 for additional results.

The OLS model with institution fixed effects explained 37% of the variance in sense of belonging scores. As predicted in Figure 1, the estimated relationship between service-learning and sense of belonging was different according to the number of service-learning courses students took. Compared to students who did not take any service-learning courses, the estimated standardized estimate was largest

for taking a single service-learning course ($\beta = 0.11$). The standardized estimate was smallest for taking 2–4 service-learning courses ($\beta = 0.08$). Finally, the standardized estimate for students who enrolled in 5+ service-learning courses was larger ($\beta = 0.10$) than for students who only took 2–4 service-learning courses—again, relative to students who did not take any service-learning courses. When we compared standardized beta estimates, we found that the estimated effects of taking 1 service-learning course and 5+ service-learning courses were larger than the negative effects of being a low-income student.

We also compared the standard errors and the regression coefficients for our key independent variables. We found that the parameter estimates for taking 1 or taking 5+ courses were greater than twice the size of the standard errors. These comparisons gave us increased assurance that the estimated relationships between students' sense of belonging and service-learning were not the results of chance occurrence. The standard error was proportionately larger for the variable that indicated that students took 2–4 service-learning courses. Thus, the relationship between service-learning and sense of belonging may be weakest among students who took 2–4 courses, and stronger for students who took only 1 service-learning course or 5+ courses.

As a post hoc analysis test, we calculated the predicted values of sense of belonging for each level of service-learning courses. This process demonstrated what the expected mean would be for the transfer students if they assumed each level of service-learning courses, but held other variables constant. Figure 2 shows the predicted values if all students completed 0, 1, 2–4, and 5+ service-learning courses. In Figure 2, the dots represent the predicted means, and the vertical lines represent the 95% confidence interval. The predicted values support the idea that there may be a curvilinear relationship between service-

learning courses and sense of belonging. The predicted mean for sense of belonging at the level of 2–4 service-learning courses was slightly lower than 1 service-learning course; the highest predicted value was for students who took 5+ service-learning courses.

The 95% confidence intervals for the predicted values were relatively large, which showed that there were significant amounts of variation in the predicted values of sense of belonging for each level of the independent variable, service-learning courses. This may have been a reflection of the small sample size and limits our sensitivity analyses. When we changed the reference group for the independent variable in the full model, we found that the signs of the estimated coefficients followed the curvilinear pattern observed in our other tests. For example, when the reference group was students who took 1 service-learning course, the estimated coefficient was negatively signed for the group that took 2–4 service-learning courses;

however, the standard errors were sufficiently large enough to prevent the parameter estimates from being statistically significant.

To provide additional checks for robustness, we tested whether there is something specific to service-learning courses that helps transfer students acculturate to their new institutions. For instance, research has demonstrated that many students experience educational benefits from increased exposure to diversity (e.g., Bowman, 2010, 2013). In addition to asking about service-learning courses, the DLE asked whether students took any of 7 other types of courses that provided “opportunities for intensive dialogue between students with different backgrounds and beliefs” around topics such as gender, race, socioeconomic class differences, and privilege (HERI, 2011). As with service-learning courses, we dichotomized responses for the 7 additional course types. We tested whether our findings were robust by re-estimating our model and including the different course types (e.g., diversity courses*)

* We use *diversity courses* as shorthand for courses where students experienced intensive dialogue around diverse ideas or with diverse peers, not to specify courses with content about diversity.

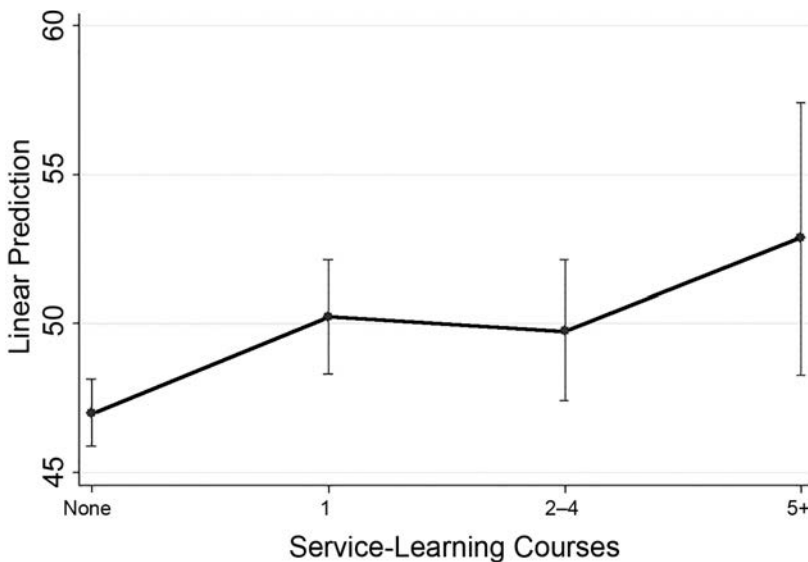


FIGURE 2. Predicted Values of Students' Sense of Belonging for Each Category of Exposure to Service-Learning Courses

TABLE 4.

OLS Estimated Effects of Service-Learning on Transfer Students' Sense of Belonging, Controlling for 7 Course Types in the DLE Survey ($N = 474$)

Variable	Coef. (B)	SE	t	p	β
Constant	25.55	6.42	3.98	0.00	
<i>Demographics</i>					
First-Generation	1.24	1.18	1.05	0.29	0.04
Age	0.00	0.44	0.00	1.00	0.00
Male	0.52	1.04	0.50	0.62	0.02
Asian	-1.75	1.49	-1.18	0.24	-0.05
Black	0.28	2.28	0.12	0.90	0.00
Hispanic	-0.61	1.30	-0.47	0.64	-0.02
Other Race	-0.54	1.78	-0.31	0.76	-0.01
High School GPA	0.09	0.26	0.35	0.73	0.01
Lowes'-Income	-2.00	0.98	-2.04	0.04*	-0.08
<i>College Experience</i>					
Vertical Transfer	0.24	1.23	0.19	0.85	0.01
Second-Year Student	3.80	4.05	0.94	0.35	0.09
Third-Year Student	-0.48	3.87	-0.12	0.90	-0.02
Fourth-Year Student	0.63	3.91	0.16	0.87	0.02
Fifth-Year (or +) Student	-2.45	3.99	-0.61	0.54	-0.08
<i>Posttransfer Experience</i>					
Helpful Advice	1.99	0.75	2.66	0.01**	0.14
Faculty Interest	5.38	0.77	6.99	0.00**	0.36
<i>Course Type: Service-Learning (Reference: None)</i>					
1	2.98	1.23	2.43	0.02*	0.10
2-4	2.35	1.50	1.56	0.12	0.07
5 +	5.95	2.90	2.05	0.04*	0.10
<i>Course Type: Materials/Readings About Gender (Reference: None)</i>					
1	0.78	1.45	0.54	0.59	0.03
2-4	-1.44	1.65	-0.88	0.38	-0.06
5+	-4.39	2.67	-1.65	0.10*	-0.11
<i>Course Type: Materials/Readings About Race/Ethnicity (Reference: None)</i>					
1	0.22	1.70	0.13	0.90	0.01
2-4	2.59	2.05	1.26	0.21	0.11
5+	0.75	2.97	0.25	0.80	0.02
<i>Course Type: Materials/Readings About Socioeconomic Class Differences (Reference: None)</i>					
1	-1.50	1.77	-0.85	0.40	-0.06
2-4	-0.47	2.01	-0.24	0.81	-0.02
5+	3.37	2.86	1.18	0.24	0.10

table continues

TABLE 4. *continued*

Variable	Coef. (B)	SE	t	p	β
<i>Course Type: Materials/Readings About Privilege (Reference: None)</i>					
1	-1.55	1.36	-1.14	0.26	-0.06
2-4	-1.33	1.66	-0.80	0.42	-0.05
5+	-1.18	2.57	-0.46	0.65	-0.03
<i>Course Type: Opportunities for Intensive Dialogue Between Students With Different Backgrounds and Beliefs (Reference: None)</i>					
1	1.16	1.40	0.83	0.41	0.04
2-4	0.31	1.46	0.21	0.83	0.01
5+	2.78	2.01	1.39	0.17	0.08
<i>Course Type: Materials/Readings About Sexual Orientation</i>					
1	1.02	1.45	0.70	0.48	0.04
2-4	0.31	1.92	0.16	0.87	0.01
5+	-0.69	3.29	-0.21	0.83	-0.01
<i>Course Type: Materials/Readings About Disability</i>					
1	-1.51	1.36	-1.11	0.27	-0.05
2-4	-0.74	1.82	-0.41	0.68	-0.02
5+	-3.74	3.91	-0.95	0.34	-0.05
R^2	0.40				

* $p \leq 0.05$. ** $p \leq 0.01$.

as additional control variables to see whether other types of course experiences decreased the estimated effects of *Service-Learning Courses* or did a better job of explaining variation in *Sense of Belonging*.

In particular, literature has suggested that participating in courses including intensive dialogue around areas of difference would moderate service-learning courses' relationship with sense of belonging, given that past research has indicated that service-learning courses often provide such opportunities for intensive dialogue (Eyler & Giles, 1999; Mitchell, 2008; York, 2016). The inclusion of the diversity courses dichotomous variables (with no participation as the reference group) slightly altered the estimated significance level and coefficients of the service-learning variables, but the pattern of results was similar.

With the additional course types, the dummy variable for taking 2-4 service-learning courses was not statistically significant (see Table 4); in other words, additional tests showed that transfer students' experience with service-learning pedagogy is positively related to sense of belonging in ways that are not explained by other course types that foster diverse learning environments.

LIMITATIONS

Our secondary analyses used cross-sectional data, and thus we should not infer that service-learning courses caused students to have increased sense of belonging. Without having student-level data collected at multiple times and without knowing when students took service-learning courses during their

academic careers, causal analyses on the relationships between service-learning and sense of belonging is challenging. To the best of our knowledge these types of data were not publicly available, so we proceeded with multivariate regression using institution fixed effects to control for unobserved variance at the campus level. Another limitation of using secondary, self-reported student data is that we do not know much about the specific pedagogical practices used in the service-learning courses. For example, with these data, it is not clear whether the service-learning courses included cross-pedagogical practices. This is a significant measurement challenge. To the extent that institutions set common expectations or practices for service-learning courses, the institution fixed effects may control for some of the differences in service-learning courses in this multi-institutional study.

We set out to test whether service-learning pedagogy was positively related to sense of belonging among transfer students. Our sample included several types of transfer students, including those transferring from 4-year to 4-year institutions (lateral transfers) and 2-year to 4-year institutions (vertical transfers); however, the dataset did not include lateral transfer students who moved strictly between 2-year colleges; as such, our results may not be generalizable to 2-year lateral transfer students.

We were unable to merge DLE data with institution-level data from the IPEDS due to the removal of institutional identification by HERI, thus we could not directly test whether certain institutional characteristics were related to students' sense of belonging. For example, Locks, Hurtado, Bowman, and Oseguera (2008) demonstrated that student body structural diversity was related to sense of belonging, and Oseguera and Rhee (2009) found that institutional characteristics can affect student persistence; however, we used institution fixed effects to control for unobserved characteristics

that might affect sense of belonging or the availability of service-learning courses at the campus level. Additionally, we acknowledge that our results may be limited by omitted variable bias, in particular, the lack of additional variables that account for student experiences that may also be related to sense of belonging. We included the variables that were identified as potentially the most influential based on our review of the literature on transfer students. Future research might include a larger vector of covariates that represent a broader range of student experiences.

Finally, we did not have data to examine whether the relationship between service-learning and sense of belonging may vary by academic major. Given the small sample size, we did not conduct separate OLS estimations for each racial or ethnic group of students; however, the dataset was relatively diverse (approximately 47% of the students did not identify as White), and the analyses used several dichotomous variables to control for racial or ethnic diversity. We focused on transfer students in this study, but future researchers might seek to determine whether similar results can be achieved through subgroup analyses for various demographic groups. For example, researchers may test whether there are interaction effects between low-income status and service-learning participation.

DISCUSSION AND IMPLICATIONS

This study is among the first to quantitatively test the relationship between taking service-learning courses and sense of belonging in college. Few multi-institutional datasets exist that allow researchers to consider the benefits of service-learning. Further, few studies have accounted for the effects of the number of service-learning courses taken. We used multi-institutional data from HERI's Diverse

Learning Environments dataset to address both these methodologic concerns, and we add to the higher education literature by showing that taking service-learning courses is positively related to sense of belonging.

One major contribution of our study is that it is among the first to suggest that there may be a curvilinear relationship between service-learning and student outcomes. (Bowman, Brandenberger, Snyder Mick, & Toms Smedley, 2010, found that a relationship between service-learning participation and student outcomes, though not framed as curvilinear, is sometimes stronger with prior service-learning participation.) Descriptive analyses demonstrated that sense of belonging was lower among students who took 2–4 service-learning courses when compared to students who either took 1 or 5+ service-learning courses. Using multivariate regression analyses, we found that the estimated effects of service-learning were strongest for students who took the least (1) and most (5+) service-learning courses compared to students who did not take any service-learning courses; conversely, the relationship between service-learning and sense of belonging was smallest for students who took 2–4 service-learning courses. Robustness tests indicated the relationship between service-learning and sense of belonging was still significant after controlling for student experiences with other course types.

While there could be several explanations for the curvilinear relationship between number of service-learning courses taken and students' sense of belonging, we find the following argument to be most compelling based upon previous research. First, scholars (e.g., Fitch, Steinke, & Hudson, 2013) have noted that students' perspectives regarding their service-learning experiences tend to shift from overtly positive feelings for helping others toward more complex emotions as students encounter and problematized notions

of systemic issues related to power, privilege, and oppression. Service-learning courses are often framed in a critical theory perspective (Mitchell, 2008)—a perspective that requires what Kegan (1982, 1994) described as a shift from third order (socialized mind) to fourth order consciousness (self-authoring mind). Love and Guthrie (1999) point out that students do not automatically shift into more complex ways of thinking about the world; rather, students need “sympathetic coaches” to model the more complex ways of thinking and to aid students in adopting those thought processes through repeated exposure (p. 74). Kegan (1982) points out that shifts towards more complex thinking can be painful—as they require people to alter the way they function in the world—and are often the result of increasing cognitive dissonance.

One possible explanation for our results is that as students participate in multiple service-learning courses they may be faced with difficult systemic issues creating the opportunity for this shift in cognition. Similar to King and Baxter Magolda's (2005) multidimensional model of intercultural maturity, this process is likely to be challenging to students, which may result in the temporary dip in students' sense of belonging when they took 2–4 service-learning courses. Increased exposure to service-learning may ultimately give way to increased gains as students move through the dissonance into increased self-authorship and agency. We encourage researchers to explore whether service-learning has curvilinear effects on student outcomes and to test how and why this relationship may occur.

We demonstrated that service-learning is positively related to college students' sense of belonging—a key antecedent to retention (Hurtado & Ruiz Alvarado, 2015). In terms of magnitude, the estimated positive effect of taking a single service-learning course was larger than the negative relationship between low-

income status and sense of belonging. None of the other variables that controlled for student demographics, such as race or ethnicity, age, sex, or first-generation status, were statistically significant. Prior literature has suggested that lateral and vertical transfer students exhibit different patterns of student engagement (e.g., Kirk-Kuwaye & Kirk-Kuwaye, 2007), but we did not find any statistically significant differences in sense of belonging between lateral and vertical transfer students in our regression results. We controlled for other posttransfer experiences, and we found evidence to suggest that students had higher sense of belonging if they felt that they had received helpful advice or perceived that faculty held an interest in transfer students' success. We did not extensively discuss these findings, because they were outside the immediate scope of our study. We encourage scholars to focus on these elements of the transfer student experience. We also encourage practitioners to consider ways to offer helpful advice and encourage faculty to support transfer students.

Institutions wishing to increase the success of their transfer student populations should consider emphasizing or institutionalizing service-learning courses specifically for this population. In addition, institutions should provide adequate resources to support faculty in developing or redesigning courses to utilize service-learning pedagogy. Such resources might include (a) faculty–student affairs partnerships drawing on the pedagogical and student development theory strengths of both professionals; (b) centrally managed and cultivated community partnerships that faculty can draw upon for their service experiences; and, (c) promotion and tenure structures that support and recognize the additional time and effort required by faculty to develop service-learning courses.

Finally, our study makes a theoretical contribution to the literature by reframing

previous studies to consider whether service-learning pedagogy can help transfer students acculturate to new colleges and universities. We argue that service-learning is an active pedagogy that encourages both academic and social integration—two of the primary predictors of student retention. Our review of the literature and regression results suggest that service-learning pedagogy may help students draw on their own personal experiences to engage with course content and their community, resulting in greater sense of belonging. Future researchers might explore whether the relationship found in this study is observed with other populations who might have limited social integration, such as commuter students and nontraditional-age students.

CONCLUSION

Transfer students often experience transfer shock after leaving one college and enrolling at another (Kirk-Kuwaye & Kirk-Kuwaye, 2007). This study indicates that transfer students who take service-learning courses are more likely to develop greater sense of belonging at their new institutions. Moreover, service-learning courses continued to have direct effects even after we controlled for other types of courses that have been shown to increase psychological well-being and intellectual engagement (e.g., Bowman, 2010, 2013). Our analysis also reveals that service-learning courses may have a curvilinear relationship with college students' affective outcomes. We suggest that this latter finding may reveal an unexplored topic of service-learning research, which may be important for service-learning practitioners and faculty.

Limited research on transfer students' participation in service-learning has been conducted, despite recent increases in service-learning opportunities at all institutional types (York, 2015). This is especially concerning

when thinking about transfer students, because 2-year college students, the potential pool for vertical transfers, are more likely to be low-income, first-generation, ethnic minorities (Cohen & Brawer, 2008; Green, 2006), and undocumented (Flores & Oseguera, 2009). More recently service-learning researchers have focused on outcomes related to community college or transfer students (e.g., Ellerton, Figueroa, Fiume, & Greenwood, 2016; Fleishman et al., 2014; Greenwood, 2015; Sass, & Coll, 2015; Yue & Hart, 2017). Researchers should work to create and provide open access to datasets that will collect longitudinal data on the effects of service-learning, which could be analyzed using methods that can support causal inferences. New sources of data could

include multiple years of information and larger sample sizes. Larger sample populations would enable subgroup analyses, especially for nontraditional and underrepresented groups of students. In addition, we encourage practitioners and curriculum scholars to focus on exploring the content of service-learning courses to determine whether some forms or aspects of service-learning may be more effective at improving student outcomes.

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REFERENCES

- Astin, A. W., & Sax, L. J. (1998). How undergraduates are affected by service participation. *Journal of College Student Development, 39*, 251-263.
- Astin, A. W., Vogelgesang, L. J., Ikeda, E. K., & Yee, J. A. (2000). *How service learning affects students*. Los Angeles: University of California, Higher Education Research Institute.
- Bean, J. P. (1983). The application of a model of turnover in work organizations to the student attrition process. *Review of Higher Education, 6*, 129-148.
- Blankson, A. N., Rochester, S. E., & Watkins, A. F. (2015). Service-learning and civic responsibility in a sample of African American college students. *Journal of College Student Development, 56*, 723-734.
- Bowman, N. A. (2010). Disequilibrium and resolution: The non-linear effects of diversity courses on well-being and orientations toward diversity. *Review of Higher Education, 33*, 543-568.
- Bowman, N. A. (2013). How much diversity is enough? The curvilinear relationship between college diversity interactions and first-year student outcomes. *Research in Higher Education, 54*, 874-894.
- Bowman, N. A., Brandenberger, J. W., Snyder Mick, C., & Toms Smedley, C. (2010). Sustained immersion experiences and student orientations toward equality, justice, and social responsibility: The role of short-term service-learning. *Michigan Journal of Community Service Learning, 17*(1), 20-31.
- Brandenberger, J. W. (2013). Investigating personal development outcomes in service learning: Theory and research. In P. H. Clayton, R. G. Bringle, & J. A. Hatcher (Eds.), *Research on Service Learning: Conceptual frameworks and assessment. Vol. 2A: Students and faculty*, (pp. 133-156). Sterling, VA: Stylus.
- Braxton, J. M., Milem, J. F., & Sullivan, A. S. (2000). The influence of active learning on the college student departure process: Toward a revision of Tinto's theory. *Journal of Higher Education, 71*, 569-590.
- Bruffee, K. A. (1999). *Collaborative learning: Higher education, interdependence, and the authority of knowledge*. Baltimore, MD: Johns Hopkins University Press.
- Butin, D. W. (2006). The limits of service-learning in higher education. *Review of Higher Education, 29*, 473-498.
- Cabrera, A. F., Nora, A., & Castañeda, M. B. (1993). College persistence: Structural equations modeling test of an integrated model of student retention. *Journal of Higher Education, 64*, 123-139.
- Campus Compact. (2011). *2010 annual membership survey results: Executive summary*. Boston, MA: Author.
- Campus Compact. (2012). *2011 annual membership survey results: Executive summary*. Boston, MA: Author.
- Choy, S. (2000, March). *Low-income students: Who they are and how they pay for their education* (NCES 2000-169). Washington, DC: U.S. Department of Education, National Center for Education Statistics. Retrieved from <https://nces.ed.gov/pubs2000/2000169.pdf>
- Cohen, A., & Brawer, F. (2008). *The American community college* (5th ed.). San Francisco, CA: Jossey-Bass.
- Eggleston, L. E., & Laanan, F. S. (2001). Making the transition to the senior institution. In F. S. Laanan (Ed.), *New Directions for Community Colleges: No. 114. Transfer students: Trends and issues* (pp. 87-97). Hoboken, NJ: Wiley.
- Ellerton, S. S., Figueroa, S., Fiume, P., & Greenwood, D. (2016). The impact of academic service learning on

- community college students. *Journal for Civic Commitment*, 24. Retrieved from <http://www.mesacc.edu/community-civic-engagement/journals/impact-academic-service-learning-community-college-students>
- Eyler, J., & Giles, D. E., Jr. (1999). *Where's the learning in service-learning?* San Francisco, CA: Jossey-Bass.
- Fitch, P., Steinke, P., & Hudson, T. D. (2013). Research and theoretical perspectives on cognitive outcomes of service learning. In P. Clayton, R. Bringle, & J. A. Hatcher (Eds.), *Research on service learning: Conceptual frameworks and assessment. Vol. 2A: Students and faculty*. (pp. 57-83). Sterling, VA: Stylus.
- Fleishman, S., Brezicha, K., & York, T. T. (2014). Service learning among "nontraditional" college students: Contexts, trends, and implications. In A. E. Traver & Z. P. Katz (Eds.), *Service-learning at the American community college: Theoretical and empirical perspectives* (pp. 257-272). New York, NY: Palgrave Macmillan.
- Flores, S. M., & Oseguera, L. (2009). The community college and undocumented immigrant students across state contexts: Localism and public policy. In R. Crowson & E. Goldring (Eds.), *The new localism in American education* (pp. 267-298). New York, NY: Teachers College.
- Green, D. (2006). Historically underserved students: What we know, what we still need to know. In D. D. Bragg & E. A. Barnett (Eds.), *New Directions for Community Colleges: No. 135. Academic pathways to and from the community college*, (pp. 21-28). San Francisco, CA: Jossey-Bass.
- Greenwood, D. A. (2015). Outcomes of an academic service-learning project on four urban community colleges. *Journal of Education and Training Studies*, 3(3), 61-71.
- Hausmann, L. R., Schofield, J. W., & Woods, R. L. (2007). Sense of belonging as a predictor of intentions to persist among African American and White first-year college students. *Research in Higher Education*, 48, 803-839.
- Higher Education Research Institute. (2011). *2011 Diverse Learning Environments Survey*. Los Angeles: University of California, Author. Retrieved from <http://www.heri.ucla.edu/researchers/instruments/DLE/2011DLE.pdf>
- Hills, J. R. (1965). Transfer shock: The academic performance of the junior college transfer. *Journal of Experimental Education*, 33(3), 201-215.
- Hossler, D., Shapiro, D., Dundar, A., Ziskin, M., Chen, J., Zerquera, D., & Torres, V. (2012). *Transfer and mobility: A national view of pre-degree student movement in postsecondary institutions*. Herndon, VA: National Student Clearinghouse. Retrieved from http://studentclearinghouse.info/signature/2/NSC_Signature_Report_2.pdf
- Hurtado, S., & Carter, D. F. (1997). Effects of college transition and perceptions of the campus racial climate on Latino college students' sense of belonging. *Sociology of Education*, 70, 324-345.
- Hurtado, S., & Guillermo-Wann, C. (2013). *Diverse learning environments: Assessing and creating conditions for student success—Final report to the Ford Foundation*. Los Angeles: University of California, Higher Education Research Institute.
- Hurtado, S., & Ruiz Alvarado, A. (2015). *Discrimination and bias, underrepresentation, and sense of belonging on campus*. Los Angeles: University of California, Higher Education Research Institute.
- Jones, S. R. (2002). The underside of service learning. *About Campus*, 7(4), 10-15.
- Jones, S. R., & Abes, E. S. (2003). Developing student understanding of HIV/AIDS through community service learning: A case study analysis. *Journal of College Student Development*, 44, 470-488.
- Jones, S. R., & Hill, K. (2001). Crossing High Street: Understanding diversity through community service learning. *Journal of College Student Development*, 42, 204-216.
- Kegan, R. (1982). *The evolving self: Problem and process in human development*. Cambridge, MA: Harvard University Press.
- Kegan, R. (1994). *In over our heads: The mental demands of modern life*. Cambridge, MA: Harvard University Press.
- Kena, G., Musu-Gillette, L., Robinson, J., Wang, X., Rathbun, A., Zhang, J., . . . Dunlop Velez, E. (2015). *The condition of education 2015: Institutional retention and graduation rates for undergraduate students* (NCES 2015-144). Washington, DC: U.S. Department of Education, National Center for Education Statistics. Retrieved from <http://nces.ed.gov/pubsw2015/2015144.pdf>
- King, P. M., & Baxter Magolda, M. B. (2005). A developmental model of intercultural maturity. *Journal of College Student Development*, 46, 571-592.
- Kirk-Kuwaye, C., & Kirk-Kuwaye, M. (2007). A study of engagement patterns of lateral and vertical transfer students during their first semester at a public research university. *Journal of The First-Year Experience & Students in Transition*, 19(2), 9-27.
- Laanan, F. S. (2004). Studying transfer students: Part I. Instrument design and implications. *Community College Journal of Research and Practice*, 28, 331-351.
- Laanan, F. S. (2007). Studying transfer students: Part II. Dimensions of transfer students' adjustment. *Community College Journal of Research and Practice*, 31, 37-59.
- Langbein, L. I. (2012). *Public program evaluation: A statistical guide* (2nd ed.). New York, NY: Routledge.
- Lester, J., Leonard, J., & Mathias, D. (2013). Transfer student engagement: Blurring of social and academic engagement. *Community College Review*, 41, 202-222.
- Locks, A. M., Hurtado, S., Bowman, N. A., & Oseguera, L. (2008). Extending notions of campus climate and diversity to students' transition to college. *Review of Higher Education*, 31, 257-285.
- Love, P. G., & Guthrie, V. L. (Eds.). (1999). *New Directions for Student Services: No. 88. Understanding and applying cognitive development theory*. San Francisco, CA: Jossey-Bass.
- Mayhew, M. J., & Engberg, M. E. (2011). Promoting the development of civic responsibility: Infusing service-learning practices in first-year "success" courses. *Journal of College Student Development*, 52, 20-38.
- Mitchell, T. D. (2008). Traditional vs. critical service-learning: Engaging the literature to differentiate two models. *Michigan Journal of Community Service Learning*, 14(2), 50-65.
- Naude, L. (2015). On (un)common ground: Transforming from dissonance to commitment in a service learning class. *Journal of College Student Development*, 56, 84-102.
- Nora, A., Attinasi, L. C., & Matonak, A. (1990). Testing qualitative indicators of precollege factors in Tinto's attrition model: A community college student population. *Review of Higher Education*, 13, 337-355.

- Oseguera, L., & Rhee, B. S. (2009). The influence of institutional retention climates on student persistence to degree completion. *Research in Higher Education, 50*, 546-569.
- Pascarella, E. T., Smart, J. C., & Erhington, C. A. (1986). Long-term persistence of two-year college students. *Research in Higher Education, 24*, 47-71.
- Pascarella, E. T., & Terenzini, P. T. (2005). *How college affects students: A third decade of research*. San Francisco, CA: Jossey-Bass.
- Sass, M. S., & Coll, K. (2015). The effect of service learning on community college students. *Community College Journal of Research and Practice, 39*, 280-288.
- Shapiro, D., Dundar, A., Wakhungu, P. K., Yuan, X., & Harrell, A. (2015, July). *Transfer and mobility: A national view of student movement in postsecondary institutions, Fall 2008 cohort* (Signature Report No. 9). Herndon, VA: National Student Clearinghouse Research Center.
- Taylor, K. B., Jones, S. R., Massey, R., Mickey, J., Reynolds, D. J., & Jackson, T. (2017). Examining developmental readiness in an international service-learning context. *Journal of College Student Development, 58*, 685-703.
- Terenzini, P. T., & Reason, R. D. (2005, November). *Parsing the first year of college: Rethinking the effects of college on students*. Paper presented at the Annual Conference of the Association for the Study of Higher Education, Philadelphia, PA.
- Tinto, V. (1993). *Leaving college: Rethinking the causes and cures of student attrition* (2nd ed.). Chicago, IL: University of Chicago Press.
- Tinto, V. (2012). *Completing college: Rethinking institutional action*. Chicago, IL: University of Chicago Press.
- Townsend, B. K., & Wilson, K. B. (2009). The academic and social integration of persisting community college transfer students. *Journal of College Student Retention, 10*, 405-423.
- Vogelgesang, L. J., & Astin, A. W. (2000). Comparing the effects of community service and service-learning. *Michigan Journal of Community Service Learning, 7*, 25-34. Retrieved from <http://hdl.handle.net/2027/spo.3239521.0007.103>
- York, T. T. (2015). More than a desire to serve: A mixed methods exploration of low-income, first-generation college students' motivations to participate in service-learning. In A. S. Tinkler, B. E. Tinkler, V. M. Jagla, & J. R. Strait (Eds.), *Service-learning to advance social justice in a time of radical inequality* (pp. 7-40). Charlotte, NC: Information Age.
- York, T. T. (2016). Exploring service-learning outcomes and experiences for low-income, first-generation college students: A mixed-methods approach. *International Journal of Research on Service-Learning and Community Engagement, 4*, 309-342. Retrieved from <http://journals.sfu.ca/iarslce/index.php/journal/article/download/201/176>
- Yue, H., & Hart, S. M. (2017). Service-learning and graduation: Evidence from event history analysis. *Michigan Journal of Community Service Learning, 24*(1), 24-41.