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An exploration of the connection between participation in academic peer leadership experiences and academic success

Dallin George Young, Dory E. Hoffman, and Sara Frakes Reinhardt

ABSTRACT

This study examined the relationship between peer leader involvement and academic success outcomes in the United States. Results are based on the 2013 administration of the National Survey of Peer Leaders conducted at 49 institutions of higher education in the United States. Findings show that academic peer leadership experience was a strong, positive predictor of self-reported academic performance. The total number of peer leader experiences was also a positive, yet weak, predictor of academic success.

INTRODUCTION

Over the past few decades, peer leadership has grown to become a significant part of numerous higher education programs throughout the United States. Evidence has documented the use of peer leaders, educators, and mentors in a wide variety of educational and student support programs (Ganser & Kennedy, 2012). The reach of peer education programs has extended to nearly every campus in the United States as educators have been harnessing their benefits to meet the needs of higher numbers of college enrollees (Collier, 2015).

Peer education can be traced to Aristotle's use of archons or student teachers (Whitman, 1988), and its history reaches back to the nascence of U.S. higher education (Cohen & Kisker, 2010; Ganser & Kennedy, 2012). Nonetheless, the use of peers throughout the history of postsecondary education has moved between retrenchment and profusion (Whitman, 1988). After World War II, student populations began to increase significantly (Pope, Mueller, & Reynolds, 2009). To accommodate the needs of the rising population, institutions began to rely on peer educators (Ganser & Kennedy, 2012; Whitman, 1988). This led to a concurrent renaissance of peer leadership in co-curricular and academic settings. The rise of peer leadership in the co-curriculum was led by residence halls and orientation programs in the mid-20th century and continues to be prominent in these areas (Ganser & Kennedy, 2012; Powell, 1959; Shook & Keup, 2012; Skipper & Keup, 2017). At the same time, academic programs began to establish formal undergraduate-to-undergraduate peer teaching initiatives (Newton & Ender, 2010; Whitman, 1988).

With expansion of peer educators' use came an increase in the variety of spheres for their use, including admissions, athletics, campus activities, community service, counseling, first-year experience, Greek life, housing, international student offices, judicial affairs, multicultural affairs, orientation, wellness, religious student organizations, and study abroad (Keup & Skipper, 2010; Keup & Young, 2014). The use of peer educators has also expanded in

academic settings. Peer leaders have begun to play significant on-campus roles as tutors, academic and learning coaches (Colvin & Ashman, 2010), group facilitators, instructors (Cuseo, 2010), and Supplemental Instruction leaders (Colvin & Ashman, 2010; Cuseo, 2010; Stone & Jacobs, 2008). Additionally, students serve as peer educators in roles such as “co-instructors, teaching assistants, and classroom partners in first-year seminars and gateway courses” (Skipper & Keup, 2017, p. 96; Owen, 2011; Young & Hopp, 2014).

Benefits for peer leaders

Commentators on the use of peer leaders, educators, and mentors on campus have referred to the common tripartite rationale for their application: (a) effectiveness for the intended beneficiaries (i.e., the peer students), (b) delivery of educational services for the institution in a cost-effective format, and (c) benefits for students engaged in peer educator roles (see Collier, 2015; Keup, 2012; Newton & Ender, 2010; Skipper & Keup, 2017; Whitman, 1988; Young & Keup, 2018).

An emerging body of literature has focused on the latter of these rationales: the benefits gained by the peer leaders themselves. For instance, peer mentors for first-year students reported increases in their ability to manage groups, empathize with students, and facilitate learning (Bunting, Dye, Pinnegar, & Robinson, 2012; Harmon, 2006; Kenedy, Monty, & Lambert-Drache, 2012). Other research has pointed to peer leaders developing communication and leadership skills; integrative and applied learning; knowledge of campus resources; interaction with faculty, staff, and peers; critical thinking; problem solving; and ability to work under pressure (Astin, 1993; Benjamin, 2004; Bunting, Pinnegar, & Dye, 2012; Ender & Kay, 2001; Russel & Skinkle, 1990; Wawrzynski & Beverly, 2012; Wilcox, 1993). Badura, Millard, Johnson, Stewart, and Bartolomei (2003) identified several outcomes for student peer leaders, including factual knowledge, helping others, friendships, personal growth, positive regard for instructor skills, and decision making.

As stated earlier, peer educators can be found in a multiplicity of roles on campus and in functional areas that might be deemed academic or co-curricular. Including those listed above, studies have found common outcomes from both kinds of experiences, including increased intra- and interpersonal communication (Heys & Wawrzynski, 2013; Jones & Kolko, 2002; Wawrzynski & Beverly, 2012), more awareness of diversity, greater connection to the campus, and increased self-confidence and self-efficacy (Benjamin, 2004; Lockie & Van Lanen, 2008; Wilcox, 1993; Young & Keup, 2018).

However, some reported outcomes appear to be specific to those students who engage in peer leadership roles based in academic departments or that have an academic focus. Students who served as tutors and Supplemental Instruction leaders showed an increased understanding of the course material (Bargh & Schul, 1980; Colvin & Ashman, 2010; Stout & McDaniel, 2006). While students studying for a test may soon forget the knowledge they obtain, peer educators benefit from reorganizing and verbalizing concepts to other students (Durling & Schick, 1976). Academic peer educators also reported benefits from reapplying the material they learned in class (Colvin & Ashman, 2010; Lockie & Van Lanen, 2008) as well as increased time management and study skills (Bidgood, 2004; Lockie & Van Lanen, 2008). Engaging in an academic peer leadership experience (PLE) has been linked to improved

academic outcomes. Students who participated as academic peer leaders (e.g., Supplemental Instruction leaders) tended to have better GPAs than a matched sample of students (Wong, Waldrep, & Smith, 2007).

Statement of the problem

Despite extensive research outlining the benefits of peer leadership generally across the United States, research comparing the experiences of academic and nonacademic peer leaders is limited. All told, academic peer leadership roles are those most commonly reported; 50–60% of respondents to the 2009 and 2013 National Surveys of Peer Leaders said they had engaged in an academic PLE (Keup & Young, 2014; Skipper & Keup, 2017). Yet, self-reported gains in academic performance on the same surveys were reported less frequently than other outcomes such as skill development, connection to the institution, and employability (Keup & Young, 2014; Skipper & Keup, 2017).

As described earlier, evidence suggests a connection between serving as a peer educator in an academic-oriented role and unique outcomes. However, there are limited studies examining the relationship between participation in an academic PLE and academic performance. In one such study, Skipper and Keup (2017) reported that peer leaders in academic and community service roles credited their experiences with improvement in academic skills including writing, critical thinking, and information and literacy. Moreover, they found that students who participated in one specific co-curricular role, namely resident assistants, described a negative association between the experience and educational success. This opens the line of investigation to quantify possible differences in academic outcomes between peer leaders in academic and co-curricular roles. This study seeks to address that knowledge gap.

Theoretical framework

To explore the influence of different experiences—engagement in an academic or non-academic peer leader role—on outcomes, this study draws on two theoretical foundations: Legitimate Peripheral Participation (Lave & Wenger, 1991) and Astin’s involvement theory (1999).

(a) Legitimate peripheral participation (LPP)

LPP can help clarify the connection between participation in a peer leadership role and self-reported academic success (Lave & Wenger, 1991). As a learning theory, LPP describes how novices enter a community of practice and are introduced to its culture, activities, and organization, eventually becoming full participants. Moreover, Lave and Wenger suggest the peripheral participants’ membership is influenced by their access to features of the community such as experts, situations, and instruments. As students participate more, they may see themselves moving from the position of novice to that of master—from peripheral to full participation—thus showing increased self-efficacy and self-awareness as members of the intellectual community. If newcomers do not interact with these features, however, their learning, as a situated social process, will be limited.

An understanding of LPP in the context of peer leadership suggests that involvement as an academic peer leader may signal an intermediate step between peripheral and full participation in the academic community. Peer leaders are introduced to the culture, activities, and organization of a community, so they learn more about on-campus resources, study skills, and

communication with professors, commonly referred to as *college knowledge*. For peer leaders to fulfill their roles and effectively mentor students, they must first become familiar with on- and off-campus resources. Another important tenet of LPP is that novice learners have greater or more intimate access to experts, such as the professors or student affairs professionals who train peer leaders.

(b) Involvement theory

Improved and specific outcomes resulting from peer leadership can also be understood through involvement theory (Astin, 1999). Astin posits that involvement is the “investment of physical and psychological energy” in the student experience that has “both quantitative and qualitative features” and spans a continuum (p. 519). Astin posits that “the amount of student learning and personal development associated with any educational program is directly proportional to the quality and quantity of student involvement in that program” (p. 519). Thus, a focused, sustained investment of time and energy in a specific activity is likely to improve outcomes related to that involvement.

Both theoretical frameworks suggest that learning is situated in activity systems, directed toward greater participation in a specific activity in a learning community, and related to the depth of the learner’s engagement (Astin, 1999; Lave & Wenger, 1991). Thus, a combined framework suggests that students who invest significant time in an academically oriented PLE will report greater academic outcomes than other students who engage in nonacademic peer leadership. Our understanding is that greater involvement-as-participation in the academic community of practice should lead to improved measures of self-efficacy in academic success.

METHOD

This study was designed to investigate the relationship between students’ involvement in PLEs in academic settings and academic performance outcomes. Specifically, we sought to answer the following research questions:

1. How engaged or involved are student peer leaders?
2. How do peer leaders report their academic success?
3. Do peer leaders who have engaged in PLEs in academic settings report greater academic success than peer leaders without these experiences?

Data source and analytical methods

To answer these research questions, this study used a dataset that contained responses from a sample of peer leaders at 49 institutions across the United States that administered the 2013 National Survey of Peer Leaders sponsored by the National Resource Center for The First-Year Experience and Students in Transition. Thirty-seven public, four-year institutions and 12 private, four-year campuses participated in the study. These institutions ranged in undergraduate enrollment from 496 to 49,973 students with a mean of 13,644 undergraduates. They also include a diversity of purpose within Carnegie Classification categories and included one associate-degree-granting, four-year institution; eight baccalaureate colleges; 19 master’s colleges and universities; and 21 research universities or doctoral/research universities. While the institutional sample was not representative of four-year institutions nationally, the sample size provides statistical power and represents one of the first national datasets that focuses, in detail, on college students’ peer leadership

experiences. Moreover, it represents the most recent and comprehensive dataset on peer leadership in the United States.

The instrument used to collect data was a 60-item, online, student-level survey that contained items measuring student demographics; experiences as peer leaders; characteristics of peer leader roles and programs, including recruitment, training, and remuneration; and self-rated change as the result of peer leader experiences on skill development, undergraduate experiences, employability outcomes, and academic performance. Institutional response rates ranged from 8.9% to 85.3% with an overall response rate of 28.6%.

The survey resulted in a sample of 4,016 respondents with current or previous experience in peer leadership. Results of the descriptive statistics for the sample—including the total number of PLEs, peer leader type, gender, race/ethnicity, class standing, Pell Grant eligibility (an American student financial aid program aimed at supporting students with demonstrated financial need and used in this survey as a proxy for socio-economic status), and current grade-point average (GPA)—can be found in Table 1.

Table 1
Descriptive statistics of demographics of participants in the 2013 US National Survey of Peer Leaders

| Peer leader characteristics | Frequency | % |
|---|------------------|----------|
| <i>Categorical variables</i> | | |
| <i>Peer leader type (n = 3,970)</i> | | |
| Academic–Any | 2,000 | 50.4 |
| <i>Gender (n = 3,795)</i> | | |
| Genderqueer or fluid | 15 | 0.4 |
| Man | 1,088 | 28.7 |
| Transgender | 1 | 0.0 |
| Woman | 2,691 | 70.9 |
| <i>Race/ethnicity (select all that apply) (n = 3,795)</i> | | |
| American Indian or Alaska Native | 69 | 1.8 |
| Asian or Asian American | 319 | 8.4 |
| Black or African American | 423 | 11.1 |
| Hispanic, Chicano/a, or Latino/a | 265 | 7.0 |
| Native Hawaiian or other Pacific Islander | 43 | 1.1 |
| White | 2,735 | 72.1 |
| Other (please specify) | 80 | 2.1 |
| I prefer not to respond | 153 | 4.0 |
| <i>Class standing (n = 3,636)</i> | | |
| First-year | 254 | 7.0 |
| Second-year | 913 | 25.1 |
| Third-year | 1,192 | 32.8 |
| Fourth-year | 1,020 | 28.1 |
| Fifth-year | 257 | 7.1 |
| <i>Pell grant eligible (n = 3,795)</i> | | |
| Yes | 1,369 | 36.1 |

| <i>Continuous variable</i> | <i>Mean</i> | <i>SD</i> |
|---|-------------|-----------|
| GPA at the start of current semester (<i>n</i> = 3,774) | 3.5 | 0.4 |

Analyses

Multiple regression and descriptive statistics were used for analysis. The descriptive analyses help address the first two research questions for this study: How engaged or involved are student peer leaders, and how do peer leaders report their academic success? To answer the first question, our study examined three items from the survey using descriptive statistics to determine students' level of engagement: (a) total number of PLEs, (b) number of peer leader roles held at once, and (c) hours per week dedicated to peer leadership roles and responsibilities.

The second research question was analyzed using descriptive statistics of survey items that asked students to gauge how PLEs had affected their academic success. Five items asked students to rate how PLEs directly contributed to changes in (a) academic skills, (b) GPA, (c) number of credit hours completed each term, (d) time to expected graduation, and (e) overall academic performance. Students selected the level of change for each of these items on a seven-point scale ranging from *greatly decreased* to *greatly increased*. Students could also select *unable to judge*, which was coded as a missing response. Because a response of *increased* to the item asking about expected time to graduation represented a negative outcome, it was reverse coded so the values on the scale were opposite from the other academic success items.

The third research question, exploring the relationship between involvement in an academic PLE and academic outcomes, was answered using a hierarchical multiple regression. The outcome variable was a composite of the five items measuring peer leaders' self-reported academic outcomes, calculated by adding together participants' ratings on each scale. A reliability analysis, calculated using the variables from the composite measure, resulted in a Cronbach's alpha of .816, indicating a sufficient internal consistency. For these analyses, listwise deletion was used with missing data. Because of the potential for institution-level effects in this sample, we tested for possible clustering. Intraclass Correlation Coefficients for all outcomes in the dataset ranged from .008 to .043. Therefore, analysis showed minor variation between groups and no additional accounting for nested data was necessary.

RESULTS

Research question 1: How engaged or involved are student peer leaders?

As shown in Table 2, student peer leaders are engaged at wide levels. The medians of two of the measures, total number of PLEs and highest number of experiences held at one time, show that the average peer leader was engaged at low to moderate levels. Respondents participated in an average of three PLEs overall while holding two positions at a time. Results for the number of hours per week spent on peer leadership responsibilities paint a similar picture. The median amount of time was 11–15 hours. However, responses pertaining to engagement level showed a wide range and skewed toward the high end of measures used. Nearly 6% of respondents indicated holding at least nine PLEs in all; assuming these experiences are not available until after the first year,

this meant that they held at least three positions a year over three years. This is consistent with the other responses: More than 5% of peer leaders spent more than 30 hours per week carrying out their duties, and 10% of peer leaders reported holding five or more PLEs at one time.

Table 2
Descriptive statistics for measures of peer leader engagement among participants in the 2013 US National Survey of Peer Leaders (n = 4,016)

| Variable | Frequency | % | Median |
|---|------------------|----------|---------------|
| <i>Total number of PLEs</i> | | | 3 |
| 1 | 768 | 19.1 | |
| 2 | 796 | 19.8 | |
| 3 | 680 | 16.9 | |
| 4 | 546 | 13.6 | |
| 5 | 418 | 10.4 | |
| 6 | 257 | 6.4 | |
| 7 | 185 | 4.6 | |
| 8 | 132 | 3.3 | |
| 9 | 57 | 1.4 | |
| 10 or more | 177 | 4.4 | |
| <i>Highest number of PLEs held at one time</i> | | | 2 |
| 1 | 1,047 | 26.1 | |
| 2 | 1,123 | 28.0 | |
| 3 | 971 | 24.2 | |
| 4 | 470 | 11.7 | |
| 5 or more | 405 | 10.1 | |
| <i>Hours per week spent on PLE responsibilities</i> | | | 11–15 |
| 5 or less | 762 | 19.0 | |
| 6–10 | 1,118 | 27.8 | |
| 11–15 | 822 | 20.5 | |
| 16–20 | 623 | 15.5 | |
| 21–25 | 292 | 7.3 | |
| 26–30 | 174 | 4.3 | |
| 31–35 | 59 | 1.5 | |
| 36–40 | 58 | 1.4 | |
| More than 40 | 108 | 2.7 | |

Research question 2: How do peer leaders report their academic success?

Peer leaders in the survey reported consistently across three of the four measures that, on average, the PLE did not increase or decrease their GPA, number of credit hours completed, or overall academic performance. As displayed in Table 3, apart from the reverse-coded measure of time to graduation ($M = 3.82$), the mean response for these measures ranged from 4.32–4.62. Similarly, the overall mean of the composite variable, represented on a seven-point scale, was 4.42. Given that a rating of 4 represented “no change” and a 5 represented “slightly increased,” peer leaders on the whole indicated these experiences left a marginally favorable impact on their academic performance. Peer leaders also reported, on average, that their PLEs increased their academic skills slightly. Conversely, it is notable that between 1.8% and 3.3% of respondents said the PLEs decreased or greatly decreased their academic performance on each of these measures.

Research question 3: Academic peer leadership and academic success

Results from the hierarchical multiple regression analysis are presented in Table 4. The direction (positive or negative) and relative strength of these variables as predictors are demonstrated by the β statistic in Table 4, a standardized representation of the average increase in the outcome variable (self-reported academic success) for a unit increase in the predictor variable, expressed in standard deviations. Additionally, values of p that were less than .05 were considered statistically significant. The results show that three contextual variables (genderqueer identity, Pell Grant eligibility, and current GPA) were significant predictors of academic success.

In the first step, representing background or contextual variables, Pell Grant eligibility was a positive and significant predictor of success ($\beta = .056, p = .002$). Respondents who identified their gender as queer or fluid reported significantly lower levels of academic success as a result of PLEs ($\beta = -.045, p = .009$). Similarly, students who reported higher GPAs indicated that peer leadership did not influence their scholastic success ($\beta = -.040, p = .034$).

In step two, where the model introduced variables representing peer leader participation, engagement in an academic peer leadership role ($\beta = .116, p < .001$) and total number of PLEs ($\beta = .052, p = .003$) were statistically significant positive predictors of overall academic performance. While both variables in the second step were significant predictors above the set of control variables, combined they accounted for slightly less than 2% of the variance in self-rated academic outcomes ($\Delta R^2 = .017, p < .001$).

Table 3

Descriptive statistics for measures of peer leader self-reported change in academic success due to peer leader experiences

| Self-rated change | Academic skills (n = 3,886) | | GPA (n = 3,810) | | Credit hours completed (n = 3,810) | | Time to expected graduation - reverse (n = 3,810) | | Overall academic performance (n = 3,810) | |
|--|--|----------|----------------------------|----------|---|-----------|--|----------|---|----------|
| | Frequency | % | Frequency | % | Frequency | % | Frequency | % | Frequency | % |
| Greatly decreased | 23 | 0.59 | 22 | 0.58 | 12 | 0.31 | 102 | 2.68 | 13 | 0.34 |
| Decreased | 47 | 1.21 | 104 | 2.73 | 56 | 1.47 | 194 | 5.09 | 58 | 1.52 |
| Slightly decreased | 317 | 8.16 | 534 | 14.02 | 341 | 8.95 | 253 | 6.64 | 435 | 11.42 |
| No change | 1123 | 28.90 | 1713 | 44.96 | 2338 | 61.36 | 2949 | 77.40 | 1452 | 38.11 |
| Slightly increased | 764 | 19.66 | 563 | 14.78 | 420 | 11.02 | 134 | 3.52 | 871 | 22.86 |
| Increased | 1016 | 26.15 | 525 | 13.78 | 390 | 10.24 | 54 | 1.42 | 612 | 16.06 |
| Greatly increased | 495 | 12.74 | 180 | 4.72 | 162 | 4.25 | 15 | 0.39 | 269 | 7.06 |
| Unable to judge | 101 | 2.60 | 169 | 4.44 | 91 | 2.39 | 109 | 2.86 | 100 | 2.62 |
| <i>Summary statistics</i> | | | | | | | | | | |
| Median | Slightly increased | | No change | | No change | | No change | | No change | |
| Mean (7-point scale) | 5.00 | | 4.37 | | 4.32 | | 3.82 | | 4.62 | |
| Overall change | | | | | Mean | SD | Scaled mean | | | |
| Academic outcome composite (n = 3,472) | | | | | 22.1 | 3.5 | 4.42 | | | |

Table 4
Hierarchical multiple regression of contextual and participation variables on overall student-reported increase in academic success (n = 3,333)

| Variables | Step 1 | | | | Step 2 | | | |
|---|-----------------------|---------------------------|-------------------------|-------------|-----------------------|---------------------------|-------------------------|-------------|
| | <i>B</i> | <i>SE</i> | β | <i>p</i> | <i>B</i> | <i>SE</i> | β | <i>p</i> |
| Intercept | 18.097 | .697 | | .000 | 18.381 | .695 | | .000 |
| <i>Contextual variables</i> | | | | | | | | |
| Transgender | 0.980 | 3.696 | .005 | .791 | 0.348 | 3.667 | .002 | .924 |
| Woman | 0.044 | 0.143 | .005 | .757 | 0.044 | 0.141 | .005 | .758 |
| Genderqueer or fluid | -2.729 | 1.126 | -.042 | .015 | -2.912 | 1.117 | -.045 | .009 |
| American Indian or Alaska Native | 0.676 | 0.479 | .024 | .159 | 0.595 | 0.476 | .022 | .211 |
| Asian or Asian American | -0.092 | 0.335 | -.007 | .784 | -0.075 | 0.332 | -.005 | .822 |
| Black or African American | 0.527 | 0.320 | .045 | .099 | 0.482 | 0.317 | .041 | .129 |
| Hispanic, Chicano/a, or Latino/a | 0.333 | 0.308 | .023 | .280 | 0.325 | 0.305 | .023 | .288 |
| Native Hawaiian or other Pacific Islander | -0.188 | 0.643 | -.005 | .770 | -0.132 | 0.638 | -.004 | .836 |
| White | -0.064 | 0.292 | -.008 | .827 | -0.093 | 0.290 | -.011 | .750 |
| Other (please specify) | 0.483 | 0.497 | .018 | .332 | 0.377 | 0.494 | .014 | .445 |
| I prefer not to respond | -0.329 | 0.441 | -.017 | .457 | -0.395 | 0.438 | -.020 | .367 |
| Class standing | 0.119 | 0.062 | .033 | .056 | 0.057 | 0.063 | .016 | .368 |
| Pell Grant eligible | 0.439 | 0.138 | .057 | .001 | 0.434 | 0.137 | .056 | .001 |
| GPA at the start of current semester | -0.100 | 0.168 | -.011 | .551 | -0.362 | 0.170 | -.040 | .034 |
| <i>Participation variables</i> | | | | | | | | |
| Academic PLE | | | | | 0.887 | 0.136 | .116 | .000 |
| Total number of PLEs | | | | | 0.081 | 0.028 | .052 | .003 |
| | <i>R</i> ² | <i>Adj R</i> ² | ΔR ² | <i>p</i> | <i>R</i> ² | <i>Adj R</i> ² | ΔR ² | <i>p</i> |
| Model statistics | .013 | .009 | .013 | .000 | .030 | .025 | .017 | .000 |

Limitations

While this study provides greater insight into how student peer leader involvement in academic peer leadership experiences impacts academic outcomes, it has certain limitations. The data relied on students' self-reported gains on the outcome variables. Several scholars have questioned the validity of self-reported data, particularly to measure the effects of college experiences on students. Gonyea (2005) suggested that self-reported estimates of learning are valid, within limits. While self-reported data do not correspond perfectly with more objective measures of growth and learning, they are useful, as they measure the same constructs. Further, Pike (1999) offered that while halo error is present with self-reported data, its presence is consistent and can be used to make comparisons. Given that the data in this study are used primarily as comparative measures of increases in the identified outcome areas rather than an absolute rating of growth, we feel that it is reasonable to use self-rated measures to answer our research questions. Moreover, these findings are consistent with those reported in Skipper & Keup (2017) based on a different set of student peer educators and using different methodologies. Additional research, including interviews with students about the connection between participation in academic peer leadership experiences and academic performance, could reveal additional insight into the relationships we have explored here.

Another limitation was the number of contextual variables available for inclusion in the model that might contribute to students' feeling of academic success. As a result, the overall R^2 statistic for the model predicting peer leaders' self-rated change was .030. Thus, other explanatory variables were not available for inclusion in the dataset on which this analysis was based. It is possible that including these variables could dramatically change the coefficients reported in Table 4. Therefore, we exercise caution not to overstate these results in the proceeding discussion.

DISCUSSION

The present study sought to determine the extent that peer leaders were involved, how they rated the change in their academic performance attributable to their PLE, and whether involvement in academic PLEs was related to self-rated academic performance. Responses to the third question showed that participation in an academic PLE was the strongest and most positively significant predictor of student peer leaders' self-reported sense of the influence of a PLE on academic competence. This can be conceptualized as a student's self-efficacy, a signal of self-confidence, or their identity as an achiever in the academic community of practice. This finding is consistent with Skipper and Keup (2017), who found that peer leaders in academic settings described the connection between peer leadership and academic behaviors differently than those in nonacademic roles.

These findings are supported by the theoretical propositions of LPP and involvement theory. LPP is similar to *transformational leadership theory* in that both frameworks see potential novices as future leaders, or full participants. LPP comes into play as students who have enough PLEs to both enter and learn from a community, yet not so much that it affects their academic performance, benefit from these experiences. Similarly, students with academic PLEs (e.g., serving as a teaching assistant or academic tutor) tend to gain more knowledge about the subjects they assist educators in teaching. These students are put in

positions to have greater interaction with faculty in meaningful ways, which is a key to increased student success (Kuh & O'Donnell, 2013; Pascarella & Terenzini, 2005). Moreover, results suggested that depth of involvement, measured by total number of PLEs, was also significantly and positively related to students' sense of increased academic ability. Thus, the results hold up to the proposition of involvement theory: that depth of engagement is connected to improved outcomes.

Students should have the opportunity to engage in long-term experiences to gain competence and self-efficacy. However, the results point to a substantial number of students who reported engagement that might be characterized as over-involvement. This signals the need for further research using direct measures of academic performance, or qualitative analyses of the academic experiences of students who could be classified as *high-involvement*. Such studies can point to thresholds of diminishing returns, the extent that student peer leaders might feel overwhelmed, or other factors that could help practitioners support these students. Further, this has implications for peer leader selection. If benefits can be gained from engaging as a peer leader but a limited number of opportunities are available, two questions are raised:

- Who can access these experiences?
- Are certain student populations being systematically excluded from this opportunity?

We harken back to the caution in interpretation previously referenced. It is important not to overstate the findings but to treat this as tentative evidence of a relationship between students who are involved in academic PLEs, the depth of their engagement, and academic outcomes. The coefficients supporting these two connections are relatively small (engagement in an academic peer leadership role: $\beta = .116$; total number of PLEs: $\beta = .052$).

We considered two factors in interpreting our results. First, a large proportion of students reported “no change” to the items (see Table 3). Thus, the influence of PLEs on students' perception of academic capability may not be widespread and could be perceptible but not large. Another consideration is a possible *conceptual ceiling effect* regarding students' overall sense of academic success, particularly when self-rating. For example, academic peer leaders are required to keep relatively high average grades and thus are likely to enter a peer leadership program with a strong understanding of academic materials. Peer leaders may already consider themselves academically successful and be less likely to credit peer leadership for their high grades. Further, because students consistently get feedback on their academic performance (i.e., grades) and those measures are frequently used as gatekeeping mechanisms for appointing peer leaders, students may not consider that they can increase their abilities. This ceiling effect also seems to be borne out in the result that peer leaders with higher marks in the sample reported their experiences increased their academic competence less frequently (see Table 4).

This study asked students to report perceived change in their academic performance. As high achievers, they are likely to feel their academic performance has already reached its upper limit. Given this condition, it is noteworthy that these students perceive their PLEs have contributed to increased academic ability at all. Moreover, the PLE remains a positive and

significant contributor to academic achievement when controlling for grades. This is especially true of students with lower average grades, as this group saw higher improvement in academic performance. This suggests that the PLE significantly impacts certain groups of peer leaders, specifically those who do not experience the ceiling effect from grade-point averages.

It is important to clarify that our study does not measure academic achievement; rather, it measures peer leaders' sense of connection between their experiences in these roles and their growth as members of the academic community. It is not overstating the findings to say that the average peer leader in an academic role reported a greater increase in important measures of academic progress than their nonacademic counterparts. To more fully understand these relationships, further research should track direct measures of academic competence of peer leaders in academic settings versus nonacademic peer leaders.

Relationships between self-rated academic success and several of the contextual variables were notable. Results suggest students from low socioeconomic backgrounds (as represented by eligibility for the Pell Grant) rated the contribution of their PLEs more highly. More research is needed to better understand this relationship. These findings echo reports by the Association of American Colleges and Universities, which suggest that low-income or first-generation students report higher outcomes when participating in high-impact practices (Finley & McNair, 2013). Additionally, peer leaders who identified as genderqueer or fluid rated their academic success lower than men in the sample. Viewing this result through the lens of LPP suggests that these peer leaders, despite their depth and quality of involvement in PLEs, may not see themselves as full participants in the academy. While only 15 students identified as genderqueer or fluid in the sample, this relationship is worthy of further research.

The results point to practical suggestions for structuring PLEs to increase student confidence in their academic success. First, because results suggest that students engaged in academic PLEs report greater academic confidence, institutions might consider how to build in more opportunities for demonstrating peer leadership, even informally. Moreover, the results echo calls for meaningful interactions between faculty-as-experts in the academic community and the novices who are working toward fuller participation in that community, or the students. Peer leadership may be a pathway for helping students feel more connected to the academy and therefore may yield greater academic success and deeper learning. Educators who select, train, and supervise those serving in nonacademic peer leader roles could contribute to academic skill development by helping peer leaders see themselves as members of the academic community. As an example, in some residence halls, the resident assistant's primary focus has shifted from that of disciplinarian and social catalyst to residential academic mentor.

CONCLUSION

This study's findings help inform the role of peer leadership as a useful tool for students serving in these roles to achieve meaningful educational outcomes. The research adds to a growing base of evidence supporting the notion that PLEs in academic settings lead to greater self-efficacy. Moreover, it points to practical suggestions for how educators can build on this knowledge

to support the development of students engaging in these experiences. Perhaps more importantly, it signals avenues for ongoing research to better understand this relationship.

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