

The Role of Service-Learning on the Retention of First-Year Students to Second Year

Robert G. Bringle and Julie A. Hatcher

Indiana University-Purdue University Indianapolis

Richard N. Muthiah

George Fox College

Retention of college students is a priority of all colleges and universities. This research investigated whether or not student enrollment in a service-learning course in the fall semester of college was related to (a) intentions to stay on that campus, based on self-reports at the end of the semester, and (b) re-enrollment the following fall on that campus, based on reports from campus registrars the following fall. Enrollment in a service-learning course was related to intentions to continue at the same campus and this relationship was mediated by the higher quality of service-learning courses (vs. non-service-learning courses). This relationship between service-learning and intentions to re-enroll at the same campus held even when pre-course intentions were covaried out. Re-enrollment at the same campus the following year was found to be related to enrollment in a service-learning course. This relationship was mediated by the higher quality of the service-learning courses (vs. non-service-learning courses) and greater intention to continue education at the campus, but these relationships did not persist after controlling for pre-course intentions.

Service-learning has gained recognition as a curricular strategy that yields multiple positive outcomes for students. In addition to academic gains (Ash, Clayton, & Atkinson, 2005; Batchelder & Root, 1994; Gray, Ondaatje, Fricker, & Geschwind, 2000; Markus, Howard, & King, 1993; Osborne, Hammerich, & Hensley, 1998; Reeb, Sammon, & Isackson, 1999; Vogelgesang & Astin, 2000), students in service-learning courses have educationally meaningful community service experiences that enhance personal and civic development during their undergraduate education and beyond (Ash et al.; Astin & Sax, 1998; Eyler & Giles, 1999; Eyler, Giles, Stenson, & Gray, 2001). To the degree that service-learning results in perceptions of enhanced learning and academic engagement for students, service-learning experiences can contribute to overall satisfaction with college (Astin & Sax) and, possibly, persistence and retention in terms of continued enrollment (Osborne et al.). As a "mature educational reform" service-learning has important implications for the first-year experiences of undergraduates (Gardner, 2002).

In addition to student benefits, the prevalence of service-learning courses may also provide institutional benefits. Institutions of higher education can develop meaningful partnerships with the community and engage students and faculty in activities that

contribute to the community's quality of life. Service-learning increases student involvement in the learning process itself (Astin & Sax, 1998), which is a fundamental component of theories of student development (Astin, 1984) and persistence (Tinto, 1975, 1987, 1993). Exploring this relationship between service-learning and retention is of fundamental importance to colleges and universities.

Bean (1986) presents three primary reasons for institutional attention to the issue of retention. The first reason is economic. A decline in overall institutional enrollment will result in lower tuition income. For example, the income produced by four first-year students who leave after one year is equaled by one student who remains at the institution for four years. In addition, institutions benefit by investing to recruit one student instead of four. Secondly, colleges and universities have an ethical responsibility to demonstrate good faith in the probability of success for students they admit and supporting their students to optimize success. The third reason is the cost to the institution, not in dollars, but in morale and quality. High attrition can lead to a demoralized faculty, staff, and administration with a possible result of employee attrition following the pattern of student departure.

Although there is wide variation across institutions, approximately one-half of college students fail to graduate in five years (American College Testing,

2003; Astin & Oseguera, 2005; Carey, 2004). The first year is particularly vulnerable to attrition, with the largest proportion of students being lost between the first and second year (American College Testing; Tinto, 1993). Furthermore, about one third of all first-year students drop out of the college they first enter (Levitz & Noel, 1989) and more than 25% of first-year students at four-year institutions do not return to their college of enrollment for a second year (Vogelgesang, Ikeda, Gilmartin, & Keup, 2002). In response to these patterns, many campuses have developed programs and course-based strategies focused particularly on the first-year experience to assist students in making the transition to college and successfully completing a plan of study (Barefoot, 2007; Zlotkowski, 2002). Over 70% of campuses offer first-year seminars (Skipper, 2002), and it is estimated that 10% of first-year students participate in learning communities that intentionally schedule a group of students in consecutive courses to increase peer-to-peer interaction and student-to-faculty interaction (Keup & Stolzenberg, 2004).

Theoretical Framework

Much of the research on the factors behind first-to-second year persistence is based on the theory of student departure developed by Tinto (1975, 1987, 1993). Tinto (1975) recognized three sets of factors influencing a student's decision to remain or leave an institution: (a) individual characteristics (e.g., family background, personality, past educational experiences, goal commitment); (b) institutional characteristics (e.g., size, type, quality); and (c) the student's interaction within the college environment (e.g., social interactions, academic integration). Within this model, students' individual characteristics and their interactions with the academic and social systems shape their commitments both to personal goals and to the institution. "Other things being equal, the higher the degree of integration of the individual into the college systems, the greater will be his [sic] commitment to the specific institution and to the goal of college completion" (p. 96). Research in the areas of student persistence, retention, and educational attainment has supported Tinto's theoretical model (e.g., Braxton, Milem, & Sullivan, 2000; Milem & Berger, 1997; Pascarella & Terenzini, 1980, 1991; Stoecker, Pascarella, & Wolfe, 1988; Terenzini & Wright, 1987; Tinto, 1987, 1993, 2000).

Some variables in Tinto's model are more readily influenced by campus activities over which educators have control. Of the three main areas described by Tinto (1975) (i.e., student interaction with the college environment, individual characteristics, institutional characteristics), the latter two are the least amenable to intervention and change on campus. The area that

is most readily influenced by educators is the student's interaction with the college environment. For example, in their study of educators' effects on students, Pascarella and Terenzini (1991) discuss seven areas of student-environment interaction that have been correlated with educational attainment: academic achievement; peer relationships and extracurricular involvement; interactions with faculty; academic major; residence; orientation and advising; and financial aid and work. The first three of these may respond to the service-learning course as a deliberate intervention during the first year.

The intentions of students are also important in theoretical models for retention. Bean (1983) introduced intent – to stay or to leave – as the variable that immediately precedes the departure decision. Tinto (1987, 1993) incorporated Bean's idea of student intentions into his model, as well as recognizing the possible influence of the external environment. Some alternate variables are used by different researchers, but the general theoretical structure remains the same. Individual characteristics, goals, and commitments interact with institutional characteristics resulting in student experiences that may reshape individual goals, commitment, and intentions, leading to the decision of whether or not to remain at the institution. Using Tinto's model as the base, a student's academic and social integration are seen as the most direct influence on persistence (Stoecker et al., 1988).

Service-Learning

Tinto (1997) describes classrooms as the crossroads between academic and social systems and challenges institutions to incorporate retention efforts into the academic experiences of students, suggesting that "retention programs should include initiatives that change the everyday academic experience of students" (p. 3). Service-learning courses may be one means of achieving this objective. Educational outcomes are enriched, deepened, and expanded when students encounter high quality learning environments that actively engage, provide frequent feedback, foster collaboration with others, and promote work on tasks that have real consequences and are personally relevant (Marchese, 1997). "When institutions help students have a positive, substantive growth experience in the first year of college, their success and persistence are enhanced" (Levitz & Noel, 1989, p. 66). Good practices in service-learning meet most or all of these recommendations for high quality learning environments.

The dimensions of academic achievement, peer relationships, and extracurricular involvement, as well as interactions with students and faculty, are particularly relevant to service-learning, especially well-designed and -implemented service-learning.

Research demonstrates that high impact learning opportunities such as learning communities, study abroad, research, capstone courses, first-year seminars, and service-learning courses, enhance student engagement and student success (Eyler et al., 2001; Kuh, 2007; Umbach & Wawrzynski, 2005). Research on service-learning indicates positive outcomes in areas such as informal contact with faculty, enhanced peer relationships, and involvement in active learning pedagogies (Eyler & Giles, 1999; Eyler et al., 2001; Hatcher & Oblander, 1998; Keup, 2005-2006; Osborne et al., 1998). Hatcher and Oblander (1998) report that underprepared first-year students in a service-learning study skills course reported positive gains in self-confidence, improved perceptions of themselves as learners, stronger academic skills and competence, increased understanding of career and educational goals, and the ability to develop interpersonal relationships with peers.

Eyler and Giles (1999) document the peer connections that are made through service-learning courses, linking social integration to student retention. Students involved in service-learning have increased frequency of interaction with faculty, often in out-of-classroom settings (Sax & Astin, 1997). In addition, research indicates a higher level of student satisfaction with service-learning courses when compared with non-service-learning courses (Gray et al., 2000). Service-learning has been found to enhance academic outcomes, attitudes, and values related to civic engagement and personal growth (Eyler et al., 2001).

As Kuh (2002) notes, what matters most to students achieving learning outcomes is what students do, not who they are. If service-learning students have more positive outcomes in these areas, then according to Tinto's model (1993, 1997) they should also be more likely to remain in college (Pascarella & Terenzini, 1991). Figure 1 shows Tinto's model (1993) of student departure with the shading indicating those variables through which service-learning may contribute to academic and social integration, and therefore increased retention.

Service-Learning and Retention

Service-learning may be one means for achieving enhanced retention, but research that has been conducted to date has been limited to assessing students' intentions to re-enroll as the dependent variable. The "Your First College Year" survey was designed to assess student development over the first year of college and included questions about student involvement in service and in course-based service-learning (Vogelgesang et al., 2002). Findings from a pilot study indicated that students who participated in service during their first year of college or in service linked to their coursework reported higher levels of

satisfaction with both academic aspects of involvement and personal development than students who did not participate in these experiences. In addition, service participation in general was positively related to second-year re-enrollment; however, this finding did not hold true for service-learning courses (Vogelgesang et al., 2002).

Gallini and Moely (2003) conducted a multi-course evaluation of students' intentions to stay in college and found a relationship between being enrolled in a service-learning course (vs. enrolled only in non-service-learning courses) and intention to return. Furthermore, they found that the relationship was mediated by higher degrees of academic engagement and challenge that were reported by students in service-learning courses (vs. non-service-learning courses). These conclusions held when the analyses were based on only students in their first two years of college.

Keup (2005-2006) focused particularly on first-year students and evaluated the individual and cumulative effects of first-year seminars, service-learning courses, and learning communities on students' intentions to re-enroll for the second year at the same institution. Enrolling or not enrolling in a service-learning course during the first year was found to be associated with enhanced faculty and peer interactions, higher academic engagement, and self-reported gains in analytical and problem-solving skills. Service-learning had a marginally significant relationship to intention to re-enroll the next year at the same institution, although this effect seemed to be mediated by how service-learning facilitated the quantity and quality of faculty interaction and by the use of good academic practices.

Research Questions

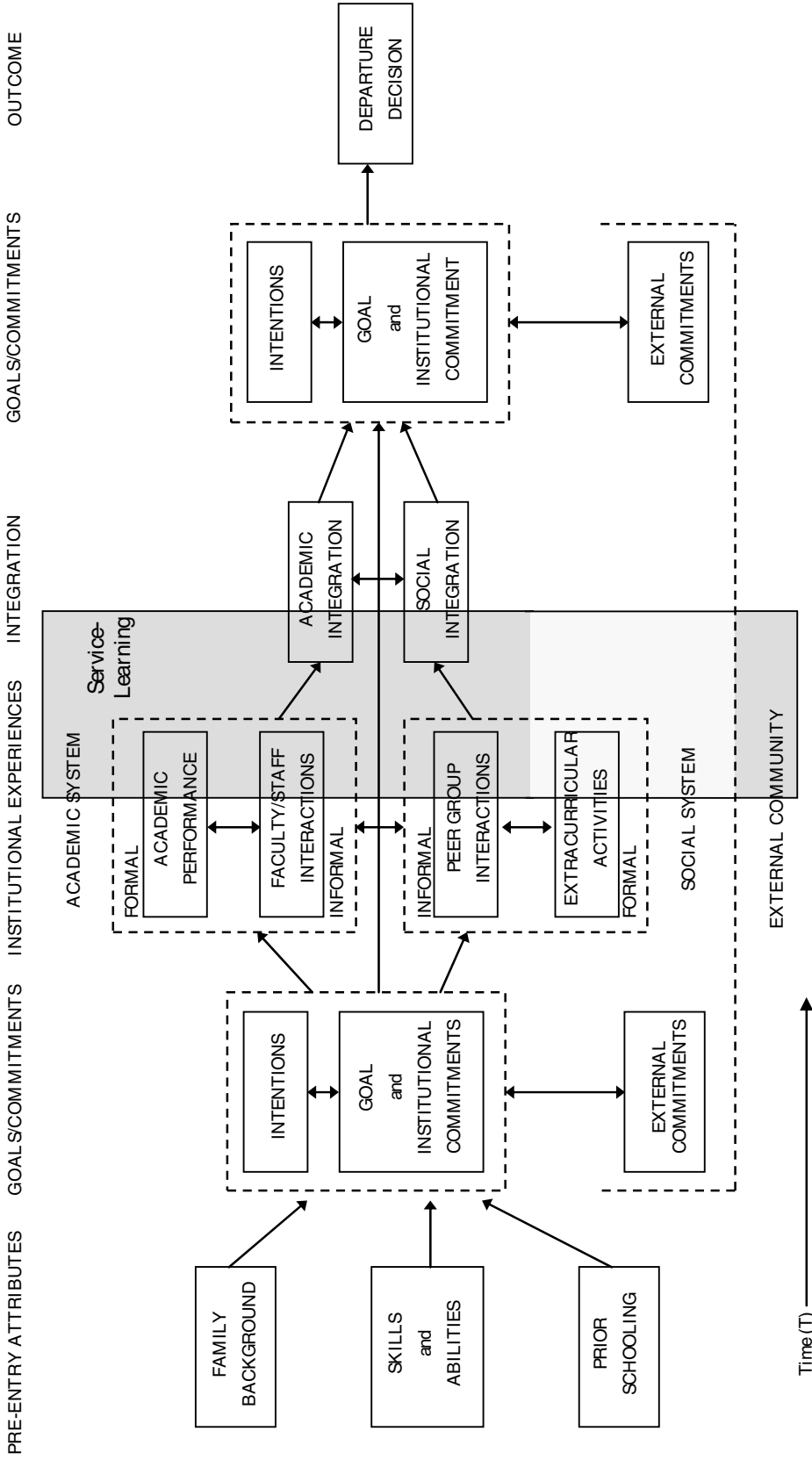
This research focused on several questions related to whether or not first-year students were enrolled in a service-learning course or non-service-learning courses. Do first-year students enrolled in a service-learning course report outcomes (i.e., quality of the educational experience, intention to continue at that campus) that are significantly different than first-year students who did not participate in service-learning? Is enrollment in a service-learning course during the first semester in college associated with students' intention to return to the same campus, and is service-learning associated with re-enrollment the next year? What factors mediate the relationship between the intention to stay at the campus and re-enrollment the following year?

Method

Respondents

Data that were analyzed for this research came from a larger data set; only the portion of data relevant

Figure 1
Tinto's Model of Student Retention



Note: A longitudinal model of institutional departure (Tinto, 1993) with adjustment to social system (inverted informal and formal components) and the addition of the intersection with service-learning

to the research questions on retention are reported here. Because the primary questions addressed in this research focused on first-year students, analyses for these hypotheses were restricted to first-year students. Data were collected during the fall semesters of two consecutive years and were combined. Initial analyses were based on 805 respondents from 22 courses offered by faculty at 11 Indiana Campus Compact member institutions. An invitation to participate in the research study was distributed to Indiana Campus Compact member institutions. Based on Bringle and Hatcher's (1996) definition of service-learning, instructors identified themselves as teaching a service-learning course, and also identified a comparable course that did not involve service-learning. Courses were from the following areas of study: Science (Biology, Environmental Science, Geology, Psychology), Education, Liberal Arts (Sociology, Spanish), Social Work, Law, and Technology. There were 271 (33.7%) respondents enrolled in non-service-learning courses and 534 (66.3%) respondents enrolled in service-learning courses.

Beginning-of-semester and end-of-semester questionnaires (hereafter referred to as pre-course and post-course questionnaires) were completed by students in courses with service-learning experiences and students in comparison non-service-learning courses. Of those first-year students responding, 188 were male (23.5%), 614 were female (76.3%), and three students did not indicate gender (.2%). The mean age of respondents was 18.74 ($SD = 3.19$). Respondents consisted of 750 Caucasians (91.8%), 27 African Americans (3.3%), 11 Latinos/Hispanics (1.4%), six Asian Americans (.7%), two Native Americans (0.2%), six students who indicated "other race" (.7%), and three who did not respond to the item (.4%).

After obtaining permission from the president or chancellor (and the consent of the student as part of an informed consent), re-enrollment data for the following fall semester were obtained from campus registrars using student identification numbers provided by participants. Because of incorrect student identification numbers and because of additional missing data on either the pre-course or post-course questionnaires, when listwise analyses were conducted (e.g., multiple regression), the sample was reduced from 805 to 685 respondents for analyses involving re-enrollment data, pre-test, and post-test. There were 716 cases that had a pre-course questionnaire to determine enrollment in a service-learning course or not, and re-enrollment data from the registrar.

Questionnaires

Questionnaires were distributed by faculty at the beginning and the end of the semesters to students in

service-learning courses and non-service-learning courses. Instructors for the identified courses were provided with a protocol for distributing and collecting questionnaires.

The pre-course questionnaire given at the beginning of the semester included: (a) demographic information (e.g., gender, age), and three items asking about Intention to Graduate from this Campus ("It is very important for me to graduate from this college," "I definitely intend to re-enroll at this university next fall," and "I am very likely to complete my degree at this institution"). Respondents answered these items on a 5-point response scale using a *strongly agree* to *strongly disagree* response format. The pre-course multi-item index of Intention to Graduate from this Campus had an α of .84.

The post-course questionnaire consisted of three sections, two of which are relevant for the current research. The first section included the same items on Intention to Graduate from this Campus ($\alpha = .85$). The second section of the post-course questionnaire contained 24 items measuring Quality of the Learning Environment, including the extent of peer interaction, extent of faculty interaction, course satisfaction, perceived learning, degree of active learning, and personal relevance, which are qualities that are known to support good undergraduate learning and contribute to high quality learning environments (Hatcher, Bringle, & Muthiah, 2002; Marchese, 1997; Terenzini & Pascarella, 1994). The Quality of the Learning Environment variable was conceived as a mediating variable that might contribute to a student's persistence to the next year (Table 1). Responses to all of these items were on a 5-point *strongly agree* to *strongly disagree* response format. A composite index of the Quality of the Learning Environment of the course across these items had an $\alpha = .89$.

Results

Re-Enrollment

Role of intentions. Across all campuses, 108 first-year students (13.4%) were reported by the registrars not to have re-enrolled, 608 (84.9%) were re-enrolled, and 89 of the students could not be identified by the registrar from the identification number that was put on the pre-course questionnaire. Pre-course intentions were positively correlated with re-enrollment the following fall semester, $r(683) = .12$, $p < .01$, as were post-course intentions, $r(683) = .32$, $p < .01$. Pre-course intentions were also different for those students enrolled in a service-learning course and those enrolled in non-service-learning courses, $F(1,673) = 12.63$, $p < .01$; students in service-learning courses were more likely to state that they would

Table 1

Post-Course Items on Quality of the Learning Environment (alpha = .89)

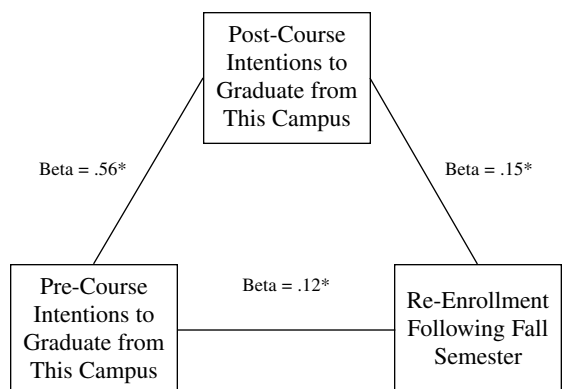
I became acquainted with students from very different backgrounds than mine.
 I have developed a significant relationship with at least one other student in this class.
 The student friendships I developed through this class are intellectually stimulating.
 I benefited a great deal from the interactions I had with other students in this class.
 I had frequent conversations with classmates outside of designated class time.
 I frequently spoke with my instructor outside the classroom.
 I felt like the instructor of this class was sincerely interested in my academic success.
 The instructor of this course has influenced my view on significant life issues.
 I benefited a great deal from my interactions with the class instructor.
 I felt comfortable asking questions and talking with the instructor in this class.
 I always looked forward to attending this class.
 I would highly recommend that other students take this class.
 Overall, I was very satisfied with the quality of the learning experience in this class.
 In this class I learned a great deal about the course content.
 Because of this class I have developed a broader appreciation of this field of study.
 This class provided me with useful skills and knowledge.
 This class had a positive impact on my learning.
 I was very actively involved as a learner in this class.
 Outside of class time, I frequently thought about issues raised in class.
 I would describe myself as a passive learner in this class.
 The nature of this class helped motivate me to be the best student I can be.
 I learned a great deal from this class about myself and others.
 This class frequently caused me to think about my own attitudes, values, and perspectives.
 I found this course to be relevant to my personal development.

continue and graduate from the same campus. Multiple regression¹ analyses were conducted to evaluate the role that post-course intentions played in mediating the relationship between pre-course intentions and re-enrollment (see Baron & Kinney, 1986). The specific question that is answered by these statistical procedures is: Is the relationship between pre-course intentions and re-enrollment significantly diminished when post-course intentions are added to the regression, and therefore mediated by post-course intentions? Figure 2 summarizes the mediational model for this analysis and the Sobel (1982) test for mediation was significant, $z = 7.41, p < .01$, indicating a significant mediation effect for post-course intentions.

Role of service-learning. Taking a service-learning course was correlated with re-enrollment the following year, $\eta^2 = .083, p < .05$, $\chi^2(1) = 4.94, p < .05$. Table 2 reports the frequencies for re-enrollment for students enrolled and not enrolled in a service-learning course. One of the assumptions for this research was that service-learning would be related to re-enrollment because of its influence on students' intentions to return to the campus. Figure 3 summarizes the mediational model and the Sobel test for mediation was significant, $z = 4.17, p < .01$, indicating that post-course intentions did mediate the relationship between enrollment in a service-learning course (vs. not enrolled) and re-enroll-

ment the following fall semester. Pre-course intentions to graduate from this campus were significantly different for students in service-learning and non-service-learning courses, $F(1,673) = 12.63, p < .01$. To determine if this relationship held when controlling for pre-course intention to graduate from the campus, pre-course intentions was entered as the first step in all multiple regression analyses for this mediational model. The relationship between service-learning and re-enrollment was

Figure 2
Predicting Re-Enrollment from Students' Intentions



Note: * $p < .01$
 $N = 685$

Table 2

Re-Enrollment the Following Fall for Students Enrolled and Not Enrolled in a Service-learning Course

	Non-service-learning Course	Service-Learning Course	All Respondents
Not Re-enrolled	n = 43 6.0%	n = 65 9.1%	n = 108 15.1%
Re-enrolled	n = 177 24.7%	n = 431 60.2%	n = 608 84.9%
All Respondents	n = 220 30.7%	n = 496 69.3%	716

not significant, $\beta = .068, p > .05$, when pre-course intentions were controlled for; therefore, no further analyses were conducted to evaluate if post-course intentions mediated the relationship between service-learning and re-enrollment.

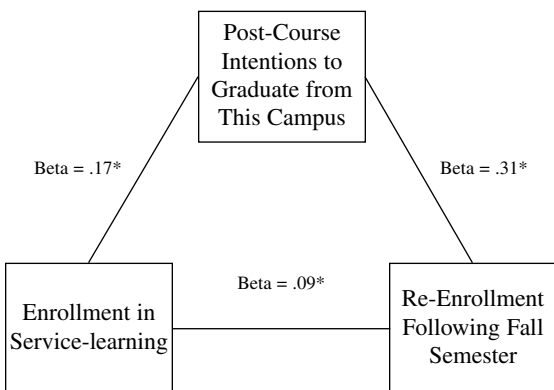
Another assumption was that any relationship between service-learning and retention would be mediated by the quality of the educational experience. Figure 4 summarizes the mediational model and the Sobel test for mediation was significant, $z = 2.28, p < .05$, indicating that quality mediated the relationship between enrollment in a service-learning course (vs. not enrolled) and re-enrollment the following fall semester. To determine if these relationships held when pre-course intention to graduate from the campus was entered as a covariate, it was entered as the first step in all multiple regressions for this mediational model. The relationship between service-learning and re-enrollment was not significant, $\beta = -.068, p > .05$ when pre-course intentions was controlled for. Therefore, no further analyses were conducted on the relationship between service-learning and re-enrollment being mediated by quality.

Intentions to Graduate

The correlation between intentions to continue and graduate from the campus assessed at the end of the fall semester and re-enrollment the next fall was significant, $r(683) = .32, p < .01$, but unexpectedly low. In part, this is a function of the measure of intentions including items that were more general and not specific to the timeframe of the measured variable (e.g., intention to graduate from the campus vs. return the next year; see Fishbein & Ajzen, 1975) and the large percentage of students who re-enrolled the following fall, creating a restriction on the range for the re-enrollment variable. Nevertheless, similar to Gallini and Moely (2003), analyses were conducted to examine the relationships to post-course intentions to stay at the campus as the dependent variable.

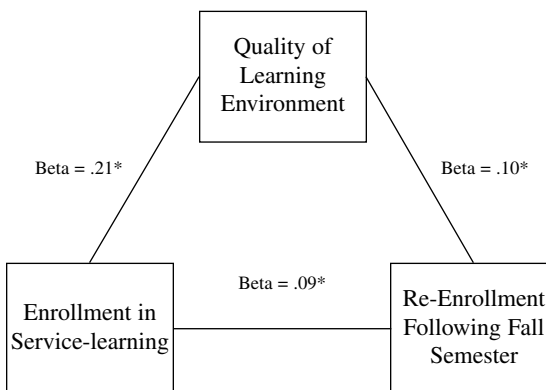
Service-learning. Enrollment in a service-learning course was related to post-course intentions to stay at the campus, $r(773) = .17, p < .01$. This relationship was significantly mediated when quality of the course was entered into the equation, Sobel's test, $z = 4.55, p < .01$, indicating that the quality of the educa-

Figure 3
Predicting Re-Enrollment from Service-Learning and Intentions



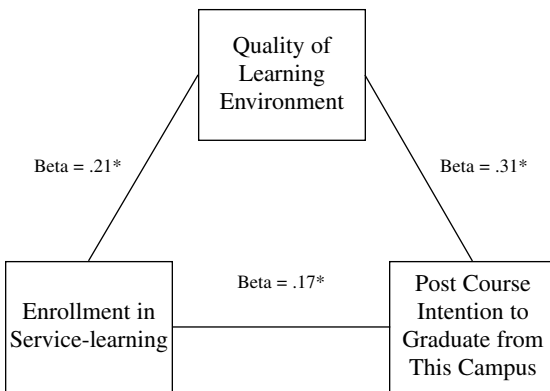
Note: * $p < .01$
N = 685

Figure 4
Predicting Re-Enrollment from Service-Learning and Quality



Note: * $p < .01$
N = 685

Figure 5
Predicting Post-Course Intentions to Re-Enroll from Service-Learning and Quality



Note: * $p < .01$
 $N = 775$

tional experience mediated the relationship between service-learning and the role of the course on intentions to graduate from that campus (Figure 5). This conclusion was the same when pre-course intention was a covariate, Sobel's $z = 4.09$, $p < .01$.

Discussion

This research approaches a specific aspect of more general questions that are of fundamental importance to higher education: Why do first-year students return to college campuses? What can campuses do to increase the likelihood that students return to campus, successfully progress toward a degree, and are retained to graduation? In particular, this research investigated whether or not students' enrollment in a service-learning course in the first semester of their first year of college was related to (a) their self-reported intentions to stay on that campus, and (b) their re-enrollment the following fall on that campus, based on reports from campus registrars. Re-enrollment was found (a) to be mediated by post-course intentions to graduate from that campus, and (b) related to enrollment (vs. not enrolled) in service-learning, but the latter relationship did not persist after controlling for pre-course intentions. Enrollment in a service-learning course was related to end-of-semester assessments of intentions to stay at that campus, and this effect was found to persist when controlling for pre-course intentions, and was found to be mediated by the quality of the educational experience.

In spite of stated intentions to stay at a campus, there was only a weak association between those intentions at the beginning of a student's first year in college and re-enrollment the following year. The weak relationship was partially attributable to restric-

tion of range on re-enrollment (with about 85% of students returning). But intentions at the end of the semester were much better predictors of re-enrollment than were intentions at the beginning of the semester, and this was the case for all first-year students, regardless of the presence or absence of a service-learning course. Furthermore, students in service-learning courses were more likely to intend to come back than students in non-service-learning courses, and this relationship held even when pre-course intentions to return were controlled for. At the most general level, these results demonstrate that intentions, particularly those at the end of the first semester, mattered to behavior and that the experiences during the first semester were important to clarifying for students their commitment to return to a campus. The results of this research also point out that, in spite of intentions to stay at the campus, some students returned who did not expect to do so, and some students did not return who expected to do so.

Enrollment in a service-learning course was weakly related to re-enrollment the following year and the relationship was mediated, in separate analyses, by post-course intentions and the quality of the educational experience in the particular course in which data were collected, although neither held when the covariate was included. Enrollment in one course, in the mix of students' curricular and co-curricular experiences during the first semester, can be viewed as potentially having only a limited opportunity for influencing their attitudes and behavior. Students, though, reported that the service-learning courses (vs. other first-year courses) were better educational experiences on a composite measure that included extent of peer interaction, extent of faculty interaction, course satisfaction, perceived learning, degree of active learning, and personal relevance. Thus, on the average, service-learning courses have the potential to have greater impact on students than other types of first semester courses. Even though these relationships were weak and the relationship between service-learning and re-enrollment was not significant when pre-course intentions were controlled, service-learning may still be a pedagogy that can play a special role in influencing students' commitment to a campus. This conclusion was supported when post-course intentions were examined. Service-learning demonstrated stronger relationships to post-course intentions than to re-enrollment the following fall, and that relationship was mediated by quality of the educational experience, even when pre-course intentions were covaried out. These findings support the conclusion that service-learning may indeed be characterized as a "powerful pedagogy" that has the potential to have a stronger impact on students attitudes and intentions than non-service-learning courses. These results also support the inference that it

was the service-learning courses and their higher reported quality that caused students to want to come back to the same campus.

There is only so much a campus can do to sustain students' commitment to stay at a particular campus. However, if service-learning can play a role in influencing students' intentions to persist (e.g., through better academic performance, social engagement, interactions with faculty; Tinto, 1975), then more or better service-learning courses during the first year might have larger, more extensive, and more robust effects on persistence. The results of this research converge with other research (Gallini & Moely, 2003; Keup, 2005-2006) that service-learning provides higher quality educational experiences that influence students' intentions to persist and return to the same campus. These results, though limited in effect size as they may be, suggest that the investment of resources in developing service-learning in introductory courses will be returned to the campus in multiple ways. Not only will a campus benefit economically by influencing students' intentions to remain at the campus, but the campus also will have students who are better integrated into campus life, have better developed relationships with faculty and students, and support for campus norms for community involvement. In addition, after early service-learning courses, educators will have opportunities to deepen these experiences in subsequent courses in the curriculum, adding to the effects from the first year.

The prevalence of service-learning courses has increased during the past two decades (Campus Compact, 2007). This has occurred in all types of institutions of higher education and across the spectrum of disciplines and professional training programs. An average of 35 service-learning courses per campus was reported by Campus Compact's Annual Membership Survey in 2006, with 20% of the campuses reporting 50 or more courses, and this represented 12% of the faculty involved in teaching service-learning courses (Campus Compact, 2007). Although the availability of service-learning courses has increased nationally during the past decade (Salgado, 2005), there are still limited offerings on most campuses. When campuses consider sequencing service-learning courses using developmental models that reflect the connections among courses (e.g., learning communities) and sequences of courses (e.g., in the major), then more benefits, both economic and educational, may be possible (e.g., Jameson, Clayton, & Bringler, 2008). This would be particularly beneficial when curricula are intentionally designed to do so at the departmental level (Kecskes, 2006). Thus, these suggestive results about the effects of early service-learning experiences on students' intentions and retention may be limited by

the early stage of maturity of service-learning when the data were collected, and subsequent research may be able to document stronger effects with higher quality service-learning courses and more prevalent service-learning experiences.

First-year introductory courses present unique challenges as venues for service-learning (Zlotkowski, 2002). They are typically large courses that require additional resources for the organization, placement, and supervision of students. However, like laboratory courses, which have placed even greater burdens on campus resources (e.g., funds, faculty time, space, facilities), the outcomes that can be reached by first-year service-learning courses both within a course (e.g., enhanced academic learning and enhanced civic growth) and across courses (e.g., enhanced educational persistence and retention) can justify the dedication of these additional resources.

Limitations

Faculty participants were solicited who were teaching service-learning courses and who could identify comparable courses on their campus. A definition of service-learning (Bringler & Hatcher, 1996) was provided; however, the degree to which a course contained all components of the definition and reflected good practice was not controlled. Thus, there was probably considerable variability in the quality of the service-learning courses, as there was also probably variability in quality across the non-service-learning courses. In spite of this limitation, students did identify the service-learning courses as containing more desirable educational attributes. This research only collected data at the beginning and end of the first semester for these first-year students. There is no information about their curricular or co-curricular experiences during the subsequent time between the end of the fall semester and the following fall semester, including the presence of other service-learning courses in their courses. Finally, this research only evaluated the registration of students at the same campus, not their enrollment at other institutions nor their academic performance.

Conclusion

Traditional methods of instruction can be effective (Pascarella & Terenzini, 1980, 1991), yet many educators seek additional methods to enhance student learning, expand educational objectives beyond knowledge acquisition, and promote student success. Service-learning has emerged as a pedagogy with great potential for enhancing academic success, personal growth, and civic growth (Ash et al., 2005). One of the most important outcomes that service-learning might have at the institutional level is creating a more

engaged and active learning environment that contributes to the retention of students until degree completion. Although students may be considered successful if they graduate from any college or university, each institution is particularly interested in having students graduate from its own campus. The findings of this study confirmed the expectation that first-year students completing a service-learning course had higher intention to re-enroll at their campus, and that they were more likely to re-enroll the following academic year than non-service-learning students.

These findings are important not only because they converge with past research that explores service-learning and intentions to re-enroll (Gallini & Moely, 2003; Keup, 2005-2006; Vogelgesang et al., 2002), but also because they suggest that service-learning courses have characteristics that are known to promote retention (Pascarella & Terenzini, 1991). The results of this research support the conclusion of others that service-learning courses contain qualities that are known to be associated with high quality learning, including collaboration (e.g., peer interaction, faculty interaction), relevance (i.e., personal and career relevance), and active learning (Eyler & Giles, 1999; Hatcher & Oblander, 1998; Gallini & Moely, 2003; Keup, 2005-2006; Vogelgesang et al., 2002). As described by Gardner (2002), service-learning is a “manageable variable” and “thus, by intentional leveraging of this intervention, we may be able to offset the disadvantage some of our students bring with them to college” (p. 146). To do so requires institutional resources to implement service-learning in the first year, but also to assess service-learning to understand the value of this pedagogy in terms of student academic success and retention.

Notes

Funding for this research was provided by Indiana Campus Compact through a grant from the Lilly Endowment. We gratefully acknowledge the assistance and cooperation of the faculty members who collected data at Indiana Campus Compact member institutions and to Matthew Williams and Megan Gehrke for assistance with the preparation of the manuscript.

¹ Multiple regression on a dichotomous variable and logistic regression will yield similar results when there is an 80/20 split on the dependent variable (Cohen, Cohen, West, & Aiken, 2003); because the retention distribution was close to this ratio, multiple regression analyses were used.

References

American College Testing (2003). *National collegiate dropout and graduation rates*. Retrieved March 27, 2007, from http://www.act.org/path/policy/pdf/retain_2003.pdf

- Ash, A. L., Clayton, P. H., & Atkinson, M. P. (2005). Integrating reflection and assessment to capture and improve student learning. *Michigan Journal of Community Service Learning, 11*(2), 49-60.
- Astin, A. W. (1984). Student involvement: A developmental theory for higher education. *Journal of College Student Personnel, 25*, 297-308.
- Astin, A. W., & Oseguera, L. (2005). Pre-college and institutional influences on degree attainment. In A. Seidman (Ed.), *College student retention: Formula for student success* (pp. 245-276). Westport, CT: Greenwood Publishing Group.
- Astin, A. W., & Sax, L. J. (1998). How undergraduates are affected by service participation. *Journal of College Student Development, 39*, 251-263.
- Barefoot, B. (2007). *Teaching to improve retention*. Thomson/Wadsworth E-Seminar Series. April 3, 2007.
- Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology, 51*, 1173-1182.
- Batchelder, T. H., & Root, S. (1994). Effects of an undergraduate program to integrate academic learning and service: Cognitive, prosocial cognitive, and identity outcomes. *Journal of Adolescence, 17*(4), 341-355.
- Bean, J. P. (1983). The application of a model of turnover in work organizations to the student attrition process. *The Review of Higher Education, 6*(2), 129-148.
- Bean, J. P. (1986). Assessing and reducing attrition. *New Directions for Higher Education, No. 53* (Managing College Enrollments), 14(1), 47-61.
- 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.
- Bringle, R. G., & Hatcher, J. A. (1996). Implementing service-learning in higher education. *Journal of Higher Education, 67*, 221-239.
- Campus Compact. (2007). *2006 Service statistics: Highlights and trends of Campus Compact's annual membership survey*. Providence, RI: Campus Compact. Retrieved February 13, 2009, from http://www.compact.org/about/statistics/2006/service_statistics.pdf
- Carey, K. (2004, May). *A matter of degree: Improving graduation rates in four-year colleges and universities*. Washington, D.C.: The Education Trust.
- Cohen, J., Cohen, P., West, S. G., & Aiken, L. S. (2003). *Applied multiple regression/correlation analysis for the behavioral Sciences* (3rd ed.). Mahwah, NJ: Lawrence Erlbaum.
- Eyler, J., & Giles, D. E. (1999). *Where's the learning in service-learning?* San Francisco: Jossey-Bass.

- Eyler, J., Giles, D. E., Jr., Stenson, C. M., & Gray, C. J. (2001). *At a glance: What we know about the effects of service-learning on college students, faculty, institutions and communities, 1993-2000* (3rd ed.). Nashville, TN: Vanderbilt University.
- Fishbein, M., & Ajzen, I. (1975). *Belief, attitude, intention, and behavior: An introduction to theory and research*. Reading, MA: Addison-Wesley.
- Gallini, S., & Moely, B. (2003). Service-learning and engagement, academic challenge, and retention. *Michigan Journal of Community Service Learning, 10*(1), 5-14.
- Gardner, J. N. (2002). What, so what, now what: Reflections, findings, conclusions, and recommendations on service-learning and the first-year experience. In E. Zlotkowski (Ed.), *Service-learning and the first-year experience: Preparing students for personal success and civic responsibility* (Monograph No. 34) (pp. 141-150). Columbia, SC: University of South Carolina, National Resource Center for the First-Year Experience and Students in Transition.
- Gray, M. J., Ondaatje, E. H., Fricker, R. D., & Geschwind, S. A. (2000). Assessing service-learning: Results from a survey of "Learn and Serve America, Higher Education." *Change, 32*, 30-39.
- Hatcher, J. A., Bringle, R. G., & Muthiah, R. (2002). Institutional strategies to involve first-year students in service. In E. Zlotkowski (Ed.), *Service-learning and the first-year experience: Preparing students for personal success and civic responsibility* (Monograph No. 34) (pp. 79-90). Columbia, SC: University of South Carolina, National Resource Center for the First-Year Experience and Students in Transition.
- Hatcher, J. A., Bringle, R. G., & Muthiah, R. (2004). Designing effective reflection: What matters to service-learning? *Michigan Journal of Community Service Learning, 11*(1), 38-46.
- Hatcher, J. A., & Oblander, F. (1998). *The promise and pitfalls of service-learning for entering students*. Presentation at the 17th Annual Conference on the First-Year Experience, Columbia, S. C.
- Jameson, J. K., Clayton, P. H., & Bringle, R. G. (2008). Investigating student learning within and across linked service-learning courses. In M. A. Bowdon, S. H. Billig, & B. A. Holland (Eds.), *Advances in service-learning research: Scholarship for sustaining service-learning and civic engagement* (pp. 3-27). Greenwich, CN: Information Age Publishing.
- Keckes, K. (Ed.). (2006). *Engaging departments: Moving faculty culture from private to public, individual to collective focus for the common good*. Bolton, MA: Anker Publishing Co.
- Keup, J. R. (2005-2006). The impact of curricular interventions on intended second-year enrollment. *Journal of College Student Retention, 7*(1-2), 61-89.
- Keup, J. R., & Stolzenberg, E. B. (2004). *The 2003 Your First College Year (YFCY) Survey: Exploring the academic and personal experiences of first-year students* (Monograph No. 40). Columbia, SC: University of South Carolina, National Resource Center for the First-Year Experience and Students in Transition.
- Kuh, G.D. (2002, November). A message from the director. In National Survey of Student Engagement, *From promise to progress: How colleges and universities are using student engagement results to improve collegiate quality*. Bloomington, IN: Indiana University Center for Postsecondary Research.
- Kuh, G.D. (2007). Success in college. In P. Lingenfelter (Ed.), *More student success: A systemic solution*. Boulder, CO: State Higher Education Executive Officers.
- Levitz, R., & Noel, L. (1989). Connecting students to institutions: Keys to retention and success. In M. L. Upratt & J. N. Gardner (Eds.), *The freshman year experience: Helping students survive and succeed in college* (pp. 65-81). San Francisco: Jossey-Bass.
- Marchese, T. J. (1997). The new conversations about learning: Insights from neuroscience and anthropology, cognitive studies and work-place studies. In *Assessing impact: Evidence and action* (pp. 79-95). Washington, D.C.: American Association for Higher Education.
- Markus, G. B., Howard, J. P. F., & King, D. C. (1993). Integrating community service and classroom instruction enhances learning: Results from an experiment. *Educational Evaluation and Policy Analysis, 15*, 410-419.
- Milem, J. F., & Berger, J. B. (1997). A modified model of college student persistence: Exploring the relationship between Astin's theory of involvement and Tinto's theory of student departure. *Journal of College Student Development, 38*, 387-400.
- Osborne, R. E., Hammerich, S., & Hensley, C. (1998). Student effects of service-learning: Tracking change across a semester. *Michigan Journal of Community Service Learning, 5*, 5-13.
- Pascarella, E. T., & Terenzini, P. T. (1980). Predicting freshman persistence and voluntary dropout decisions from a theoretical model. *Journal of Higher Education, 51*, 60-75.
- Pascarella, E. T., & Terenzini, P. T. (1991). *How college affects students*. San Francisco: Jossey-Bass.
- Reeb, R. N., Sammon, J. A., & Isackson, N. L. (1999). Clinical application of the service-learning model in psychology: Evidence of educational and clinical benefits. *Journal of Prevention and Intervention in the Community, 18*(1), 65-82.
- Sax, L. J., & Astin, A. W. (1997). The benefits of service: Evidence from undergraduates. *Educational Record, 78*(3-4), 25-32.
- Salgado, D. M. (2005). *Campus compact annual membership survey – 2005*. Providence, RI: Brown University, Campus Compact National Office.

- Skipper, T. L. (2002). Survey results and analyses. In National Resource Center for the First-Year Experience and Students in Transition, *The 2000 national survey of first-year seminar programs: Continuing innovations in the collegiate curriculum* (Monograph No. 35) (pp. 11-17). Columbia, SC: University of South Carolina.
- Sobel, M. E. (1982). Asymptotic confidence intervals for indirect effects in structural equation models. In S. Leinhardt (Ed.), *Sociological methodology* (pp. 290-312). Washington D.C.: American Sociological Association.
- Stoecker, J., Pascarella, E. T., & Wolfle, L. M. (1988). Persistence in higher education: A 9-year test of a theoretical model. *Journal of College Student Development*, 29, 196-209.
- Terenzini, P. T., & Pascarella, E. T. (1994). Living with myths: Undergraduate education in America. *Change*, 26(1), 28-33.
- Terenzini, P. T., & Wright, T. M. (1987). Influences on students' academic growth during four years of college. *Research in Higher Education*, 26(2), 161-79.
- Tinto, V. (1975). Dropout from higher education: A theoretical synthesis of recent research. *Review of Educational Research*, 45(1), 89-125.
- Tinto, V. (1987). *Leaving college: Rethinking the causes and cures of student attrition*. Chicago: University of Chicago Press.
- Tinto, V. (1993). *Leaving college: Rethinking the causes and cures of student attrition* (2nd ed.). Chicago: University of Chicago Press.
- Tinto, V. (1997). Classrooms as communities: Exploring the educational character of student persistence. *Journal of Higher Education*, 68, 599-623.
- Tinto, V. (2000). Linking learning and leaving: Exploring the role of the college classroom in student departure. In J. M. Braxton (Ed.), *Reworking the student departure puzzle* (pp. 81-94). Nashville, TN: Vanderbilt University Press.
- Umbach, P. D., & Wawrzynski, M. R. (2005). Faculty do matter: The role of college faculty in student learning and engagement. *Research in Higher Education*, 46(2), 153-184.
- 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.
- Vogelgesang, L. J., Ikeda, E. K., Gilmartin, S. K., & Keup, J. R. (2002). Service-learning and the first-year experience: Outcomes related to learning and persistence. In E. Zlotkowski (Ed.), *Service-learning and the first-year experience: Preparing students for personal success and civic responsibility* (Monograph No. 34) (pp. 15-26). Columbia, SC: University of South Carolina, National Resource Center for the First-Year Experience and Students in Transition.
- Zlotkowski, E. (Ed.) (2002). *Service-learning and the first-year experience: Preparing students for personal success and civic responsibility* (Monograph No. 34). Columbia, SC: University of South Carolina, National Resource Center for the First-Year Experience and Students in Transition.

Authors

ROBERT G. BRINGLE (rbringle@iupui.edu) is chancellor's professor of Psychology and Philanthropic Studies at Indiana University-Purdue University Indianapolis. He has been involved in the development, implementation, and evaluation of educational programs and is widely known for his research on jealousy and close relationships. His work as executive director of the IUPUI Center for Service and Learning has resulted in numerous national recognitions for his campus and himself. For his scholarship on service learning and civic engagement, Bringle was awarded the Thomas Ehrlich Faculty Award for Service-Learning and was recognized at the International Service-Learning Research Conference for his outstanding contributions. The University of the Free State, South Africa, awarded him an honorary doctorate for his scholarly work on civic engagement and service learning.

JULIE A. HATCHER (jhatcher@iupui.edu) is associate director of the Center for Service and Learning at Indiana University-Purdue University Indianapolis. Her responsibilities include faculty development, research projects to assess the outcomes of service-learning and civic engagement, and management of a wide range of service-based programs. Published work and formal presentations have focused on civic engagement and service-learning in higher education, international comparative analysis, implications of John Dewey's philosophy for higher education, and reflective practice. She has consulted with numerous campuses on integrating service into academic study, including international projects with faculty from Egypt, Kenya, Macedonia, Mexico, and South Africa.

RICHARD N. MUTHIAH (rmuthiah@georgefox.edu) is dean of the Center for Teaching and Learning at George Fox University in Newberg, Oregon. He worked as a project associate for the NSSE Institute and the College Student Experiences Questionnaire. Prior to that, Richard worked at the Center for Service and Learning at Indiana University-Purdue University Indianapolis and in several student affairs roles at Taylor University in Upland, Indiana. Areas of scholarly interest include co-curricular contributions to student learning, faculty development, campus cultures, and Christ-centered thought and practice in higher education.