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The Relationship between Enrollment in Service-Learning Courses and Deep Approaches to Learning: A Campus Study

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Utilizing 2012 National Survey of Student Engagement (NSSE) data for both freshmen and senior students on a college campus, this study isolates the influence of participation in service learning courses on freshmen and senior students' application of deep approaches to learning. Deep learning, as compared to surface learning, describes the extent to which a student engages in the learning process. Students who use deep learning strategies make more robust connections to course material by emphasizing learning activities such as integration, synthesis, and reflection. By making deeper connections, students focus on both the substance and the underlying meaning of their studies. Students learn to apply the knowledge gained to real life situations and successfully integrate this with prior learning. Multiple linear regression results for both freshmen and senior students suggest that students' use of deep approaches to learning increased as their participation in service learning courses increased, adjusting for student characteristics and participation in other high impact practices. These findings provide a rationale for institutions to support faculty who engage with their community partners to develop service learning courses. For faculty who teach service learning courses, these findings support the value, from an institutional perspective, of the work that they do.

Keywords: Service Learning, Deep Learning, Community Engagement, Reflective Learning, Integrative Learning, Higher Order Learning, Situated Learning Theory, High Impact Practices

Faculty work hard to support student learning. For faculty, it's more than just remembering information for the test. As instructors, we work with students to support their learning because we believe, and hope, that the knowledge that students gain will ultimately influence their future capabilities as scholars, professionals, and citizens. As service learning instructors, we have the opportunity to observe students as they interact with others, question the relevance of course readings, wrestle with public problem solving in the complexity of community settings, and reflect on their engagement and the public purposes of higher education. Dealing with such perplexity, according to Dewey (1910), is the basis for learning. From our perspective we might describe this as deep learning, but is it really the case?

The shift from teaching to learning in higher education has shaped the development of many active learning strategies, including service learning, that place more emphasis on a learner centered approach (Tagg, 2003). This learner centered approach is an inherent characteristic of "high impact" teaching practices. High impact teaching strategies, including service learning courses, are increasingly prevalent in American higher education

because they are associated with multiple outcomes, including deep learning. Colleges and universities are designating more resources and placing more emphasis on high impact teaching strategies. With this heightened attention, what is the unique contribution and benefit of service learning in comparison to other educational experiences? Research at the national level has established a strong relationship between service learning and deep approaches to learning (Finley & McNair, 2013), but understanding the nature of this relationship is important within each campus context because the resources allocated to support curricular change are typically made at the campus level. Considering that many campus' need to become more strategic about deploying resources to support high impact practices (O'Donnell, 2013), awareness of the unique influence of each high impact practice is warranted.

Our campus is highly engaged in undergraduate education reform and community engagement, particularly service learning courses. Over the past two decades, the number of service learning courses has increased each year, with nearly 10,000 students participating in over 500 sections of service learning courses each year, providing over 300,000 service hours to the community. Service learning courses are offered both at the undergraduate (85%) and graduate (15%) levels. All 19 schools on campus offer service learning courses, providing an estimated economic impact of nearly \$12 million to the region (Center for Service and Learning, 2014).

Prior research using institutional data derived from the National Survey of Student Engagement (NSSE) found that students who had participated in one or more service learning courses reported higher mean scores on measures of deep approaches to learning (Hahn & Hatcher, 2013). This study examines whether students' self-reported use of deep approaches to learning increases relative to their frequency of participation in service learning courses, adjusting for participation in other high impact learning experiences. We present this study as an approach that could be replicated on other campuses, in part to make the case, at the campus level, for resources to support the design and implementation of high quality service learning courses.

Deep Approaches to Learning

The methods that students use when trying to learn are defined as *approaches to learning* and indicate the manner in which the student interacts with the subject matter (Ramsden, 2003). These approaches to learning encompass the students' motives and strategies for learning (Biggs, 1987) and the manner in which the information is processed, retained, and applied in new contexts (Entwistle & Ramsden, 2003).

Approaches to learning are often classified as deep or surface (Biggs, 2003). Deep approaches to learning describe the extent to which a student engages in the learning process and uses strategies to enable a thorough understanding of the subject matter. This is in contrast with surface approaches, which have the intent (whether knowingly or not) of achieving particular recollection of subject matter, in most cases only to satisfy minimal obligations for a course grade (Biggs, 2003; Marton and Säljö, 1976). A surface learner attempts to gather disparate information that might be useful to complete a particular assignment or exam. The material is often forgotten after completion of the task. This approach to learning is a considerably more restrictive strategy for recollection than deep approaches to learning.

Deep approaches to learning are more likely to occur when students are engaged in a

personal way with their learning. Marchese (1997) posits the following as keys to deep learning: (a) active learning strategies; (b) frequent feedback from others that is provided in non-threatening ways; (c) collaboration; (d) cognitive apprenticeship (i.e., relationship with a mentor with whom students can learn generalization of principles, transfer of knowledge between theory and practice, and analysis of perplexing circumstances); and (e) practical applications in which students are involved in tasks that have consequences but with a safety net for high stakes mistakes. Deep approaches to learning also involve reflection on the material as this type of critical thinking can transform the manner in which one interprets new information (McDrury & Alterio, 2003).

Students who use deep learning strategies make more robust connections to course material by emphasizing learning activities such as integration, synthesis, and reflection (National Survey of Student Engagement, 2012). By making deeper connections, students focus on both the substance and the underlying meaning of their studies. Students learn to apply the knowledge gained to real life situations and successfully integrate this with prior learning. Additionally, deep approaches to learning have been connected to several positive outcomes for students. These outcomes include: higher grades, improved ability to retain, integrate, and transfer information and greater satisfaction with the learning experience (Laird, Shoup, & Kuh, 2006). In short, students become more engaged and as a result are willing to delve more deeply into the learning process. Many of these qualities are embedded in high quality service learning courses.

Deep learning is complex cognitive activity. Researchers at the NSSE identified the following three constructs that comprise deep learning:

Higher-Order Learning: Emphasizing advanced thinking skills as applying theories to practical problems or synthesizing information into new interpretations;

Integrative Learning: Integrating ideas from various sources, including diverse perspectives in coursework, and discussing ideas outside of class;

Reflective Learning: Examining one's own thinking and the perspectives of others (National Survey of Student Engagement, 2012).

The NSSE research team also conducted cognitive interviews to ensure that students were interpreting the survey questions as the researchers intended. Through extensive validation studies, the psychometric properties of the NSSE survey items were found to be acceptable. Exploratory and confirmatory factor analyses suggested that the survey "contains a reliable measure of students' uses of deep approaches to learning with three subscales: higher-order learning, integrative learning, and reflective learning" (Laird, Shoup, & Kuh, 2006, p. 16).

The construct of deep learning fits within several broader learning theories. In the context of this study, we believe it fits best within Situated Learning Theory (SLT). SLT proposes that learning involves a process of engagement in a community of practice and occurs as a social process in which knowledge is co-constructed and is situated in a particular context within a specific social and physical environment (Wenger & Lave, 1991). Through participation within communities of practitioners - which is designed to occur in service learning and many other high impact practices - the student's learning occurs as a result of the activity, context, and culture of the experience (Wenger and Lave, 1991). Social interaction and collaboration - paramount in service learning - are crucial

aspects of situated learning. SLT was subsequently further developed with emphasis on the concept of cognitive apprenticeship which “supports learning in a domain by enabling students to acquire, develop and use cognitive tools in authentic domain activity” (Brown, Collins, & Duguid, 1989, p. 39).

High Impact Practices

High impact practices (HIPs) are active and intensive learning experiences that have the potential to promote substantial learning opportunities for college students. The Association of American Colleges and Universities (AAC&U) has endorsed HIPs as a core strategy to reach outcomes for liberal education in the 21st Century (for further information see <https://www.aacu.org/leap/hips>). There are at least 10 different types of experiences that fall within the domain of high impact teaching (e.g., first year seminars, common intellectual experiences, learning communities, writing intensive courses, collaborative assignments and projects, undergraduate research, diversity and global learning, service learning and community-based learning, internships, capstone courses and projects). HIPs are valued as a way to support student learning, increase college retention and completion rates, and prepare graduates for their future careers (Hart Research Associates, 2015).

HIPs have been evaluated extensively using national data sets as well as interviews and focus groups to explore their value for student learning (Brownell & Swaner, 2010; Finley & McNair, 2013; Kuh, 2008; Kuh & O’Donnell, 2013). Results consistently conclude that they are very helpful for student learning, particularly for underserved college students from diverse educational backgrounds (Kuh, 2008; Finley & McNair, 2013). Among the attributes that can set these learning experiences apart from more traditional approaches is the emphasis on collaboration between students of different races and backgrounds, work with faculty, and reflection (Laird, BrckaLorenz, Zilvinskis, & Lambert, 2014). Early research recommended that all college students participate in a minimum of two HIPs, one during their first year followed by a second course in their academic major (Kuh, 2008). More recent findings suggest that gains in student learning increase significantly with multiple high impact practices; therefore, ideally undergraduates would participate in five to six such courses, with at least one HIP course each year (Finley & McNair, 2013). This approach requires resources and significant intentionality to create a campus culture that supports scaling up the use of high impact teaching for undergraduate learning and success (Kuh & O’Donnell, 2013).

Evidence suggests that traditionally advantaged students (i.e., non-first generation, non-transfer, White) participate in high impact learning environments far more frequently than underserved students (i.e., first generation, transfer, African-American, Hispanic, Asian-American). Yet at the same time, underserved students report greater benefits derived from their participation in HIPs (Kuh, 2008; Finley & McNair, 2013). Many college students are not able to engage in study abroad, undergraduate research, or internships, due either to limited personal resources or limited course offerings across the curriculum. Thus, it is an important question of equity for each campus to know who participates and who benefits from high impact teaching practices (Finley & McNair, 2013; Kuh & O’Donnell, 2013).

Campus Context

As a metropolitan, urban-serving university, our campus mission endorses both civic engagement and undergraduate student success. Over the past 20 years, we have devoted

significant resources to support high impact teaching practices, including service learning. Service learning instructors on our campus are provided with resources (e.g., workshops, readings, consultations) on strategies to engage their students in deep approaches to learning. Topics include working with community partners as co-educators, building students' capacity for critical reflection, engaging students in frequent interactions with diverse others, and integrating the academic content of the course with the service learning community project. Additionally, we have taken a number of steps to create a culture that supports instructors and faculty to integrate HIP strategies into courses and across the curriculum.

The *RISE to the IUPUI Challenge* was introduced in 2009 (for further information see <http://due.IUPUI.edu/center-for-coordinated-initiatives/IUPUI-rise-program>) to encourage undergraduates to enroll in **Research**, **International** study abroad, **Service learning**, or **Experiential** learning (e.g., internships, practicum) courses. Each year, a small number of course development grants of \$2,500 each are made available for faculty to design new RISE courses. Curriculum committees in each school are asked to approve RISE courses, and instructors are asked to “tag” courses with an R, I, S, or E through the Registrar. Although there are challenges with the system, this approach holds good promise for ongoing institutional research on HIPs and student outcomes (Hatcher, 2015).

The RISE tagging system for high impact courses has contributed to our ability to gather information about service learning courses. Through our Center for Service and Learning, the on-line Community-Based Learning Inventory was developed to track service learning courses. Each year, instructors are asked to provide information about the “S” designated courses (e.g., number of students, required/optional service component, number of service hours, community partner/agency, zip code of community site). This information is the basis for Annual Report, Dean's Reports, as well as external awards and recognitions (e.g., Carnegie Elective Classification for Community Engagement, Presidential Honor Role).

Given this campus endorsement of high impact practices and the lack of prior research to control for participation in other HIPs, we are particularly interested in the distinct benefits of service learning in developing students' use of deep approaches to learning. One approach to understanding the relationship between service learning and deep learning is to use campus data from the NSSE. Table 1 indicates the percentage of students participating in service learning, as well as other high impact practices as reported in NSSE data.

Table 1
Campus Participation in High Impact Practices

Freshman	IUPUI	Urban 13	Public Research	NSSE Sample
Learning Community	42%	17%	20%	18%
Service-Learning	56%	38%	38%	41%
Senior	IUPUI	Urban 13	Public Research	NSSE Sample
Learning Community	35%	23%	26%	27%
Internship/Practicum	45%	39%	49%	49%
Research with Faculty	18%	16%	22%	20%
Study Abroad	8%	8%	14%	14%
Capstone	33%	26%	30%	33%
Service-Learning	58%	40%	43%	48%

Both freshmen and senior students at IUPUI reported a more frequent level of engagement in service learning courses than other Urban 13 schools, public research institutions, and the NSSE sample (National Survey of Student Engagement, 2012). Undergraduates on our campus reported comparable levels of participation in internships, research with faculty, and capstone experiences, and a much lower participation rate in study abroad than the national average. The following section provides further information on the HIPs used within the current study.

Service learning. With the growing focus on the public purposes of higher education, the presence of service learning courses on college campuses has increased substantially over the past two decades (Campus Compact, 2012). As a curricular strategy, service learning is often equated with best practice for community engagement and developing civic outcomes in higher education (Bringle & Hatcher, 2009). Varying definitions of service learning are used on campuses throughout the country. Our campus defines service learning as a:

course-based, credit bearing educational experience in which students (a) participate in an organized service activity that meets identified community needs, and (b) reflect on the service activity in such a way as to gain further understanding of course content, a broader appreciation of the discipline, and an enhanced sense of personal values and civic responsibility (Bringle & Hatcher, 2009, pp. 38).

Research on service learning courses confirms that this high impact teaching strategy contributes to academic and deep learning (Conway, Amel, & Gerwien, 2009; Finley, 2011; Finley & McNair, 2013; Kuh & O'Donnell, 2013; Hahn & Hatcher, 2013). Participation in service learning courses has been shown to have significant positive effects on several outcome measures, including academic performance, writing skills, and critical thinking skills (Astin, Vogelgesand, Ikeda, & Yee, 2000). Novak, Markey, and Allen's (2007) meta-analysis of nine research studies reported an effect size favoring service learning that translated into over a 50% advantage on cognitive outcomes for students in service learning courses. In addition to academic outcomes, service learning courses have also

been found to enhance personal growth and multiple civic outcomes (Conway et al., 2009; Eyler, Giles, Stenson, & Gray, 2001; Finley, 2011; Steinberg, Hatcher, & Bringle, 2011). Finally, Hurtado, Ruize, & Wang (2012) found that participation in service learning courses predicts five civic outcomes: critical consciousness and action, social agency, integration of learning, civic engagement, and political engagement.

Learning Communities. Learning communities are connected by an integrated approach across the courses, and students work closely with their fellow classmates on group projects with support from their instructional team. As a group, students enroll in two or more classes together to create a learning community. Oftentimes, learning communities focus on a theme and assign common texts to be examined from the vantage point of distinct disciplines. Participation in a learning community has been connected to higher grade point averages, increases in self-reported learning, and increased active and collaborative learning (Rocconi, 2011; Zhao & Kuh, 2004).

Research with Faculty. Engaging in research with faculty provides undergraduate students the opportunity to answer questions of consequence through empirical observations and technological applications. This participation has been shown to have numerous benefits for students, including improved academic achievement and retention (Cole & Espinoza, 2008; Ishiyama, 2002) and increased analytic and critical thinking (Bauer & Bennett, 2008).

Internships. Through internships, students are able to attain direct work experience with professional supervision often directly related to their chosen field or career path. Research indicates that students who participated in an internship reported greater gains across multiple outcomes than students who did not. These measures include cognitive outcomes, practical competencies, general education skills (writing/speaking and quantitative analysis), and personal and social development (Finley & McNair, 2013).

Study Abroad. This international experience introduces students to other cultures and worldviews, strengthens problem solving, and increases cross-cultural awareness and intercultural communication. Findings from multiple studies indicate that students participating in study abroad who interact frequently with citizens from their host country can experience gains in their psycho-social development as well as intercultural competence (Deardorff, 2009; Doyle, 2009; Dwyer, 2004; Engle & Engle, 2004).

Capstone Experiences. As a culminating experience in the final year, students participating in a capstone experience are assigned a comprehensive project that applies and integrates what they have learned during college. Students reflect on the entirety of their experience in college, often with a focus on their major area of study integrated with important concepts from other disciplines. Capstone experiences vary and can include a thesis, a semester project, or an e-portfolio of exemplar student work. Research indicates that college seniors who completed a capstone experience had greater gains across numerous outcome measures, including cognitive outcomes, practical competencies, general education skills (writing/speaking and quantitative analysis), and personal and social development, over seniors who did not (Finley & McNair, 2013).

Overview of the Current Study

The present study used a quasi-experimental design to gather information from our campus to isolate the influence of participation in service learning courses while examining

the relationship of the frequency of this participation on both freshmen and senior students' application of deep approaches to learning.

Methods

Participants

The IUPUI Office of Information Management and Institutional Research administered the NSSE to freshmen ($N = 524$) and seniors ($N = 998$) from February 2012 through the end of the semester. Participants in the study were 71% White, 10% African American, 5% Asian, 5% Prefer not to respond, and 9% Other. Of the sample, 63% were female and 37% were male. The response rate was 23% for freshmen and 27% for seniors at IUPUI. For Urban 13 and public research institutions the response rate was 22% and 20%, respectively. The average institutional response rate for NSSE was 32% (National Survey of Student Engagement, 2012).

Measures

The independent variable in this study was participation in service learning courses and was derived from NSSE survey question 1k:

In your experience at your institution during the current school year, about how often have you done each of the following?

- k. Participated in a community-based project (e.g., service learning) as part of a regular course

Response options were *Very often*, *Often*, *Sometimes*, and *Never*.

The control variables included gender (0 = *Male*; 1 = *Female*), race, and participation in other types of HIPs. Race was recoded to a dichotomous variable (0 = *Non-White*; 1 = *White*). Participation in each of the other five other high impact practices (i.e., learning communities, research with faculty, internships, study abroad, capstone experiences) were recoded from a four-response format used in the NSSE (*Have not decided*, *Do not plan to do*, *Plan to do*, *Done*) to a dichotomous variable (0 = *Have not done*, 1 = *Done*). The dependent variable, deep approaches to learning, was derived from the higher-order learning, integrative learning, and reflective learning survey questions (see table 2) and administered to IUPUI freshmen and senior students using the following response options: *Very often*, *Often*, *Sometimes*, *Never*.

Table 2

*Deep Learning Survey Questions***Higher-Order Learning (4 items)**

During the current school year, how much has your coursework emphasized the following mental activities?

- Applying theories or concepts to practical problems or in new situation
- Analyzing the basic elements of an idea, experience, or theory, such as examining a particular case or situation in depth and considering its components
- Making judgments about the value of information, arguments, or methods, such as examining how others gathered and interpreted data and assessing the soundness of their conclusions
- Synthesizing and organizing ideas, information, or experiences into new more complex interpretations and relationships

Integrative Learning (5 items)

In your experience at your institution during the current school year, about how often have you done each of the following?

- Worked on a paper or project that required integrating ideas or information from various sources
- Included diverse perspectives (different races, religions, genders, political beliefs, etc.) in class discussions or writing assignments
- Put together ideas or concepts from different courses when completing assignments or during class discussions
- Discussed ideas from your readings or classes with faculty members outside of class
- Discussed ideas from your readings or classes with others outside of class (students, faculty members, co-workers, etc.)

Reflective Learning (3 items)

During the current school year, about how often have you done each of the following?

- Examined the strengths and weaknesses of your own views on a topic or issue
- Tried to better understand someone else's views by imagining how an issue looks from his or her perspective
- Learned something that changed the way you understand an issue or concept

Reliability analysis was conducted for each of the subscales of deep learning - higher order learning ($\alpha=.83$), integrative learning ($\alpha=.73$), and reflective learning ($\alpha=.83$). The data file was split into freshmen and senior students so the analysis could be conducted on these two populations separately.

Results

Preliminary Analysis

Means and standard deviations for participation in service learning courses were calculated for both freshmen ($M = 1.91$, $SD = .95$) and seniors ($M = 1.96$, $SD = 1.0$) indicating that for this sample the average level of participation in service learning courses was *Sometimes*. The frequency of participation in all six types of HIPs is reported in Table 3.

Table 3
IUPUI Participation in High Impact Practices

Freshman	Done	Not Done	White	Non-White	Female	Male
Learning Community	46%	54%	70%	30%	69%	31%
Service-Learning	56%	44%	70%	30%	68%	32%
Senior	Done	Not Done	White	Non-White	Female	Male
Learning Community	36%	64%	77%	23%	62%	38%
Internship/Practicum	46%	54%	76%	24%	62%	38%
Research with Faculty	18%	82%	76%	24%	62%	38%
Study Abroad	8%	92%	76%	24%	62%	38%
Capstone	33%	67%	76%	24%	62%	38%
Service-Learning	58%	42%	76%	24%	61%	39%

Main Analysis

Multiple regression analyses were done to examine the relationship between students' participation in service learning courses and their use of deep approaches to learning. Each regression was designed to consider gender, race, and participation in other HIPs. Because freshmen participation in HIPs other than a learning community was infrequent, study abroad, research with faculty, internship, and capstone experience were not included in the regression analysis for freshmen. Table 4 summarizes findings for the regression analysis for freshmen. Being non-white and participation in service learning courses each independently predicted the use of deep approaches to learning. Participation in a learning community as a freshman was not a significant predictor of deep learning. There were no significant differences based on gender among freshmen.

Table 4

Regression Analysis Predicting IUPUI Freshman Students' Use of Deep Approaches to Learning

Variables	Deep Approaches to Learning			
	B	SE	Beta	Sig.
Gender	.098	.052	.083	
Ethnicity	-.157	.054	-.131	**
Learning Community	.023	.051	.021	
Service-Learning Courses	.150	.027	.260	***

Note: $N = 464$, *** $p < .001$, ** $p < .01$, * $p < .05$.

The multiple regression analysis for seniors (see Table 5) considered gender, race, participation in a learning community, study abroad, research with faculty, internship, capstone experience, as well as participation in service learning courses. Participation in service learning courses, research with faculty, and capstone experience each were independent predictors of deep approaches to learning. There were no significant differences based on gender or race for seniors.

Table 5

Regression Analysis Predicting IUPUI Senior Students' Use of Deep Approaches to Learning

Variables	Deep Approaches to Learning			
	B	SE	Beta	Sig.
Gender	.055	.035	.048	
Ethnicity	.042	.040	.032	
Learning Community	.052	.040	.045	
Internship	.004	.037	.004	
Study Abroad	.091	.062	.045	
Research with Faculty	.111	.048	.078	**
Capstone Experience	.123	.038	.104	***
Service-Learning Courses	.195	.019	.346	***

Note: $N = 464$, *** $p < .001$, ** $p < .01$, * $p < .05$.

Limitations of the Findings

This research was based on a sample of undergraduates from one campus in the Midwest. As mentioned, this campus has developed a strong culture for high impact teaching, particularly service learning. The RISE tagging system may inform students of course characteristics prior to enrollment. Self-selection into service learning courses and other HIPs is a potential confounding variable on these results since students may have been aware of the presence or absence of the service learning and/or other HIP component when they were selecting courses. NSSE data does not take into account that oftentimes courses may actually be an integration of one or more HIPs (e.g., learning communities with service learning, international service learning, participatory action research). These results are correlational; no causality can be inferred. Additionally, the self-report aspect of the NSSE data and the potential for students' definition of service learning to differ from the researcher's definition are both possible short comings of the findings.

Discussion

Service learning should be valued to the extent that it contributes to student learning at the course level as well as at the institutional level. This study contributes evidence of student learning at the institutional level. Through analysis of the 2012 NSSE survey data from our campus, we were able to isolate the influence of participation in service learning courses on students' application of deep approaches to learning for both freshmen and seniors. These findings are consistent with prior research on service learning in terms of positive outcome measures for college students (Astin et. al, 2000; Conway et. al, 2009; Kuh, 2008). Results from our campus study suggest that the influence of service learning courses on students' use of deep approaches to learning is greater for seniors than for freshman, as shown by the higher coefficient estimate for service learning courses in the regression model for seniors. This finding is consistent with prior research (Finley & McNair, 2013). When accounting for involvement in other types of high impact practices (i.e., learning communities, research with faculty, internships, study abroad, capstone experiences), students who participated in service learning courses reported higher levels of deep approaches to learning when compared to other HIPs. This finding is new, as prior research design did not control for other HIPs when exploring the relationship between service learning and deep approaches to learning (Finley & McNair, 2013; Kuh 2008). Among high impact practices, service learning has a unique quality in terms of generating deep approaches to learning.

The significant finding that non-white freshmen reported using deep approaches to learning more often than white freshmen is consistent with prior research that found underserved students report greater gains derived from their participation in HIPs (Finley & McNair, 2013; Kuh, 2008). However, this was not the case for senior students. This reinforces the value of integrated service into First-Year courses and Themed Learning Communities (Hahn & Hansen, 2015).

This research is presented as a campus study, and this approach is of value to the extent that it can be replicated to explore the distinct value of service learning within various institutional contexts. Replicating this approach on other campus studies will add further evidence to support the claim of the contribution that service learning makes in terms of promoting deep approaches to learning. Perhaps these findings will be different based on different institutional type or on the prevalence, or lack thereof, of service learning courses.

Perhaps the distinct aspect of service learning in this study is actually due to the fact that students on our campus participate more frequently in service learning than in any other high impact learning experience. These questions should be explored in further research.

It is possible that the frequency and/or quality of reflection activities, collaboration with others of different races and backgrounds, and work with faculty is more prevalent in service learning courses than most HIPs, thus, providing a greater influence on students' use of deep approaches to learning. We would also suggest, however, that other activities students enrolled in a service learning course pursue in completing their community project may especially differentiate service learning courses from other HIPs. These activities require formal integration of the service experience with academic content along with in-person, unscripted, encounters with others in community-based settings. We believe that navigating the latter, by its very nature, would require the application of deep approaches to learning.

We realize, however, that a better understanding of the activities within a service learning course (i.e., variables - dimensions of the service learning course design that may vary from course to course) is warranted. Various course activities (i.e., role of community partner as co-educator, integration of service with course content, critical reflection, diversity of interactions and dialogue with others across difference, duration of community project) may be related to the use of deep approaches to learning and other student outcomes. As noted by Giles and Eyler's (2013) critique of service learning research, "one of the great weaknesses of the research in this field has been the vague specification of the experiences students actually have in their service learning classes" (p. 55). To inform good practice and advance both assessment and research on service learning, we have developed a taxonomy (<http://csl.iupui.edu/doc/teaching-research-assessment/iupui-sl-taxonomy.pdf>) for service learning course design (Hahn & Hatcher, 2015). Future research should explore which components of a service learning course contribute to deep learning.

These findings provide another rationale for institutions to support instructors who engage with the community partners to develop service learning courses. For faculty who teach service learning courses, these findings support the value, from an institutional perspective, of the work that they do to support deep learning. These findings also reinforce the value of taking an engaged department approach for curricular change (Kescakes, 2013) for it is the additive value of service learning across the undergraduate years that yields greater gains in deep learning.

Conclusion

Enrollment in a course that uses a high impact teaching strategy can be a decisive turning point in a students' college experience, particularly if the course is of high quality and rigor (Kuh, 2008). Indeed, the myriad of positive elements experienced can be life-changing and an institution should encourage students to engage in multiple HIPs during the undergraduate years (Kuh, 2008; Finley & McNair, 2013). However, in reality HIPs are often not equally accessible for all students (Finley & McNair, 2013). Therefore, campuses should systematically assess which HIPs provide the most evidence of positive student outcomes, and this is the type of study that helps to answer this question by demonstrating the value of service learning courses.

References

- Astin, A. W., Vogelgesand, L., Ikeda, E., & Yee, J. (2000). *How service-learning affects students*. Los Angeles, CA: Higher Education Research Institute, UCLA.
- Bauer, K. W., & Bennett, J. S. (2008). Evaluation of the undergraduate research program at the University of Delaware: A multifaceted design. In R. Taraban & R. L. Blanton (Eds.), *Creating effective undergraduate research programs in science: The transformation from student to scientist*. New York: Teachers College Press.
- Biggs, J. B. (1987). *Student approaches to learning and studying*. Hawthorn: Australian Council for Educational Research.
- Biggs, J. (2003). *Teaching for quality learning at university* (2nd ed.). Buckingham, UK: Open University Press.
- Bringle, R. G., & Hatcher, J. A. (2009). Innovative practices in service-learning and curricular engagement. In L. R. Sandmann, C. H. Thornton, A. J. Jaeger (Eds.), *Institutionalizing community engagement in higher education: The first wave of Carnegie classified institutions. New Directions for Higher Education* (pp. 37-46). San Francisco: Jossey-Bass/Wiley Publishing.
- Brown, J. S., Collins, A., & Duguid, P. (1989). Situated cognition and the culture of learning. *Educational Researcher*, 18(1), 32-42.
- Brownell, J. E., & Swaner, J. E. (2010). *Five high-impact practices: Research on learning outcomes, completion, and quality*. Washington, DC: Association of American Colleges and Universities.
- Campus Compact. (2012). *Creating a culture of assessment: 2012 Campus Compact annual member survey*. Boston, MA: Author.
- Center for Service and Learning. (2014). *2013-2014 Dean's report for the Center for Service and Learning*. Retrieved from <http://csl.iupui.edu/doc/deans/2013-14-deansreport.pdf>.
- Cole, D., & Espinoza, A. (2008). Examining the academic success of Latino students in science, technology, engineering, and mathematics (STEM) majors. *Journal of College Student Development*, 49(4), 285-300.
- Conway, J. M., Amel, E. L., & Gerwien, D. P. (2009). Teaching and learning in the social context: A meta-analysis of service-learning's effects on academic, personal, social and citizenship outcomes. *Teaching of Psychology*, 36(4), 233-245.
- Deardorff, D. (2009). *The SAGE handbook of intercultural competence*. Thousand Oaks, CA: SAGE.
- Dewey, J. (1910). *How we think*. Lexington, MA: D.C. Heath.
- Doyle, D. (2009). Holistic assessment and the study abroad experience. *Frontiers: The Interdisciplinary Journal of Study Abroad*, 18, 143-155.
- Dwyer, M. M. (2004). More is better: The impact of study abroad program duration. *Frontiers: The Interdisciplinary Journal of Study Abroad*, 10, 151-163.
- Engle, L., & Engle, J. (2004). Assessing language acquisition and intercultural sensitivity development in relation to study abroad program design. *Frontiers: The Interdisciplinary Journal of Study Abroad*, 10, 219-236.
- Entwistle, N. J., & Ramsden, P. (2003). *Understanding student learning*. London, UK: Croom Helm.
- 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.

- Finley, A. (2011). *Civic learning and democratic engagements: A review of the literature on civic engagement in post-secondary education*. Paper prepared for the US Dept. of Education as part of Contract: ED-OPE-10_C-0078. Retrieved from www.civiclearning.org/SupportDocs/LiteratureReview_CivicEngagement_Finley_Jul2011.pdf.
- Finley, A., & McNair, T. (2013). *Assessing underserved students' engagement in high-impact practices*. Washington, D. C.: Association for American Colleges and Universities.
- Giles, D. E., & Eyler, J. (2013). Review essay: The endless quest for scholarly respectability in service-learning research. *Michigan Journal of Community Service Learning*, 20(1), 53-64.
- 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.
- Hahn, T. W., & Hansen, M. J. (2015). The relationship of service-learning and integrative learning within the context of themed learning communities. *Working Paper*.
- Hahn, T. W., & Hatcher, J. A. (2013). *The relationship between service-learning and deep learning*. Research Brief, Center for Service and Learning, Indianapolis, IN.
- Hahn, T. W., & Hatcher, J. A. (2015, September 30). What about Service-Learning Matters? Using a Taxonomy to Identify Variables to Improve Research and Practice [Webinar]. In *IARSLCE Webinar Series*. Retrieved from <https://www.youtube.com/watch?v=O3W27s3-XTw>.
- Hart Research Associates (2015). *Falling short? College learning and career success selected findings from online surveys of employers and college students*. Retrieved on April 8, 2014, from <http://www.aacu.org/sites/default/files/files/LEAP/2015employerstudentsurvey.pdf>.
- Hatcher, J. A. (2015, March). *Connecting students for career success and community impact: IUPUI RISE initiative*. Indiana Campus Compact Service Engagement Summit, Indianapolis, IN.
- Hurtado, S., Ruiz, A., & Whang, H. (2012). Advancing and assessing civic learning: New results from the Diverse Learning Environments survey. *Diversity and Democracy*, 15(3), 10-12.
- Ishiyama, J. (2002). Does early participation in undergraduate research benefit social science and humanities majors? *Journal of College Student Development*, 36(3), 380-386.
- Kesckes, K. (2013). The engaged department: Research, theory, and transformation of the academic unit. In Clayton, P. H., Bringle, R. G. & Hatcher, J. A. (Eds.), *Research on service learning: Conceptual frameworks and assessment, Volume 2B: Communities, institutions, and partnerships*, (pp. 471-503). Sterling, VA: Stylus Press.
- Kuh, G. D., (2008). *High-impact educational practices: What they are, who has access to them, and why they matter*. Washington, DC: Association of American Colleges and Universities.
- Kuh, G. D., & O'Donnell, K. (2013). *Ensuring quality and taking high impact practices to scale*. Washington, DC: Association of American Colleges and Universities.
- Laird, T. F., BrekaLorenz, A., Zilvinskis, J., & Lambert A., (2014, November). *Exploring the effects of a HIP culture on campus: Measuring the relationship between the importance faculty place of high-impact practices and student participation in those practices*. Roundtable paper presented at the Association for the Study of

- Higher Education Conference, Washington, D.C.
- Laird, T. F., Shoup, R., & Kuh, G. D. (2006, May). *Measuring deep approaches to learning using the national survey of student engagement*. Presentation at the annual meeting of the Association for Institutional Research, Chicago, IL.
- Marton, F., & Säljö, R. (1976). On qualitative differences in learning: Outcome and processes. *British Journal of Educational Psychology*, 46, 4-11.
- Marchese, T. J. (1997). The new conversations about learning: Insights from Neuroscience and Anthropology, Cognitive Studies and Work-Place Studies. In E. Chaffee, P. Ewell, S. Gelman, G. Kuh, T. Marchese, M. Miller, & G. Wiggins (Eds.) *Assessing Impact: Evidence and Action* (pp. 79-95). Washington: American Association for Higher Education.
- McDrury, J., & Alterio, M. (2004). *Learning through story telling in higher education. Using reflection and experience to improve learning*. London, UK: Kogan Page.
- National Survey of Student Engagement. (2012). *Annual Report*. Retrieved July 31, 2013, from http://nsse.iub.edu/NSSE_2012_Results/pdf/NSSE_2012_Annual_Results.pdf.
- National Survey of Student Engagement. (2012). *Technical Report*. Retrieved August 23, 2013, from http://imir.iupui.edu/surveys/reports/default.aspx/STU/STU_NSSE/71/3/2012.
- Novak, J. M., Markey, V., & Allen, M. (2007). Evaluating cognitive outcomes of service-learning in higher education: A meta-analysis. *Communication Research Reports*, 24, 149-57.
- O'Donnell, K. (2013, October). *What's at stake?* Keynote address at the Indiana University-Purdue University, Assessment Institute. Indianapolis, IN.
- Ramsden, P. (2003). *Learning to teach in higher education*. London: Routledge Falmer.
- Rocconi, L. M. (2011). The impact of learning communities on first year students' growth and development in college. *Research in Higher Education*, 52(2), 178-193.
- Steinberg, K., Hatcher, J. A., & Bringle, R. G. (2011). A north star: Civic-minded graduate. *Michigan Journal of Community Service Learning*, 18(1), 19-33.
- Tagg, J. (2003). *The learning paradigm college*. Boston: Anker.
- Wenger, E., & Lave, J. (1991). *Situated learning: Legitimate peripheral participation*. Cambridge University Press, Cambridge, UK.
- Zhao, C. M., & Kuh, G. D. (2004). Adding value: Learning communities and student engagement. *Research in Higher Education*, 45(2), 115-138.

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