SERVICE LEARNING: ALIGNING UNIVERSITY MISSION WITH DESIGN AND CONSTRUCTION

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Service-learning balances community service for societal needs with a pragmatic, progressive educational experience. Typically, service learning provides an opportunity for direct application of classroom knowledge bridging the divide between theory and practice. Goals for service-learning projects often include increased understanding of curricular content, application of the discipline, and development of civic responsibility. Most educational experts quantify service learning as a high impact educational practice (HIEP), and as an applied discipline, construction management (CM) is uniquely poised to engage in such practice. This paper analyses the literature on service learning in the context of design and construction to identify the perceived benefits and challenges associated with service learning. Based on this literature review's findings, the paper maps service learning at seven universities within the U.S. within CM to determine how service-learning efforts connect with individual university strategic plans, construction unit strategic plans, and how service-learning practices are incorporated inside or outside the curriculum. Results indicate that six of seven universities indicate service learning in the strategic plan of the university but only two of the seven universities indicate service learning in the program-level strategic plan. A gap appears to exist between the literature review, university strategic plans, and program strategic plans. If alignment could be achieved, service learning provides a path for CM programs to meet community needs, provide meaningful HIEPs for students, and promote communication and collaboration with those outside the University setting.

Keywords: education, strategy, high-impact, service learning, engagement

INTRODUCTION

Community engagement has been a consistent, central theme across higher education (Benneworth *et al.,* 2020; Mtawa *et al.,* 2016). But, it has varied tremendously between institution, geographical area, academic discipline, and funding model (Benneworth and Sanderson, 2009; Kruss, 2012). Community engagement is defined as

> …a systematic relationship between Higher Education and environment that is characterized by mutually beneficial interaction in the sense that it enriches learning, teaching and research, and simultaneously addresses societal problems, issues and challenges (Centre for Higher Education Transformation, 2003: 4)

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Specifically, this paper considers an educational tactic within the broader term of community engagement, "service learning", in the context of design and construction. Field-based "experiential learning" with community partners through service learning gives students the ability to experience issues studied in the curriculum with ongoing efforts to solve real-world problems in the community. Service-learning projects in the arena of design and construction may include such items as designing or building a small home or constructing an accessibility ramp. Students interact with the client and collaboratively work to complete the educational task. Through solving real-world problems, a knowledge exchange occurs between the students and the community (Bender, 2008). "These programs model the idea that giving something back to the community is an important college outcome, and that working with community partners is good preparation for citizenship, work, and life." (Kuh, 2008: 11).

Within design and construction, limited studies are available that examine the perceived strengths and weaknesses of a "mutually beneficial interaction" within higher education and the community. Little is known regarding the link between university strategic plans and service learning done by CM units. By exploring existing literature and available strategic initiatives of seven institutions in the U.S., this introductory paper seeks to better align service learning, community needs, HIEPs, and the exchange between the university and community. CM programs that could align these elements have the potential to increase educational value, meet community needs, and assist Universities in fulfilling strategic outreach goals.

LITERATURE REVIEW

Boyer's (1990) call to meet the social needs of the community and to expand the definition of scholarly work anchor service learning. As one of Boyer's four pillars of engagement, "application" has gained traction through community engagement (Holland, 2005).

> Now, higher educational institutions must become participants in a highly complex learning society where discovery, learning, and engagement are integrated activities that involve many sources of knowledge generated in diverse settings by a variety of contributors (Holland, 2005: 12).

Community Engagement in Higher Education

There has been "widespread adoption and implementation of community engagement" across higher education institutions (Mtawa *et al.,* 2016). Many universities are making commitments to participate in community engagement as part of standard practices (Matthews, 2010).

One of the advantages of community engagement is the corresponding two-way exchange of knowledge as opposed to the traditional professor to student knowledge transfer. This two-way exchange and its balance are challenging (Mtawa *et al.,* 2016). An over-emphasis on teaching and learning might create a more inward focus while an over-emphasis on engagement may reduce learning (Cloete *et al.,* 2011). For CM service learning, student participants learn real-world lessons and acquire skills that complement the traditional classroom, introduce community responsibility, and provide opportunities for leadership. Communities have benefited from the projects completed (Clevenger and Ozbek, 2013).

In 2006, the Carnegie Foundation recognized campuses that committed to community engagement through a classification system (Carnegie Foundation for the Advancement of Teaching, 2006). Accrediting bodies have also included engagement

indicators within institutional quality assessments (Higher Education Learning Commission, 2006). All of these factors have increased community engagement within higher education in the United States. Multiple university mission statements and strategic plans indicate an emphasis on community engagement (Aldrich *et al.,* 2012). For land-grant universities, engagement is central to the mission to "provide equal access to education and service to communities" (Kellogg Commission on the Future of State and Land-Grant Universities, 1999: 1).

Adoption of community engagement by universities has been uneven. "Research universities have been relatively less involved, despite the ambitious efforts…" (Stanton, 2007: 5). The decentralized nature of the university and vague university mission statements are cited as reasons for slow adoption (Weerts and Sandmann, 2010). Often, individual units within the larger university have been drivers of community engagement. In Europe, higher education partners have placed strong emphasis on business engagement as opposed to social engagement (Zomer and Benneworth, 2011). In turn, formal, contractual relationships with public sector partners have advanced ahead of community groups. Thus, social engagement in Europe has typically remained voluntary or has become increasingly marginalized.

New forms of scholarship including "engaged scholarship" and the "scholarship of engagement" imply a broader view of scholarship including community engagement (McNall *et al.,* 2009: 318). These expansions beyond the traditional definition of scholarship have provided opportunities for faculty to engage at a deeper level in community projects. Ivey *et al. (*2016) reported the ability to integrate teaching, scholarship and service in one partnership rather than managing multiple responsibilities separately as a primary incentive for faculty. In addition, researchers report that the teaching pedagogy is enhanced by providing "engaged, responsive and efficacy enhancing experiences for students" (Curry-Stevens, 2011, p. 21).

If community engagement is critical for universities, leaders must consider the full array of activities offered (Benneworth *et al.,* 2013). For example, when a community project is required for all students, all faculty and staff must support as opposed to isolated faculty. Universities must build their capacities to deliver, accept, and embed community engagement into teaching and research as well as make and win the ethical case for engagement.

High Impact Educational Practices

The Boyer Commission offered ten recommendations for undergraduate education (Reinventing Undergraduate Education: A Blueprint for America's Research Universities, 1998). The university was considered part of a larger system that emphasized a shared mission of learning and research. The Boyer Commission noted several concerns with U.S. education including little engagement occurring in class. The report questioned whether graduates could "think logically, write clearly, or speak coherently" (Reinventing Undergraduate Education: A Blueprint for America's Research Universities, 1998: 15). From this report, HIEPs developed. The goal was to use them to provide diverse experiences, solve challenging problems, force independence and self-reliance, and foster stimulation

George Kuh ratified a group of "effective educational practices" that correlated with increased educational impact for students (2008). Termed HIEPs, each of these activities elevated the educational experience for students. Kuh focused on "deep" learning that emphasized both acquiring information and understanding the underlying meaning of the information (Kuh, 2008). Students that engage in HIEPs tended to

earn higher grades and retain, integrate, and transfer the information gained at higher rates (Nelson *et al.,* 2008).

Often a student's self-perception changes, and confidence increases as they interact beyond the classroom. Additional student outcomes include an increased comfort level for entering unfamiliar communities; increased competency in cultural interactions; and improved knowledge, skills, and attitudes (Kramer *et al.,* 2007; Peck *et al.,* 2010).

Service Learning

With growing popularity internationally, service learning is known by names including community-based learning, academic service learning, community service learning, and academic community-based learning (Hatcher *et al.,* 2013). Service learning is defined as

> A course or … educational experience in which students participate in mutually identified service activities that benefit the community, and 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 value and civic responsibility (Bringle and Clayton, 2012: 105).

Multiple studies have considered how service-learning benefits students (Celio *et al.,* 2011; Conway *et al.,* 2009; Yorio and Ye, 2012). All show positive student impacts. One found positive impacts in five domains: "attitudes toward self, attitudes toward school and learning, civic engagement, social skills, and academic achievement" (Celio *et al.,* 2011: 171). Conway *et al. (*2009) found greatest impact for students in academic and learning outcomes with relatively small impact for citizenship outcomes. This research also noted that structured reflection yielded increased outcomes. Yorio and Ye (2012) found the greatest positive impacts on students in the areas of cognitive development, understanding of social issues, and insight. For construction management, hands-on projects provide strong opportunities for collaboration, critical to today's construction practice (Clevenger and Ozbek, 2013; Tran *et al.,* 2012). Clevenger and Ozbek (2013) further illustrate that opportunities exist for service learning to be an effective pedagogy to support learning.

METHODS

This paper analysed the literature to identify the alignment between service-learning projects as HIEPs, university strategic plans, and CM programs. Definitions of key terms were established, and common themes were identified. Then, case studies of seven large, public, U.S. universities were considered. Strategic plans of those universities were studied to determine which supported service learning and related language including "civic engagement" and "community engagement". Finally, the CM programs of each of the seven institutions were considered. Strategic plans of those individual educational units were studied, and additional research was done to examine any programs that employed service learning (See Figure 1).

Several case studies were used from seven U.S. universities. These universities were selected of convenience as each participates in a peer group of CM programs that meet twice yearly to consider best practices, address challenges, and identify future concerns. All are public institutions, and six of the seven are "land grant institutions". To provide anonymity, universities have been noted as "Institution x".

RESULTS

The literature review provided context of the perspective of community engagement within higher education, introduced service learning as a HIEP, and detailed the strongest benefits with service learning.
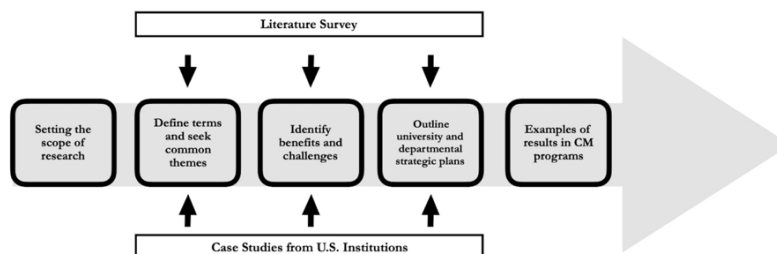

Figure 1: Graphical description of research method

Definitions of community engagement and service learning were provided in the context of higher education. Both definitions connected the highly collaborative nature of such projects and revealed the mutual knowledge creation and benefit to both students and community. In addition, the following items were identified:

- Connections exist that link institutions with societal needs through scholarly engagement
- "Widespread implementation" of community engagement by universities
- Importance of two-way exchange of knowledge and reciprocal nature of partnerships
- Slow adoption of community engagement by larger universities
- Service learning's unique opportunity for HIEPs for students
- Strongest correlation of benefits of service learning in areas of learning
- Unique opportunities for service learning in CM

Table 1 details the prescriptive study of seven institutions within the U.S. and how their specific university strategic plan details focus on civic knowledge and engagement. Six of the seven institutions have some mention of social and civic engagement. Four of the seven plans relate directly to the engaged educational or learning environment provided by community engagement. Four universities specifically mention addressing larger societal challenges and making an impact through community engagement either locally or internationally. None specifically mention service learning, but two mention learning approaches or specific programs that include service learning. Finally, only one specifically addresses "cultural competence" development in students.

Table 2 considers how the strategic plans of the individual CM programs address civic knowledge and engagement, specifically addressing service learning. This descriptive approach considers what, if anything, individual CM programs have in regard to service learning. Only one program has a strategic plan reference to community engagement, and only two programs have a specific reference to service learning. Both programs who have service-learning objectives are done in the context of engaged student learning.

Table 1: Incorporation of civic knowledge and engagement (local and global) into Institution's Strategic Plans

Institution	Strategic Plan Reference	Details of Strategic Plan
Institution 1	New American University - Toward 2025 and Beyond Mission 4 of 4 • "Enhance our local impact and social embeddedness"	3 Goals • Strengthen state's network of teaching, learning and discovery resources • Co-develop solutions to the critical social, technical, cultural and environmental issues facing … Arizona • … personalized pathways and promoting adaptability to all accelerated social-technical changes
Institution 2	2019-2024 Strategic Plan Goal 1 • Inspire and prepare students for life through delivery of an experience characterized by distinctive, innovative curricula and engaging … programs.	Methods in Teaching and Learning: Active Learning • Individual learning to collaborative learning Applied Experience • Classroom learning to hands-on/in-the-field learning • Theoretical skills to application-based/practical skills (i.e., skills that prepare students for careers) • Increased service orientation-direct impact on community • Greater global focus, including study abroad programs
Institution 3	2016 Strategic Plan Goal 5-Engagement • I3 will engage with communities to solve problems, share knowledge, and support progress	Objective 3 of 5 High youth and student satisfaction with opportunities for civic engagement and engaged scholarship Participation in SLiCE programs including cans around oval, alternative spring breaks, I5Unity, I5 Serves, Campus Corps, Key Service, President's Leadership Program, etc.
Institution 4	I4 Moves Initiative 5-Transformative Education	No specific mention of civic or community engagement
Institution 5	Strategic Plan 2020-2025 2 of 6 Priorities • Enhance transformational education/student success. • Be a best place to live, work, and learn.	• Engagement in transformational learning experiences • Better integrate academic and co-curricular learning experiences so students have more opportunities to apply leadership and personal development in their field • Develop inclusive opportunities for social engagement, networking, service, and community outreach
Institution 6	The Decade Ahead: I6 Goals December 2015-Goal 5 of 7 • A strengthened engagement of the university's programs with communities.	Increased engagement and outreach of I6 programs leading to positive impacts in such areas as health, the economy, environment and community Metrics: Percentage of faculty, staff, and students engaged in community service.
Institution 7	The I7 Difference: Advancing Beyond Boundaries-1 of 4 Strategic Priorities	GOAL 2-Increase cultural competency GOAL 3-Address critical societal issues impacting humanity and equity

Two construction programs identify learning approaches or specific programs that include service learning; Institution 2 and Institution 3. The specific program at Institution 3 is its CM Cares program. This program was established to help CM students "develop and improve their leadership and team building skills as well as ethics through community service-learning project". Students participate in the CM Cares Program by taking an elective class CON 464 Construction Leadership. This 3-credit hour class requires students to select and construct a service-learning project during a 16-week semester. During the first eight weeks of the semester, students work with a faculty mentor to develop leadership skills and plan the project. The remaining eight weeks are used to execute the project. During the course of the class students develop and improve their leadership and team building skills as well as their knowledge of ethics (Olbina *et al.,* 2018).

Table 2: Incorporation of civic knowledge and engagement (local and global) into Construction Program's Strategic Plans

Institution	Strategic Plan Reference	Details
Institution 1	I1 CM-QIP-Fall 2018	No direct mention of civic engagement or service learning
Institution 2	I2 School of Building Science Five Year Strategic Plan 2017-2021	Ensure all students have multiple, diverse opportunities for deep, engaged educational experiences
	BSCI Signature Identity 1 - Enriching Educational Experience	Appropriate Indicators • Participation in service-learning projects
Institution 3	CM-Building the Foundation for a Program of National and International Excellence	Goal 2.1: Promote excellent …. service learning … that enhance students' experiential learning.
	Strategic Plan 2013-2018	• Develop service-learning components within the curriculum. Goal 2.3: Promote student leadership activities
	Key Objective 2: Create distinctive undergraduate experiences	• Encourage students' organization of and participation in service-learning projects (CM Cares) • Encourage student clubs to participate in inter-department community service (CM Cares) Goal 7.1: Leverage departmental expertise to develop service programs to enhance student learning
Institution 4	The School of CM Technology Strategic Plan	No specific mention of civic or community engagement or service learning
Institution 5	CM Strategic Plan 2016 Goal 5: We will maintain connections with communities … through engagement in public service, ...	No specific objectives relating civic or community engagement or service learning
Institution 6	I6 School of CM Strategic Plan	No direct mention of civic engagement or service learning
Institution 7		No direct mention of civic engagement or service learning

At Institution 2, students are required to take a senior level class that require them to work in groups to plan and execute a service-learning project. They also have the opportunity to take elective classes which have a service-learning component. Students in the Building Science undergraduate program are required to take BSCI 4360 Construction Field Lab. In this class students work in groups to conduct a service-learning project that integrates all components of the construction process. The course follows a similar format to the course at Institution 3 with the first part of the semester spent in planning the project and the remainder spent executing the project (Redden and Bugg, 2020). The program also offers two senior level elective classes. Since 2012, undergraduate and graduate students have been able to participate in 3-credit hour short term, service-learning based international study abroad to Quito (Bugg *et al.,* 2017). In 2018 a second 3-credit hour service-learning based elective class based on disaster recovery was added that required students to complete weeklong disaster recovery work in areas impacted by either hurricanes or tornadoes.

CONCLUSION

This study has considered the alignment of service learning in CM programs with program and university strategy in the context of community engagement within higher education. The literature suggests stakeholders benefit from engagement in service-learning projects, but no research could be found to verify the stakeholder's perspective when service-learning is conducted in the context of a design-construction project and this may well be an area where additional research is required. If better alignment could be realized, service learning provides a path for CM programs to meet community needs, provide meaningful HIEPs for students, and promote communication and collaboration with those outside the university.

There is near unanimous agreement that community engagement is important at the institutional level. Clear themes in these areas include student engagement, development of "real-world" skills, and accepted engagement for faculty in both teaching and scholarship. CM, with its applied focus, has a unique opportunity to meet this institutional demand. Some disconnect is evident in how the community engagement is described from a focus on "critical societal issues" to a focus on individual student experiences.

At the construction unit level, the inclusion of community engagement is less uniform with only two programs having clear goals and objectives that include service and specific types of teaching and learning. In both cases, the focus of the unit is on the individual student learning while the focus of one of those two universities remains on community engagement. The link between civic engagement and solving community problems may be implied, but the link between it and student learning deserves additional focus. Based on this preliminary study, additional training and education for faculty and students is needed to realize collaborative benefits as a benefit of service learning. And, further research is needed to determine if the perceived benefits correlate with student experiences.

While service learning is not "new", the concept of linking educational outcomes, community engagement, and university strategic plans remains in its infancy. For the two schools that have explored this option, they have realized strong potentials exist for more impactful and sustainable learning and community engagement. CM programs and university must move beyond the individual project or class and better examine the broader link identified in this paper between educational outcomes, community engagement, and university strategic plans. This study only considered seven public universities within the U.S., and this sample may not be representative of higher education or CM. In addition, no data was gleamed as to how universities may mandate individual units to meet overall strategic goals. Such information could influence the goals targeted by individual units. This paper has presented how strategic initiatives by institutions of higher learning can be incorporated in curriculum. And, the work has identified the body of knowledge developing around service learning within CM programs. The hands-on nature of construction work, the use of service learning as a HIEP, and the ability of service projects to meet broader university goals provide an opportunity for CM.

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