

# Challenges in Developing Teaching Effectiveness and Scholarship through Service-Learning Projects

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Community engagement pedagogies (also referred to as service learning) have been continuously promoted by U.S. colleges and universities to enhance student learning experiences while meeting the needs of communities. However, during the implementation of service-learning projects, the faculty or instructors teaching such courses face great challenges for achieving the project goals within the limited course timeframe as well as keeping students and communities deeply involved throughout the process. Furthermore, the faculty members, especially those who are still at the early stage of their academic careers, have difficulties in balancing their time commitment for leading service-learning projects and meeting other research and scholarship expectations. This paper investigated the problems encountered by junior faculty in teaching courses with embedded service-learning components through case studies from a green building and sustainable construction course. A focus group study was followed to obtain consensuses on this issue from a group of faculty members who were interested in service-learning activities but had similar concerns. Problems such as student motivation and skill sets, the creation of a service-learning model, sustainability of university-community partnerships, and scholarship and publication venues were identified.

**Key Words:** Service Learning, Scholarship, Construction Education, Sustainability

## Introduction

In recent years, U.S. colleges and universities have been continuously promoting service learning to enhance student learning experiences while meeting the needs of communities. As a type of experiential education, academic service learning connects student community service to learning outcomes of specific courses and programs in a structured setting. There is rich literature that has documented the benefits of service learning from various aspects. For example, as indicated by Wankat and Oreovicz (1993), by combining hands-on service-learning activities with classroom delivery, the retention of class contents is greatly enhanced. The perceptions of student participants confirmed that service learning helps them learn the materials, be connected to the surrounding community, and improve communication and problem-solving skills (Lee et al., 2017). The reflection from service-learning participants also revealed that they felt enhanced civic responsibility compared to traditionally taught students (McCrary et al., 2007). In addition, well-developed service-learning courses play a very important role in developing beneficial and sustainable university/community relationships (Chen et al., 2015).

Construction education has a strong focus on hands-on learning experience. Many construction programs require students to take internships or cooperative education but miss the great opportunities offered by service learning. Recent years have seen service learning being increasingly incorporated into construction education to enhance student learning and improve their real-world experience and communication, critical-thinking, and problem-solving skills. Usually, laboratory-based construction courses with a strong emphasis on hands-on learning and problem-solving are good candidates for integrating service-learning activities. These courses include, but are not limited to, materials and methods (Clevenger & Ozbek, 2013), survey (Gargari & Suckarieh, 1999), and structures (Arumala, 2002). Service learning is also seen to be integrated into emerging areas such as sustainable development (Al-Khafaji & Morse, 2006; Valdes-Vasquez & Klotz, 2011; Clevenger & Ozbek, 2013). Some construction management programs offered service-learning based study abroad programs or specific service-learning trips that provided students with hands-on experience in an international setting to broaden their horizon and learn about working in a different culture (e.g., Farrow and Kramer, 2009; Farrow et al., 2011).

It is worth noting that there is no single formula for integrating practice into construction education (Senior, 1998). The success of any service-learning project depends on careful planning, coordination, and supervision, which takes a significant amount of time from the faculty member who will lead the service-learning project. Although the experience is rewarding, the time commitment cannot be neglected. This is especially true for junior faculty in their early academic career. The puzzle they need to answer is how to teach effectively while preserving time to perform research and develop scholarship, which is critical to their promotion and tenure (P&T) process. Often times, integrating research and scholarship into teaching is a piece of advice given by their senior colleagues. But how to do so, whether the effort will lead to a high-quality scholarship, and how the scholarship will be evaluated in the P&T process are not clear. This paper aims to explore potential problems and challenges in developing teaching effectiveness and scholarship through service learning. The findings can help promote awareness, research interests, and cultural changes in the academic field.

## Research Methods

This research adopted the methods of case study and focus group study to investigate challenges faced in developing teaching effectiveness and scholarship out of service-learning projects. According to Yin (2006), case study, as a research method, excels at examining research questions in their “real-life” context. The service-learning project case studies included in this paper are from a Green Building and Sustainable Construction course the author has been teaching at The Ohio State University (OSU) since the spring of 2009. This undergraduate/graduate course is offered to mainly Construction Systems Management (CSM) students, who represent the future workforce of the construction industry, as well as students from related fields, including civil engineering, mechanical engineering, architecture, urban planning, etc. The study covered a five-year period from 2009 to 2013 during the author’s early academic career as an Assistant Professor at a research university.

The focus group study was organized by OSU Office of Outreach and Engagement’s Service-Learning Initiative. The meeting was held on May 8, 2013, with 19 participants who were recruited through the email list of instructors with courses having a service-learning component. The meeting lasted about one and a half hour and aimed to explore the following questions:

- How does service learning enrich scholarship?
- What is the “value” of service-learning projects and how do they positively (or negatively) impact academics?
- What role should service learning play in P&T decisions?
- How does service learning support community partnerships that make an impact?

The recruited instructors represented multiple disciplines across the university and three scholars from the Pennsylvania State University also joined the discussion. One staff member from the Office of Outreach and Engagement worked as a moderator for the focus group study. However, participants were encouraged to have open discussions, which can produce valuable data and insights with interactions among participants through a type of “chaining” effect (Lindlof & Taylor, 2002, p. 182). Also, in this way, the participants were able to develop a common language to describe similar experiences. Notes were taken by the author during the meeting and qualitatively analyzed afterward.

## Results and Discussions

### *Case Studies on Sustainable Construction Related Service-learning Projects*

Nationwide as well as in the Central Ohio region there had been increasing interest and desire from both residential communities and commercial client groups on ways to ‘green’ existing facilities as well as integrate green innovations for new builds. Providing future building design and construction professionals with basic knowledge about green building and sustainable construction through university education is a proactive approach to addressing this ongoing need. On the other hand, the growing momentum for green building, in turn, presents educators with

unique opportunities to reach out to new partners in the community and offer real-world, hands-on learning experience to university students.

By the time the Green Building and Sustainable Construction course was initially developed, there was no other university course available at OSU to teach students green building technologies and environmentally friendly construction practices. In a 2008 survey conducted among 170 of approximately 400 students enrolled in the CSM major, 70% of respondents reported that they had heard about green building and sustainability. But when asked to name three green building/construction methods, only 14% of them could correctly do so. Approximately 86% of surveyed CSM students agreed that a specific green building course would be helpful for their future practice and 81% of them were interested in taking such a course when it becomes available. Such a strong need from CSM students made it very clear that a course focusing on green building and construction should be developed in a timely fashion.

The three-credit hour green building course was developed with a goal to provide students with the knowledge, skills, and attitudes needed to understand, evaluate, select, and adopt sustainable building design and construction strategies and applications. The course centers on the Leadership in Energy and Environmental Design (LEED) green building rating system that has been widely adopted by the industry in the green building development. Service-learning was incorporated into classroom teaching to enhance students' hands-on learning experience and serve the sustainable needs of local communities. From 2009 to 2013, six class-based service-learning projects were carried out by the instructor and students enrolled in the course. The basic information of these projects and major activities conducted are described in Table 1.

*Table 1: Summary of service-learning projects*

<b>Quarter/semester</b>	<b>Main activities</b>	<b>Total student participants</b>
Spring 2009	Developed fact sheets, computer simulation, and other exhibits for green home technologies and presented during 2009 Green Building Expo, Columbus, OH.	15
Autumn 2009	Performed energy efficiency retrofit and green roof design projects for the Summit on 16th Chapel, Columbus, OH.	16
Winter 2010 – Spring 2010	Helped a local couple with disabilities to understand, prepare for, and obtain green home certifications (including LEED for Homes and National Green Building Standard) for their Universal Design and Living Lab - A National Demonstration Home project, Columbus, OH. In the subsequent quarter, students also helped with finishing the basement, fixing punch list items, and guiding public tours to showcase the green technologies used in this home.	40
Spring 2010	Developed proposals for the Square at Lathem Park mixed housing development project (Hilliard, OH) to meet the LEED for Neighborhood Development certification goal. Students also organized and participated in the interdisciplinary Green Design Charrette. This project built the collaboration among CSM students, faculty and students in OSU Horticulture and Crop Science Department (providing landscape design for the project), and industry professionals involved with the project.	21
Autumn 2010 – Winter 2011	Students in the green building course and a senior capstone design team performed site survey and analysis, design, and economic analysis for the Middle West Spirits Distillery Solar Photovoltaic (PV) project, Columbus, OH.	18
Autumn 2011 – Spring 2013	Collaborated with students from OSU Urban Planning and Landscape Architecture Departments in the two-year Linden Village Green Housing and Community Development project, Columbus, OH. Activities include performing whole-building energy simulation, developing posters, PowerPoint presentations, and fact sheets for energy efficiency measures, organizing a green home workshop for community residents, etc.	99

The following photos in Figure 1 show some service-learning activities and deliverables out of the service-learning projects.



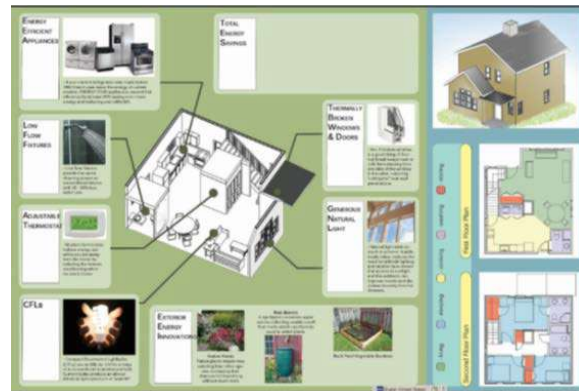
a. Visiting the church to survey its existing conditions



b. Organizing and participating in the green design charrette



c. Fieldwork in finishing the basement of a green home



d. A selected green home poster developed for community outreach

*Figure 1: Service-learning project activities and products*

Although most of these service-learning projects were successfully performed and met both the course learning goals and community partners' expectations, some problems and challenges were noticed and, to some degree, affected the effectiveness of student learning and the deliverables of the service-learning projects. These problems and challenges are described below:

- *The motivation problem:* Course-based service-learning projects usually require an additional time commitment from students in addition to class time. This presents an even bigger problem to CSM students since most of them are non-traditional students with both part-time employment and family responsibilities. The instructor tried really hard to motivate them and allow flexibility when setting up the plan for a service-learning project.
- *Matching student interests with community needs:* Students enrolled in the course may have their special interests. Using one service-learning project to meet diverse student interests may lead to mismatches, which hinder student learning and the progress of the service-learning projects. Also, the needs of a community may not fit into the learning objectives of the course. It is very challenging to identify a good service-learning project every quarter/semester when service learning becomes a standard component of the course. This is why the instructor did not choose to officially label it as a designated service-learning course in the course catalog, although service learning was performed almost every quarter/semester.
- *The pace of the external project:* When the activities students expect to perform are highly dependent on the progress of an external project, a higher risk is involved. Additional communication and coordination

between the instructor and community partners are required. Plan B that can achieve the same learning outcomes may be needed if Plan A does not work.

- *Skill sets of students:* Service-learning projects that aim to better meet community needs may require skill sets students do not have when they first start the course. The instructor has to understand the limitation of students when making a promise to community partners, but should also have plans to enhance their skills for higher achievement. Although most of CSM students have acquired some construction trade skills (such as carpentry, painting, and operating power tools) through their education and industry experience (e.g., prior job, internship, etc.), they may have not been exposed to the methods that are needed to carry out some sustainability-related projects, e.g., implementing a rain garden. Some additional training and supervision from industry professionals can help address this problem.
- *Participation from the community:* While it is challenging to motivate university students, engaging community residents for service learning could also be difficult. Closely working with community partners to recruit participants proved to be an effective solution. Sometimes, incentives have to be offered in the recruitment process, which needs additional financial support.

In terms of developing scholarship, it is generally difficult to set up a research plan for short-term (e.g., one semester long) service-learning projects. In cases where a project can run multiple semesters, the chance to collect valuable data and generate meaningful research findings increases, as seen in the study of Cho et al. (2015) that had similar service-learning projects repeated in two semesters with larger student populations (81 and 46 students, respectively). One good practice learned from case studies is the collaboration among faculty members from different disciplines. In the Linden Village service-learning project, the author collaborated with two junior faculty members from OSU's landscape architecture and urban planning programs. The multi-dimensional research problem put together by this interdisciplinary project team and the two-year project duration led to more significant research findings and high-quality publications (e.g., Chen et al., 2015).

### *Focus Group Study*

A series of challenges were identified by the focus group study participants. These challenges can be divided into three areas: 1) difficulties faced in organizing and performing service-learning projects, 2) challenges faced in developing and publishing the scholarship, and 3) difficulties in understanding the value of service learning. In the following, the identified challenges are discussed in detail.

The focus group study participants mentioned various difficulties they faced in organizing and supervising service-learning projects. First, they noted that not every institution can allocate necessary resources for instructors to develop interpersonal, managerial, and supervisory skills (commonly referred to as human capital) that are often required to organize, coordinate, and supervise service-learning projects. These resources include, but are not limited to, course development services (through grants, workshops, and one-on-one guidance and consultation), course resources (guide to service learning, best practices, sample syllabi and other course materials), and ongoing course support (e.g., the service-learning scholars roundtable, an online hub) as listed by OSU's Service Learning Initiative. Also, in some institutions, no proper mechanism is available to reward their employees for professional development and growth in service learning.

Participants also pointed out that some issues such as lack of motivation and lack of skill sets may arise from the student side. In general, students do not know what service learning means and the needs to fulfill their civic and social responsibility. They lack interests or motivation to perform service-learning activities or play a more active role in service learning. Especially on many occasions, the service has to be done outside of class time. There was also a consensus among the focus group study participants that students do not have required skill sets (e.g., hard skill, soft skill, ethically, or morally) to carry out many service-learning projects planned by their instructors. However, they agreed that the skill sets of students can be potentially improved by proper training and learning from experience.

Participants were concerned about how to find the sweet spot for multiple partners. It is common to perform service learning by working with a community partner to identify and address a need. In cases where multiple partners are involved, finding the sweet spot for all the partners to ensure smooth and efficient collaboration is not an easy task. Also, building a long-term relationship with community partners is imperative for a designated service-learning course. Otherwise, the instructor may be overburdened by striving to identify a proper service-learning project every

semester. It is also difficult for instructors to ensure that both the life-side service learning and academic affair-side service learning are adequately done. While students need to spend time in community service to fulfill their civic and social responsibilities, academic credit cannot be offered for simply doing community service. At the academic-affair side, service learning has to be a learning tool that helps students meet course learning objectives for the credit to be earned. In the process, academic learning has to occur and be adequately assessed through the evaluation of course learning outcomes, reflection, and reciprocity.

Developing high-quality scholarship out of service-learning projects turns out to be a difficult task. There are many constraints associated with the service-learning projects, the student/community population involved in the service learning, and the possible research design and outcomes. To make the efforts in organizing and leading service-learning projects more rewarding and beneficial to junior faculty at an early career, integrating research and scholarship into teaching/service learning is a piece of advice often given by their senior colleagues. Although this suggestion seems wonderful, it in turn presents an even greater challenge to the young faculty members who are often already overburdened by teaching, research, and services they take on. Developing high-quality scholarship out of teaching and service learning will need them to spend extra or even a very significant amount of time on pedagogy study, research design, controls of experimental variation, and data collection and analysis. Therefore, only a limited number of young faculty members can likely generate fruitful scholarship out of their service-learning projects.

Service-learning related research projects often aim to study the effectiveness of service learning on enhancing students' learning outcomes, learning experiences, and other intangible assets (e.g., teamwork, interpersonal skills, etc.). However, the sample size of such studies can be limited by the number of students enrolled in the course, e.g., eight university students enrolled in the service-learning course were surveyed in Clevenger and Ozbek (2013). These small sample sizes often render the statistical tests invalid and undermine the significance of research findings. The lack of generalization for a quantitative study is one of the most common criticisms raised by journal reviewers. This problem is hard to fix and often leads to a "reject" decision by journal editors. Also, many teaching, service-learning related research projects involve human subjects (e.g., surveying students and/or community participants). The research procedures and instruments may be subject to the Institutional Review Board (IRB) review and approval. Investigators and research assistants working on the research also need to go through IRB training. There is a considerably steep learning curve with IRB procedures, and the application and review process takes time. However, research may be exempt from review if very minimal or no risk is involved, which could simplify the case.

Where to publish is another puzzle investigators have to solve. Usually, the venues for publishing service-learning papers are not those where typical research articles are published. As a result, these venues are not widely known by professors who only occasionally write service-learning papers as well as administrators and colleagues who evaluate their work for promotion and tenure. The following is a list of service-learning related journals provided by OSU Office of Outreach and Engagement. Although this list is not all-inclusive, none of these venues represents a high impact journal, and none of them is included in the Clarivate Analytics (formerly Thomson Reuters) Journal Citation Reports. Publishing in such a journal may not be well received in the P&T process of major research universities.

- Community Work Journal
- Journal for Civic Commitment
- The Journal of Community Engagement and Scholarship
- The Journal of Community Engagement and Higher Education
- Journal of Higher Education Outreach and Engagement
- The International Journal of Research on Service-Learning and Community Engagement
- Journal of Public Scholarship in Higher Education
- Partnership: A Journal of Service-Learning and Civic Engagement

Instead of publishing in low-impact service-learning journals, publishing service-learning papers in education-oriented journals seems to be a practical solution. Such journals, such as *Teaching in Higher Education*, were included in the Journal Citation Reports. However, the challenge raised by the focus group study participants was how to infuse service learning into other research, so service-learning integrated research work can be published in

high-quality research journals. This may be dependent on the domain; some is more difficult than others, e.g., hard science vs. soft science.

The rest of discussions were centered on the value of leading service-learning projects by junior faculty members who are often struggling to balance their time commitment to research and teaching/service learning. The perceptions of focus group study participants were: How the individual faculty members' efforts and scholarship in service-learning contributes to the P&T process may be case-by-case. There will be many uncertainties when a P&T case is evaluated at the tenure initiating unit, the college level, and the university level. As pointed out by Hutchings et al. (2011), there are big variations among university administrators in their perception of the scholarship of teaching and learning as "research," which becomes a barrier to wider faculty engagement. A cultural change is much needed.

## Conclusion

A review of the literature disclosed that most of the papers studying service learning, especially those from the construction field, were focused on how the service-learning project was designed, the assessment of student learning outcomes and self-reflection, etc. This paper investigated the approach of service learning from a different angle by focusing on the problems and challenges faced in teaching service-learning courses and developing high-quality scholarship out of service learning through case studies and a focus group study. Problems related to student motivation and skill sets, the creation of a service-learning model, sustainability of university-community partnerships, scholarship and publication venues, etc. were identified. So far, service learning has only been attempted in construction education to a limited degree, i.e., by some faculty members and instructors in certain construction courses. Addressing the barriers identified in this study will help expand service learning into a wider range of construction courses or make it as a standard component in construction education (like the internship program).

This research intends to provide insights to young tenure-track faculty members who are spending extra time in such endeavors while striving for their tenure and promotion. It is also expected to help promote awareness, research interests, and cultural changes in the academic field. Future research will be focused on investigating some specific research questions that can help address some of the identified challenges. These include, but may not be limited to: (1) how the motivation theory can change student engagement and learning outcomes; (2) the relationship between the applied field experience of instructors and the challenges in teaching service learning; and (3) the effects of integrated service learning and project-based learning on student learning effectiveness and the improvement of career-specific competency.

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