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Place-Based Learning across the Disciplines: A Living Laboratory Approach to Pedagogy

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Faculty participants in a fellowship designed to engage students at an urban commuter college of technology in their general education curriculum evaluated and redesigned their courses to include place-based learning (PBL) using the Living Laboratory model of pedagogy. Focused on faculty perception of the relationship between PBL and its influence on general education, the study illustrates how faculty from across disciplines apply PBL techniques to revitalize general education learning outcomes. Findings include the influence of the fellowship on the design of PBL activities and perceived levels of student engagement, especially when compared to more traditional classroom instruction.

Through a reflective interview process and a survey, participants in a fellowship shared the results of their revitalized pedagogical practices designed to include place-based learning (PBL) as a means to engage students in the general education learning outcomes of their courses. The study draws attention to a new pedagogical model we call the Living Lab. In addition to PBL, the Living Lab employed other proven student engagement practices to encourage active learning among students and supported the inclusion of place throughout the college's curriculum. Wurdinger and Carlson emphasize the shift "from far to near" in PBL; we found that making use of local conditions yielded complex and engaging learning opportunities, deeper than we might expect at an urban commuter college (2009, p. 83). Gruenewald acknowledges the lack of a theoretical tradition of PBL springing from a single discipline (2003a) and embraces a multidisciplinary approach, asserting that "places teach us about how the world works and how our lives fit into the spaces we occupy" (2003b, p. 621). The fellowship allowed for many interpretations of PBL to meet the needs of instructors in technical and professional disciplines as well as those in arts and sciences. After involvement in the seminar, survey and interview participants reported that inclusion of PBL changed their teaching practices.

History and Background

The pedagogical model of the Living Lab was developed at an urban commuter college of technology in Brooklyn, NY, employing 404 full-time and over 1000 part-time faculty with an enrollment that exceeds 17,000 students. The college offers 51 associate and baccalaureate degrees preparing students to enter the workforce with career skills to apply to their chosen profession. The college's mission includes a commitment to provide "broad access to high quality technological and professional

education for a diverse urban population” (New York City College of Technology, 2017). The college sought grant funding to develop a conceptual framework for student engagement and was awarded a five-year, \$3.1 million grant from the U.S. Department of Education’s Developing Hispanic-Serving Institutions Program, Title V (2017), to fund the project. Titled “A Living Laboratory: Revitalizing General Education for a 21st Century College of Technology,” a faculty development seminar centered on the conceptual model of the Brooklyn waterfront as a living laboratory, engaged a multidisciplinary group of full and part-time faculty in an undertaking to implement general education learning outcomes across the curriculum. Between 2010 and 2015, participation in what became widely known around campus as the “Living Lab,” afforded 177 full- and part-time faculty to work together in a multidisciplinary manner to accomplish the goal of making general education evident in their teaching and learning practices. Throughout the life of the grant, faculty fellows participated in one of two seminars integrating (1) George Kuh’s *High-impact Educational Practices* (2008); (2) the college’s OpenLab, an open source platform for teaching and learning; (3) PBL activities through a partnership with the College’s newly-established Brooklyn Waterfront Research Center; and (4) culture of general education assessment. Faculty facilitators of the seminar insisted that fellows rigorously evaluate general education learning outcomes before selecting a high-impact educational practice (Kuh, 2008), developing open pedagogy and place-based activities, and assessment measures. Facilitating the seminar this way recognized the importance of the general education and discipline-specific learning outcomes of the course when designing the learning activities.

Fellows participated in one of two seminars; the full-time fellowship required a two-year commitment while an associate fellowship, open to both full and part-time faculty, lasted for one year. Through workshops, presentations, shared readings, and field visits, faculty learned about various forms of PBL and developed a contextual working definition. An ongoing partnership with the college’s Brooklyn Waterfront Research Center for waterfront-related programming afforded field learning opportunities that aligned with their discipline-specific and general education learning outcomes.

The Living Lab model provided a foundation upon which faculty designed innovative teaching and learning practices. With the interdependent nature of the Living Lab pedagogical model in mind, this study examines the model, specifically focusing on the development and implementation of PBL. In the first semester of the seminar, the work of the fellows was to take on the role of learner. Later, fellows demonstrated and implemented PBL activities. Generating or adopting one single definition of PBL, whether it is associated with experiential learning or community learning, was not a goal of the seminar; rather, a straightforward interpretation of the concept in practice opened the possibility of multiple examples. The questions that guided the investigation of the development and practice of PBL focused on the pedagogical use of the college’s immediate environment, specifically the historic and rapidly changing Brooklyn waterfront. Ever pragmatic, fellows designed PBL activities that capitalized on the assets of the dynamic neighborhoods surrounding the campus. At about the same time the grant-funded fellowship ended, the mission of the college changed to include “distinctive emphasis on applied skills and place-based

learning built upon a vibrant general education foundation.” The change in executing the mission is supported through institutional funding for the ideas and concepts developed through the grant, extending the reach and impact of the Living Lab model of pedagogy.

Literature Review

Educators at all levels have used PBL with the goal of deepening engagement (Smith 2002). While many early important writings identified the practice – engage students with out-of-classroom issues and problems, the means – immersive experience in remote backcountry or wilderness – is distant from cities, the “cultural realm,” and the complex problems such places invite students to reckon with (Gruenewald, 2003b). Yet at an urban commuter school, a common sense of place is often lacking or underdeveloped, especially at an institution that lacks physical resources such as a student union, campus grounds or other unprogrammed spaces that encourage spontaneous interactions. Without 24-hour campus life that exists at primarily residential institutions, students may not experience informal contact with peers or instructors as frequently or as intensely; commuter students may experience feelings of isolation that interfere with academic success (Clark, 2006, p. 4). Writing about campus as place in the *Chronicle of Higher Education*, Aoun (2011) emphasizes how sharing a place in common strengthens community engagement, exposure to diversity, research opportunities, and peer learning environments.

Dewey (1938) introduces the foundations of PBL in *Experience and Education*, emphasizing rich student experience in environments beyond the classroom. Newmann and Oliver propose an early definition of place-based education in their *Harvard Educational Review* article “Education and Community.” They find that formal schooling “destroy[s] . . . opportunities for random, exploratory work and play outside of a formal educational setting” (1967, p. 81), which emphasizes the valuable learning that arises from experiences beyond classroom walls and outside of formal settings. Newmann and Oliver assert that the traditional, classroom-centric educational system

Learning is conceptualized as a spiral, rather than a cycle, as the learner’s development deepens with each successive experience and resulting reflection, thought, and action.

has failed to nourish a plurality of programs or options for learners by narrowly defining education as “formal instruction” (p. 100). Among the solutions they offer is a “proposal for education in community” (p. 93), in which “laboratory-studio-work” and community contexts are on equal footing with a formal

educational setting. Faculty in a professional and technical academic environment are particularly receptive to an approach that integrates a laboratory, studio, or hands-on approach with a more traditional classroom setting. The four components of Kolb and Kolb’s (2012) experiential learning spiral – experiencing, reflecting, thinking, and acting – describe the structures of learning experiences that fellows learned to design. Learning is conceptualized as a spiral, rather than a cycle, as the learner’s development deepens with each successive experience and resulting reflection, thought, and action.

By the 2000s a documented theory and practice of education grounded in the understanding of place appears in both K-12 and postsecondary literature in education.

Knapp (2014) relies upon Sobel's 2004 definition of PBL, which speaks to all departments, subjects, and areas of the curriculum. It emphasizes hands-on learning experiences, increased (measurable) academic achievement, and strengthening ties between communities and institutions as students' commitment to the community is increased through active engagement. Knapp finds that a place-based pedagogy, in which students inventory community resources through fieldwork and interviews, effectively accomplishes the course goals while encouraging students' investment in and ownership of community issues. While many approaches to PBL explore an issue or problem inherent in wilderness or an unfamiliar, remote, wild place, Sarkar and Frazier (2008) recognize the value in urban, interstitial, and overlooked places. Their place-based science inquiries exploit local conditions, even those as mundane as a persistent sidewalk puddle. Ambrose et al. (2010) offer principles about learning, including reflection, assessment of prior knowledge, and application of knowledge and skills. Wurdinger and Carlson offer PBL as one of "five approaches [to experiential learning] that work" (2009, pp. 84-85) and list tenets of place-based education that emphasize the local and function as a working definition of the concept and practice. Interestingly, Wurdinger and Carlson detect a shift in place-based education towards the local and away from distant, wilderness, remote places, and recognize the importance of a local place for the learner. Henthorn (2014) complicates and expands the definition of PBL in a way that is relevant to teaching across disciplines, not just humanities or social sciences. The study of place in the discipline of urban history is foundational; adding an experiential element to course content gives students the opportunity to learn by engaging in community service, thus learning what it is to be an active participant in a community. Ball and Lai's (2006) review article also takes an approach informed by specific disciplines, in this case, literature and art. They locate the intersection of critical pedagogy and place-driven pedagogy, offering that the teaching of local cultural production circumvents the larger processes through which certain creative output is privileged with an "art" or "literature" label and is therefore appropriate course material. While Jensen (2015) emphasizes the positive outcomes on student engagement in a religious studies course grounded in place-based assignments, she notes that teaching practices benefit also: "students and teachers alike...develop an attachment to place" (2015, p. 17) that lasts beyond academic milestones such as tenure or graduation. Developing that attachment suggests that place-based teaching and learning is a regenerative approach with the potential to sustain a passion for teaching as well as a deep interest in and commitment to a place.

More useful strategies to implement PBL appear in Smith (2002), where he invokes Dewey's ideas about the disconnection between the mediated environment of school and students' direct experience of the world. Pointing out how PBL acknowledges the lived experiences of students in ways that classroom learning does not, he invites educators to address this discrepancy through rich and appealing examples of successful place-focused educational experiences. Approaching PBL tactically and applying it incrementally, rather than via drastic curricular change, is a useful strategy that permits instructors and administrators to learn along with their students.

Methodology

The participants in this study, both for the survey and the interviews, were all fellows in the grant-funded fellowship and represent over thirty academic departments. We designed the survey and interview questions to investigate how participation in the Living Lab General Education Seminar influenced the use of PBL to meet general education learning outcomes.

Survey Methodology

During the spring and summer of 2015, we distributed an electronic survey by email to 172 participants in the Living Lab seminar. A total of 27 fellows participated in the survey; four incomplete responses were discarded. Their responses were voluntary and de-identified, and the college's office of Assessment and Institutional Research ensured that faculty members were able to complete the survey only once. The survey consisted of multiple choice questions with the option to comment on their responses. The survey asked faculty if they utilized PBL on the Brooklyn waterfront prior to, during, and after their participation in the seminar, and why they did or did not use this teaching practice with their students.

Interview Methodology

The information gathered through interviews was then aggregated into four areas of influence and focused on the use of PBL activities to achieve a range of outcomes. We conducted interviews during the summer and fall of 2015. All interviews took place on campus. We contacted fellows by email to request participation and scheduled one on one interviews. The interviews were voluntary, performed in a private location, auto-recorded and de-identified. The names of interview participants were withheld by mutual agreement. Eleven fellows participated in interviews; each interview participant was identified with an alphanumeric code of P1 through P11. We used an open-ended, semi-structured interview model based on seven questions relating to PBL and experience participating in the seminar. Each interview lasted between 20 and 40 minutes. We transcribed all interviews verbatim, omitting non-essential words and non-word vocalizations. We then read and reviewed the interview transcripts, drawing from the interview questions to identify possible themes. We then searched the transcripts for prominent themes and patterns in the interview responses and analyzed the responses using thematic analysis. We searched interview transcripts for particular words, word variations, and phrases, including "influence," "surprise," "challenge," "reflection," "community," "community partner," "impact," "learning," "learning outcomes," "general education," and "engagement" to study how interview participants spoke to these themes. Common themes that emerged from several interview texts include a faculty perception of the relationship between PBL and general education learning outcomes, influence of seminar participation on applying PBL techniques in teaching, challenges and surprises encountered when implementing PBL assignments and

activities, and the perceived effect of PBL on student engagement, especially compared to traditional, classroom-bound learning modes.

Survey Analysis

The seminar clearly influenced the use of PBL in the respondents' teaching practices. Before participation in the Living Lab general education seminar, only 30% of the respondents included PBL in their assignments. Upon completion of the seminar, 70% of respondents reported that they continue to include PBL as part of their teaching practice (see Table 1 and Table 2). Survey respondents stated their use of PBL has been directly influenced by participation in the seminar: "after the seminar I expanded by far the place-based educational modules in my syllabi" and "The experience taught me a tremendous amount about the power & potential benefits of place-based learning." Other faculty participants referred specifically to the benefit students received, making the effort worthwhile: "It also highlighted the need for careful (and extensive) preparation."

Table 1
Respondents' Use of PBL Before, During, and After Participation in the Living Lab General Education Seminar

Questions	Response			
	Yes		No	
Q1: Did you incorporate place-based learning on the Brooklyn Waterfront in your course prior to being a Living Lab Fellow?	7	30%	16	70%
Q2: Did you incorporate place-based learning on the Brooklyn Waterfront in your course during your time as a Living Lab General Education Fellowship?	16	70%	7	30%
Q3: Did you incorporate place-based learning on the Brooklyn Waterfront in your course since the Living Lab General Education Fellowship?	16	70%	7	30%

N=23

Table 2
Comparison of Responses to Question One and Question Two

Response to question 1 and 3	Number of Responses	Percentage of Responses	Impact of Fellowship
"No" to Q1, "Yes" to Q3	9	40%	Positive impact of Fellowship
"Yes" to Q1 and Q3	7	30%	Positive impact of Fellowship
"No" to Q1 and Q3	7	30%	No impact of Fellowship

N=23

Of the 23 survey respondents who answered question four, 16 answered in the affirmative, stating they did continue PBL after the seminar was complete. The two

most prevalent reasons for including PBL were 4a: “The assignment accomplishes the intended student learning outcomes” and 4b: “The course content easily allows for PBL assignments” (see Table 3). Notably, survey respondents who conducted PBL activities in their classroom did so citing multiple reasons for including the activity (see Table 4). Ten of the 11 respondents who gave three or four reasons to include PBL cited 4b and 4e: “My department supported my efforts;” six of the 11 included both reasons. Six of the 11 respondents who gave three or four reasons selected both 4a and 4b.

Table 3
Number of “Yes” Responses to Each Question about Inclusion of PBL on the Brooklyn Waterfront as a Teaching Practice

Question	Number of “Yes” Responses
Q4a. The assignment accomplishes the intended student learning outcomes.	12
Q4b. The course content easily allows for place-based learning assignments.	12
Q4c. The effort required was in line with usual class preparation.	7
Q4d. The college supported my efforts.	6
Q4e. My department supported my efforts.	10
Q4f. There was adequate financial support	--
Q4g. Other	1

N=23

Table 4
Respondents’ Choice for Inclusion of PBL on the Brooklyn Waterfront as a Teaching Practice

Number of Choices	Number of respondents	Q4a.	Q4b.	Q4c.	Q4d.	Q4e.	Q4f.	Q4g.
3 reasons	7	X		X		X		
		X	X	X				
		X	X	X				
		X	X			X		
		X			X	X		
			X	X	X		X	
4 reasons	4	X	X		X	X		
		X	X		X	X		
		X	X		X	X		
6 reasons	1		X	X	X	X		X
		X	X	X	X	X		
		X	X	X	X	X		
<i>Total</i>	12	9	10	7	6	10	--	1

N=23

Participant responses were equally distributed among all reasons for not including PBL in their teaching practices (see Table 5). Participants who did not include PBL activities made the decision based on only one or two factors, most often answering 5a: “The assignment did not accomplish the intended student learning outcomes” and stating that PBL did not support the content of the course (see Table 6). This implies that participants did not require multiple reasons not to engage in PBL, as was seen in choosing to participate in a PBL activity. One survey respondent mentioned, “It was just not necessary nor helpful.” As might be expected at an institution focused on career and professional education, two of the survey participants responded that one (or more) of the reasons they did not use PBL was that the “course content was too restrictive,” question 5b. No participant chose 5d: “The college did not support my efforts” or referred to the availability or lack of financial support, questions 4f and 5f, as a reason to include or to not include PBL in their teaching practices.

Table 5
Number of “No” Responses to Each Question about Inclusion of PBL on the Brooklyn Waterfront as a Teaching Practice

Question	Number of “No” Responses
Q5a. The assignment did not accomplish the intended student learning outcomes.	2
Q5b. The course content is too restrictive.	2
Q5c. The effort required too much additional preparation compared to usual class preparation.	1
Q5d. The college did not support my efforts.	--
Q5e. My department did not support my efforts.	1
Q5f. There was inadequate financial support	--
Q5g. Other	2

N=23

Table 6
Respondents’ Choice for Not Including PBL on the Brooklyn Waterfront as a Teaching Practice

Number of Choices	Number of Respondents	Q5a.	Q5b.	Q5c.	Q5d.	Q5e.	Q5f.	Q5g.
1 reason	6	X	X X	X				X X
2 reasons	1	X				X		
<i>Total</i>	7	2	2	1	--	1	--	2

N=23

Interview Analysis

Four broad themes emerged from the interviews: perception of the relationship between PBL and general education learning outcomes, influence of seminar participation on applying PBL techniques in the classroom, challenges and surprises encountered when implementing PBL assignments and activities, and the perceived effect of PBL on student engagement, especially compared to traditional, classroom-bound learning modes.

Relationship between PBL and General Education Learning Outcomes

The faculty participants revealed in interviews that their use of PBL was enhanced because the assignments were designed with general education outcomes in mind. Through the Living Lab General Education seminar, faculty were encouraged to develop assignments in a way that would maintain the discipline-specific content they need to convey and assess but also meet the college's general education learning outcomes.

Interviewees identified teamwork as a general education learning outcome that was enhanced by PBL activities and assignments. Interviewee P7 commented that teamwork was made visible in an architecture course through PBL, and this visibility allowed for the ability to "evaluate them in the context of their interactive working ability, how did they work in groups, what did they deliver?" While, for a survey course in art history, interviewee P4 commented that PBL

helps enforce the practical part of it—they [students] can learn how to be communicators, be listeners, learn how to work in a group and go back and forth and share. I felt like that dynamic of group work is a major gen ed outcome—to work in groups and put into practice what they learned.

Students worked to achieve the college's general education learning outcome of inquiry and analysis as they sought to derive meaning from experience and gather information from observation. PBL was not obvious for a discipline where most teaching is "lectures in a darkened room." A low-stakes place-based activity to study 19th century Greek Revival buildings adjacent to the campus resulted in an informal writing assignment. Students observed buildings to reinforce a classroom lesson about classical orders, a critical concept in the history of art and architecture. The group of students caught the attention of a passer-by, who noticed the class studying the columns of public buildings and exclaimed, "you're looking at [classical] orders, aren't you?" (P4). The validation of this experience would not have happened in the isolation of a traditional classroom setting. The shared knowledge of the students and the passerby helped students derive meaning from the PBL activity. Another participant described how PBL reinforced inquiry and analysis learning outcomes of a writing course that were difficult to approach in a traditional classroom, describing PBL as

intended to bring students out of the classroom and to experience the complexity, and variability, and color of an educational experience that cannot be had whenever we are sitting in this

uncomfortable little chair facing a blackboard...[students] immediately have an answer, [they] have done important work with people that doing important things, and have ... begun to create a narrative around your education and your role in it. (P1)

Interviewee P7 commented on PBL's impact on the general education learning outcome of civic engagement: "[PBL] makes them aware of their own neighborhood. The students enjoy learning how everyone has such a different perspective of their environment." Fellows who participated in the study reported that a place-based approach to designing assignments and activities that addressed the college's general education learning outcomes had a profound impact on their pedagogy.

Influence of Seminar Participation on Applying Place-based Learning

For most of the seminar, PBL practices were largely informed by the design of seminar activities. The incorporation of Kuh's (2008) *High Impact Educational Practices* of service learning and community-based learning became a focus of many activities. Faculty participants leveraged the lessons from the Living Lab General Education Seminars to break free from the constraints of the limited opportunities of our urban campus and designed PBL activities.

Interviewee P3 indicated that the Living Lab General Education Seminar was a great influence on implementation of PBL in a social science course, stating, "I am sure I would not have done [PBL] without that Living Lab experience. It is not something I ever really thought about." Another interview participant, P11, commented on how seminar participation influenced new practices in teaching architecture, saying, "discussions we had during [the] seminar made it utterly clear how important reflection was...made it clear how you can integrate these practices that are shown to be effective."

The multidisciplinary structure of the seminar made a critical impact. Interview participant P1 commented on the interaction with other faculty from across disciplines as a means to explore PBL. The experience helped model and design off-campus learning activities due to this interaction. The seminar

put me in contact with colleagues, across a range of disciplines that I would never thought I would be interacting with as an educator...really brilliant, dedicated people that are able to change my thinking...and had put me in a very intense dialogue and collaboration, so it has given me a much broader perspective on the value of this work.

Interview participant P5 underscored the value of collaborating with other Living Lab participants in designing PBL activities in a humanities course:

the most valuable part of the Living Lab fellowship for me was working with colleagues. I learned so much...the idea of incorporating [place-based activities] more rigorously with my curriculum came from a colleague's idea; to talk and sit down with

others and hear what they are doing in their classrooms, and then trying them and sharing.

Challenges and Surprises Encountered when implementing PBL Assignments and Activities

Seminar participants found that significantly changing teaching, assignment design, and assessment mechanisms was challenging and time-intensive, yet worth the effort. The Living Lab faculty seminars emphasized thorough preparation for PBL activities, yet some assignments that engage “real world” factors can be out of the faculty member’s control. PBL can become, as one interview participant P10 stated, “messy.” When explaining PBL in a design course, the interviewee went on to say, “the challenge of PBL is that you cannot control the environment well...but ultimately that messiness makes the experience rich, more unpredictable and made the students more on their toes. This was helpful.”

Due to the highly technical nature of many departments and areas of study throughout the college, faculty drew attention to their lack of freedom to conduct PBL activities. Interview participant P9 commented, “we have extremely detailed course syllabi, day to day plans that lay out the pages in the book and examples for each day of the class.” Furthermore, students “have uniform finals written by the department so you have to cover the material that is going to be on the exam.” With this challenge in mind, this interview participant went on to say a “place based learning activity is a great way to go deeply into a small bit of math which is so important.”

Interview participant P4 responded, “what surprised me...was how nervous our students were to go beyond the college campus.” This interview participant thought of her students as “streetwise,” yet “sheltered in how they approached and negotiated the city.” Though students travel via subway and bus to campus daily, the neighborhoods and streets adjacent to the campus were unfamiliar to many, and a few students looked to the instructor for help reaching familiar territory adjacent to campus once the class had concluded.

The burden of administrative requirements to bring students off campus was also noted by interview participant P4 who stated “I was surprised by the number of signatures I needed to leave the building. I was surprised I had to check if any of my students were under 18 to get parental consent.” Another interview participant, P2, was surprised to learn that the place-based assignment was among the students’ favorite of all assignments in an allied health course:

I know how much they love it because in one of the bonus questions on my final exam, I asked them to describe their favorite assignments of the four . . . [the] majority of them chose this...I was surprised, I didn't expect that they would like [the place-based assignment] so much.

Student Engagement

Interview participants indicated the place-based activity or assignment served as a means to understand students’ lived experiences beyond the classroom and

often added a social dimension, fostering deeper interactions among students, thus building engagement. Interview participant P9 expected that the PBL activity would build community, but

was really gratified and a little surprised to see the extent that was true. It was really nice to come to class. The next day I felt a different environment; they were in groups and chatting like that have not done before. You can feel a difference in the room.

An interview participant in the field of business, P6, noticed that while the place-based assignment was intended to be completed individually, through the assigned photo documentation she learned that students accompanied one another on the off-campus trips. The faculty member found that students who chose to work in groups (not an assignment requirement) proved to be more engaged: "I noticed that the students who [accompanied one another], they went really far with the assignment...they went further with it because they had their buddies with them, and I thought that was great."

Students' eagerness to discuss and analyze an assigned text after a place-based activity was a pleasant surprise for interview participant P5: "the main [surprise] was how excited they [the students] were. They didn't want to stop talking about the connections they made [about the text]. They made many that I didn't catch myself and I read the [text] more times."

Interview participant P4 compared student engagement in traditional classroom approaches to place-based approaches "...just a standard lecture or even a YouTube video is not enough—just too passive and I feel like with PBL, it forces students to be much less passive, be much more active and engaged in their learning." This participant went on to reflect on the pedagogical benefits yielded by introducing PBL:

Students are more engaged ever since I started changing and applying all these exercises and activities I developed as a Living Lab fellow. It's more dynamic for them but also for me. It's encouraging for me to see that students are active.

Upon assigning students to create a project for a client, interview participant P10 commented that the "students were far more engaged, they were more nervous, more attentive" working on a project for an off-campus client than they typically were for assignments that did not go beyond the classroom.

An off-campus experience that included reflection led to great student engagement. The interview participant noticed "before when I had them doing a journal it was very general." A shift in engagement due to the student contributing to the content of the lecture occurred:

they already spent a lot of energy, not just one week but weeks prior to that preparing...they call it 'my week' and prior to that it was just this general thing. So yeah, I think it did add some ownership. (P6)

Several faculty reported PBL deepened students' engagement with the course material, in both high-stakes and low-stakes assignments. Specifically mentioned by interview participant P11,

The biggest surprise is when I'm really excited about something and think it's spectacular and students are yawning, on their phone, or chitchatting. Some things are definitely more special. I never saw a student yawn when we're at the Brooklyn Historical Society library.

When working with a community partner the engagement level of students increased. “[The client] would have serious questions about what they would see and the students need to be more serious.” The fact that student work was being used for real-world application helped them understand that “they were responsible for their answers...I was impressed with their ability to stand up in front of the clients.” (P10)

Discussion

Limitations

Participants in this study enrolled in the Living Lab seminar with the intent to change their pedagogical practices and, therefore, may have been predisposed toward incorporating new pedagogies such as PBL into their teaching. The results of the study are encouraging to those faculty seeking to revitalize their teaching practices by including PBL. Though the survey and interviews drew from a small sample size, participants in the study attended the seminar at different times over a five-year period, resulting in a long period of time between participation in the seminar and the completion of the survey and/or interview. If a larger proportion had responded to the survey and/or participated in the interviews, a larger study might yield results that portray a richer diversity of experiences implementing PBL.

Future Research

This study raised questions, not only about faculty implementation and perception of PBL but also about the students' attitudes about and experiences with PBL. Research on the student experience of PBL would shed light on students' perceptions of the impact of PBL on their developing knowledge of course content, proficiency meeting general education learning outcomes, and engagement with the college experience. Future research could also expand the study to a larger group of faculty participants and measure how participants shared their practices with colleagues over a longer period.

Conclusion

The Living Lab is a new pedagogical model that incorporates PBL assignments and activities designed to meet a range of general education learning outcomes. Our findings demonstrate that after participation in the Living Lab fellowship, participants perceive that PBL effectively meets general education learning outcomes, resulting in deeper engagement with the course material than through more traditional classroom approaches. Through this study we identified that as a result of the Living Lab general education seminar, participating faculty engage with the neighborhood beyond the classroom as a means to more deeply involve students in the general education learning outcomes of their courses. Institutionalization of these

teaching practices and creation of a meaningful, sustainable PBL program requires support from both administration and dedicated faculty leaders seeking to change their own teaching practices and, through example, those of their colleagues. Undergraduate institutions that rely on traditional, classroom-bound pedagogical practices should implement similar PBL practices for faculty development to better meet general education learning outcomes and engage students more deeply.

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