

**“The Trees Need Water” and the Students Need Authentic
Responsibility:**

Learning Almost-in-the-Wild in a Community-Based Internship

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Abstract *Experiential learning in internships, a High-Impact Practice promoted in U.S. higher education, resembles “learning in the wild.” This mixed-method study, conducted by a faculty-student ethnographic team, presents the qualities of the experience, in Dewey’s terms, of a highly regarded community-based summer internship, with problem-led flexibility; bodily involvement and multimodality; respect for learners’ capacities; mentors rather than teachers; multiple forms of diversity in a community of practice; cooperative social relations; genuine responsibility; security of basic needs; connection to community and place; ample but authentic time constraints.*

Keywords Higher education, anthropology of learning, internships, High-Impact Practices, experience

“This internship has been perhaps the greatest experience of my life.”

Bowman Creek Educational Intern 2017

Introduction

This is the story of tiny trees, of student interns, of learning, and of a certain kind of internship experience—one that produced effective, enjoyable, and enduring learning emergent through constantly evolving expectations. We report here on one summer of an ongoing paid community-based internship, almost a job, almost an apprenticeship, a project built on an engineering foundation but which had early

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spilled into adjacent fields, and which a team of faculty and undergraduates studied ethnographically. Our point is to demonstrate the effectiveness of a complex embodied cooperative social experience with authentic responsibility, which contrasts in important ways with conventional education. We elaborate in some detail on the qualities of these educational experiences, beginning with an ethnographic moment—a weekly report from the team responsible for a tree nursery on a vacant lot:

The student intern who chose as his pseudonym “Mufasa” (all names are pseudonyms chosen by the participants themselves) ended his weekly update with a heartfelt comment about the urgency of his team’s task: “We need to do this really fast ‘cuz the trees need water!” There was no room for excuses. The team had to figure out how to water the small trees in the tree nursery on the neighborhood vacant lots—or the trees would die. Mufasa’s team of three had schematic drawings, which were sometimes wrong. They had plans to route drip-hoses from neighbors’ spouts, but some spouts didn’t work and others were in the wrong places. Plans changed and time passed as it took days to schedule meetings with adjacent neighbors. They persisted. They enlisted the help of plumbers who provided estimates and suggested locations for underground pipes. They met with city planners and had long conversations with the neighbors. They learned, within a week or so, that their plans required frequent revisions, and that they, as student interns with plans, had no particular power. Yet by summer’s end, the trees got their water. How this happened is not obvious. It was not efficient; there were false starts and frustrations. But it was effective in many ways. Both learning and doing happened. The experience was emotional, sometimes scary, and ultimately felt triumphant.

Studying Internships

Internships have been identified as one type of High-Impact Practice (HIP) that may lead to more robust engagement with learning, greater likelihood of completing a degree, and reduction in inequities than business-as-usual education.

The influential National Study of Student Engagement (NSSE) has since 1999 aimed to gauge students’ “engagement” in higher education, in order to understand what practices lead to desirable outcomes, including persistence in college. This in turn has resulted in the identification of eleven types of experiences, under the title of “high-impact practices” (HIPs), some in and others outside classrooms (Kuh 2008a; Kuh, 2008b; Kuh & Kinzie, 2018; Kuh & O’Donnell, 2013; Kuh, O’Donnell & Schneider, 2017). These High-Impact Practices include: (1) First-year seminars and experiences; (2) Common intellectual experiences; (3) Learning communities;

(4) Writing-intensive courses; (5) Collaborative assignments and projects; (6) Undergraduate research; (7) Diversity/global learning; (8) e-Portfolios; (9) Service learning, community-based learning; (10) Internships; and (11) Capstone courses and projects. Afterward, researchers sought explanations for *why* these particular practices led to greater engagement and learning, in contrast with what many perceive as disappointing, alienating, or unsuccessful practices of everyday US higher education (<https://nsse.indiana.edu/>). Much has been written about other related types of learning, including project-based, problem-based, and place-based approaches (Lombardi, 2007, <http://www.bie.org/>; Blumenfeld et al., 1991; Gruenewald & Smith, 2008; Jeon, Jarrett, & Ghim, 2013; Wood, 2003); embodied learning and extended cognition or mind (Clark, 2008; Hrach, 2021; Hutchins, 1995; Paul, 2021); and informal and nonformal learning (Bekerman, Burbules, & Silberman-Keller, 2006; Greenfield & Lave, 1982; Heath, 2012a, 2012b; Heath & Langman, 1994). NSSE researchers have identified nine measures of “quality,” unevenly distributed among the types of HIPs, that explain their efficacy: (1) High Expectations for Performance; (2) Demand Time and Effort; (3) Substantive Interaction with Faculty & Peers; (4) Engaging Across Difference; (5) Provide Rich Feedback; (6) Structured Opportunities to Reflect; (7) Structured Opportunities to Integrate; (8) Applied, Real World Experiences; (9) Public Demonstration of Competence (NSSE, 2020, p.15).

In our study, the emergent effective elements are *problem-led flexibility; bodily involvement and multimodality; respect for learners’ capacities; mentors, versus teachers; multiple forms of diversity in a community of practice; cooperative social relations; genuine responsibility; security of basic needs; connection to community and place; ample but authentic time constraints*. Some research about why internships promote learning and engagement builds on the work of Kolb on *experiential learning*, which he argued has four dimensions that build in a stage-like fashion: active experimentation, concrete experience, reflective observation, and abstract conceptualization (Kolb, 1984). Stirling et al. (2017) question the need for a progression. Explanations of the benefits of High Impact Practices (Kuh, 2008; Kuh & O’Donnell, 2013) sometimes derive explicitly from experiential learning such as that proposed over a century ago by John Dewey (Crawford, 2009; Dewey, 1938; Eylar, 2009; Lombardi, 2007; Rose, 2004; Vernon, 2016). Less often do they draw on insights from neuroscientists and psychologists about the importance of Social and Emotional Learning (Cavanagh, 2016; Damasio, 1999; Hoadley, 2010; Immordino-Yang & Damasio, 2007; Lave & Wenger, 1991; Little & Ellison, 2015; Zins, Weissberg, Wang & Walberg, 2004; Zull, 2002). Lave writes about the importance of “direct experience” as “the more basic condition of learning” (Lave, 1988, p. 183), with “action” not “goal oriented” but rather guided by “expectations,” which “enable activity while they change in the course of activity”

(Lave, 1988, p. 185). In this sense the expectations are emergent from the combination of problem solving and activity. We show how this works here.

The literature promoting HIPs has influenced many administrators, some of whom are not only institutionalizing one or another version of them (internships, study abroad, senior theses) but making them required. This in turn has led to concern about the ongoing problem of uneven quality (O’Neill, 2010); and then a re-defense explaining why the criticism is misplaced (Kuh & Kinzie, 2018) but also a backlash against requiring them (Hora, 2019). O’Neill (2010) built on Kuh’s work to point out six dimensions of HIPs that—*“when employed”*—make the practices “high impact,” or high “quality”: (1) They are effortful. (2) They help students build substantive relationships. (3) They help students engage across differences. (4) They provide students with rich feedback. (5) They help students apply and test what they are learning in new situations. (6) They provide opportunities for students to reflect on the people they are becoming.

The common term, “internship,” we use, may encompass many different forms (Elon, 2021). These might be kindred to problem-based learning, to place-based learning, and to service learning. Some are built around courses; some are located within companies; some are less structured. Some internships, like this one, are essentially paid full-time jobs, with two differences: the participants are formally students and there are supervisors attempting to shepherd them through to a desired outcome, often far less constrained than classroom “learning outcomes.” Some are simply “résumé building”; some are paid and others unpaid; some even require students to pay, exacerbating inequities regarding who is able to work without pay for an entire summer. Some internships are frustrating and others life-changing. Some recruit the “learning in the wild” experiences that anthropologists have demonstrated so richly (Gaskins & Paradise, 2010; Greenfield & Lave, 1982; Hutchins, 1995; Lave & Wenger, 1991; Rogoff, 1990; Rogoff, Callanan, Gutiérrez & Erickson, 2016) and others are much more controlled. They have been studied, but rarely ethnographically, with the exception of anthropologist Moore (1983, 1986; see also Coy, 1989), who pointed out that it’s very difficult to speak about the learning in internships: “Talking about learning in internships is harder than many people think.” (Moore, 1983, p.40). (In general, it’s hard to measure learning.)

In his anthropological study of internships, Moore noted a general continuum, rather than a dichotomy, between school, or “classroom,” and not-school, “The Real World,” or “field learning”: he looked at two dimensions where classroom and field learning might be fruitfully contrasted: the dimensions of “Mental Work” (known-in-advance or not; fixed and eternal or not; abstract, generalized implications; feedback; and reflection) and what he blandly termed “Social Relations” where power and agency are located (responsibility; decisions and control; whether the activities were rote/algorithmic or creative/transformative; whether relations were hierarchical/controlled or collegial/participatory; who had how much responsibility

or lack of responsibility; whether the work was open or closed). The internship described below falls much closer to the not-school, “Real World” side of this continuum in both the Mental Work and Social Relations dimensions (See Fig 1): The work was not known in advance; it emerged during the course of the summer; it had specificity; feedback and reflection were constant; students had substantial responsibility; the activities were creative and transformative; relations were participatory and collegial; and the work was open-ended.

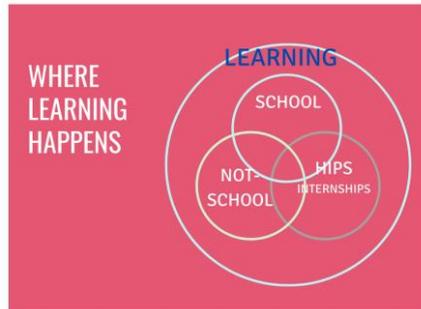


Figure 1 Where Learning Happens

The Qualities of the Experiences

It is clear that this specific, successful internship had many rich dimensions, whether in terms of skills and technical knowledge, worldly growth, personal enrichment, or social engagement (as individuals and within a pre-existing community). Rather than isolating a single factor, it is, we argue, the intertwined nature of the practices—like most authentic learning experiences—that especially contributed to its success. The crucial question is to ask what ingredients contributed to this, to inquire about what Dewey specified when he said: “It is not enough to insist upon the necessity of experience, nor even of activity in experience. Everything depends upon the *quality* of the experience” (Dewey, 1938, p.27, italics in the original).

We will note some of the qualities that account for the positive outcomes, and will contrast them with generic learning in classrooms.

The English word *quality* has at least two meanings: one is evaluative (“high quality,” “low quality,” according to measures) and the other is simply descriptive of the nature of the thing itself, its characteristics. John Dewey’s statement that “everything depends on the quality of the experience” (Dewey, 1938) is a reminder that the specific phenomenological nature of what participants are doing is consequential (Jackson 2012). As Dewey noted in his book *Experience and Education*, all students engage in experiences, though some are more genuinely educative than others. Following Moore’s careful example, we describe here the

activities over time, discussing both the overt goals and other outcomes. This is where ethnographic methods are useful—where the outcomes are not precisely specified, where the structures vary daily, and where the boundaries are porous.

Methods

Internships have been widely studied, usually through surveys and questionnaires, but rarely ethnographically. We are inspired by Wolcott’s and Erickson’s (1982) suggestion that anthropologists create “learning narratives” and by Moore’s (1986) study of interns learning at work, which followed his (1983) study of “learning in internships.”

Anthropologists and ethnographers of learning/education conduct research in real-world settings, not necessarily experiments designed for our benefit. Several prominent anthropologists have recently, explicitly, contrasted the “anthropology of education,” which occurs primarily in classrooms, with the “anthropology of learning” (Eisenhart 2021; Erickson and Espinoza 2021; Heath 2021, 222), which occurs everywhere. Abundant anthropological work (such as by Greenfield 2004; Hutchins 1995; Lancy 2010; Lave 1988) shows how learning works “in the wild,” entirely without school. Some study non-classroom (“not-school”) learning (Heath 2012a, 2012b; Sefton-Green 2013), whether analyzing after-school programs (Vossoughi, Escudé, Kitundu & Espinoza, 2021), museum learning (Duensing 2007), or the learning of crafts, arts, or sports (Heath and Langman 1994; Heath and Roach 1999; Sefton-Green 2013). In addition to these not-school learning experiences, intermediate between classroom and “in the wild” learning, are apprenticeships (Coy 1989; Herzog 2001) and also internships, the focus of this article. Like much of the other anthropology of education, many robust insights about internships were published in the 1980s, without follow-up. When Moore, who studied both work and internships, noted that “talking about learning in internships is harder than many people think” (1983, p. 40)—it may have been because it has so many dimensions. We aim to remedy this—but it is indeed complex and messy.

To understand the learning here, we took a mixed-method approach, to attempt to capture some of the complexity and exuberance, the abundance of the experience. It was a kind of collective phenomenology. We incorporated both fully unstructured, direct observation in the course of everyday activity (Hammersley, 2018) and structured data sources.

Methods in Detail

(1) Self-Reflections: Interns wrote pre-, mid-, and post-project reflections; we quote them anonymously and without specifying the demographic details, because re-identifying them would otherwise be too easy. (2) Interviews: The faculty researchers and our student researchers conducted semi-structured interviews. (3)

Fieldnotes about meetings and conversations about the project. (4) Recordings (video and audio) of each group's weekly project status updates. (5) Formal pre- and post-surveys administered on Qualtrics during the first and last weeks of the internship. Others have done more formal analysis of the quantitative dimensions of this material. Here we note qualitative, and a few quantitative, dimensions that were especially salient.

The Research Team

Our research team, like the project team we studied, had members with diverse expertise. Blum, an anthropologist of education, was brought on in Fall 2015, soon after the first summer, and participated in weekly and sometimes daily activities in 2016 and 2017; she directed the ethnographic team, with another colleague. Hebert, a professor of education at a different institution, was not fully involved until IRB permission was finally conferred in 2017, when she served as a mentor to one of the teams. Brockman, AKA "Squirrel," generated the original idea, secured the funding, and oversaw the development of the entire project. Our study of the 2017 season, funded with a small grant, was informed by observations of the 2016 season.

A team of five "embedded ethnographic interns," social science students (Robinson, Gillespie, Mallozzi-Kelly, Norberg, Webb) either still in college or recently graduated, spent the entire summer studying the project—40 hours a week for 10 weeks—as paid members of the project. Their data includes hundreds of pages of field notes, interview transcripts, and reflections, shared on Google Drive and providing much of the core evidence for our claims. Blum also has a notebook full of field notes. We had an IRB and secured signed informed consent from all but one intern, who was omitted from the study, and, for the non-adult members, both their signed assent and their guardians' signed consent. Many interns were initially quite wary of the five social scientists ("Are you spies?") but became comfortable with them over the course of the summer and even on occasion requested their assistance as relatively neutral observers. After we introduce here the project as a whole, we synthesize several of the major themes that emerged as prominent, though we do not analyze all the abundant data (See Coward, 2020; Haanstad, Robinson, and Webb, 2020; Huggins, Barnes, Blum, Brockman, & Gilot, 2017).

The Bowman Creek Educational Ecosystem

The Bowman Creek Educational Ecosystem project, BCe2, is a partnership with two universities, a community college, a high school, the city, a neighborhood association, and several other entities. It began in 2015 when two engineers, "Squirrel," a professor at the University of Notre Dame (Brockman) and "Poppa Panda," the former city engineer (Gary Gilot), diverted some other funding to address problems with the water quality of polluted Bowman Creek. It quickly expanded into the Bowman Creek neighborhood, one of the poorest in South Bend,

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Indiana, a small Rust Belt city recovering from decades of economic decline. The neighborhood constitutes one square mile out of South Bend’s 44 square miles. Since then, the project has been renamed and expanded; almost 300 interns have participated (by 2021). The project as a whole (a complex whole, to be sure!) has many aims. The internship program was originally funded by the National Science Foundation (NSF) to encourage students interested in STEM to remain in the “STEM pipeline” perhaps by hands-on engineering experience, but also to explore whether, and how, “multidimensional diversity” contributed. The 30 interns, selected through a process of written application followed by interviews, ranged in age from 15 to 50, and attended local high schools, community colleges, regional and flagship public universities, private universities; a few were recent graduates. They differed along many dimensions: race and ethnicity, social class, nationality, college major, and gender; they spoke many languages. Only a few interns were familiar with the neighborhood; even fewer had grown up there. Others had scarcely stepped out of the bubble of the selective, national university that provided the core administrative support. Interns earned \$4000 for 10 weeks, and worked 8 am to 5 pm, with a lunch break, unless there were evening events. A set of 21 mentors, with varying commitments, was also involved.

The experiential learning project was designed with intention: One of the internship’s two directors, “Poppa Panda,” a city engineer for 40 years, was critical of conventional engineering education because there is usually “some assembly required” when firms hire new college graduates, who have a “school degree” but not, as one of the local residents put it, a “street degree.” Poppa Panda explained how the internship mimicked professional practice, with

a true risk of failure and...complex problems. I could spoon feed you really simple problems where there’s only a narrow range of correct solutions [like in school] but I...prefer the idea of giving really high-level conceptual assignments and see you go through an iterative process and maybe have some false starts and maybe go down some dead ends and you need to turn around and come back and get back on track and there’s such learning in that.

He stated explicitly: “That’s what we aim for, authentic learning, it’s real, it’s complex...The structure is purposefully a little amorphous.” We will show the authentic, complex learning, and its beneficially amorphous structure, below.

Goals

The goals of the project were to work with the community to improve both water quality and quality of life in this neighborhood, organized by work of eight to ten teams (varying over the years). The aims of each team were often quite ambitious,

and possibly even impossible. Individuals had their own specific goals, which ranged from professional ambitions to become civil engineers to finding a way to engage in community partnerships. There had been two previous seasons, so the interns did not have carte blanche to begin afresh.

During the first weeks, interns expressed nervousness about knowing what needed to be done each day and week, and about their potential ability to deliver, worried they might not meet goals or produce something tangible in time for the final presentations. Some perceived their role as quite limited given their educational background, which had taught them to compare themselves to others. Snake, a local student in his late twenties, was concerned that he lacked exposure to DNA barcoding (a technique to identify species by using portions of genetic material), unlike others in his team, feeling as if he were a “little fish in a big pond,” or an “outsider looking in.” Early concerns were amplified by pressure from the city, and professional and academic mentors’ high expectations. Interns were excited to do something useful and make a difference, excited about turning the creek area into something vibrant and healthy, excited for field days, excited to see how projects would turn out, and excited to show the mayor the results. In addition to looking forward to the project-related activities and progress, the interns also expressed excitement about personal fulfillment: to grow as individuals and to apply what they learned to future careers and activities.

Structures

Teams: Cooperative and Diverse

In 2017 the first two weeks focused on team building and leadership. A professional facilitator led icebreaking exercises, interspersed with lectures about diverse cognitive styles. Some people, for instance the founders, tended to be more “innovators” (visionaries and brainstormers). At the other extreme were “adaptors” (problem solvers), meticulous in executing plans; others were between, “bridgers.” The point was that multiple cognitive styles were needed. Only after these first two weeks were the interns assigned to their particular, small, three-person teams on the basis of their choices and the supervisors’ sense of people’s skills. There were eight major teams:

Table 1
Project Teams, BCe2 2017

1	Urban Sustainability and Smart Green Infrastructure	<ul style="list-style-type: none">• Tree nurseries• Rain gardens
2	Integrated Stormwater Management	Green technology to reduce stormwater entering the sewer system
3	Vacant Lots	Develop positive use for the approximately 25 percent vacant Southeast neighborhood lots
4	Daylighting Bowman Creek	Restore the creek aboveground
5	Southeast Neighborhood Redevelopment	<ul style="list-style-type: none">• Seek new home construction on vacant lots• Add street and property lighting to improve neighborhood safety
6	Arduino Technology	Use low-cost microprocessor systems (Arduino) for environmental sensing and control and other applications
7	DNA Barcoding	Catalogue plant life in the neighborhood
8	Healthy Neighborhoods	<ul style="list-style-type: none">• Develop plan for detecting lead in homes built before 1970• Recommend low-cost solutions for minimizing risks of lead exposure

Cooperative Social Relations

Participants were uniformly enthusiastic about their fellow interns. Interns appreciated their mutual support and the relatively informal social relations, positive even when stressed:

I loved the unique energy between the interns, even when we were working hard or under a lot of stress, they still had a smile on their face and were joking....I’ve never worked anywhere that was more fun or

productive than at BCe2. The energy was infectious. Even when I was exhausted the other interns were able to keep me going and happy. I loved how we were directly involved in the community, getting to know people and truly meeting them where they are.

Everyone seemed to look forward to seeing each other at work every day. In fact, most interns usually chatted for ten to fifteen minutes in the main office room each morning before spreading throughout the building with their project teams. Another reveled in the technical work, calling it play:

I was really excited to make new friends and play with new technology. Being able to say that I piloted a beta software from Esri—the leader in intelligent mapping—is truly incredible. And I had a really enjoyable time doing it. I hope that my work ends up impacting the neighborhood, but even if it doesn't, I enjoyed doing it.

“The friendship between interns and an opportunity to make a difference was the most exciting part of the internship” Red Panda wrote about solidifying her intention to work for improving the world in an unconventional workplace and on a team.

One thing about this internship that I did not anticipate is how close I would become to these people that I have known for a relatively short time. I truly believe that our bond as a team is centered around us working towards a large common goal of making the neighborhood better and making Bowman Creek a fun, innovative, and creative place to work. I also liked learning about technical and practical things that I wouldn't learn in my normal curriculum as an economics major. I feel that overall being immersed with all these different project teams has made me a more well-rounded academic and person. I also learned that I can do more than I think I am capable of and that my abilities are a direct reflection of how much work and effort I put towards learning something new.

During a focus group held near the end of the summer, participants pointed out the lack of competition between teams; nobody was vying to be the best intern or accomplish the most. Teams' willingness to help each other was striking, and consistent. They gave examples of the Arduino team's generosity in teaching the Stormwater team about sensors and helping analyze the data, or the several times that the DNA barcoding team members accompanied the Green Infrastructure team to inspect rain gardens. (Arduinos are small easily programmed computer components that can automate simple tasks, like sensing moisture in soil.)

Diversity

Interns were conscious of the diversity of one another’s backgrounds. Snake observed, “Here, it is more organic, in that people aren’t scared of being open to ideas.” One intern wrote on an anonymous post-survey comment that:

I honestly feel like Bowman Creek is the ideal working environment. We had such an influx of diversity bringing forth torrents of new ideas and perspectives. Since we all had such different projects, we didn’t have the negative competition that is seen in schools or work environments when everyone is doing the same projects and comparing their success to others. We felt free to try and fail and make faster, more innovative and deeper progress than in other ways of learning or working. I wish this was a real job so I could keep furthering our research and making our projects even better. I feel like we only just scratched the surface.

“Beaver” felt as if the ten weeks had flown by. He enjoyed gaining skills, especially in terms of presentations, and noted:

Bowman Creek’s format as experiential learning immersed in talent of different backgrounds and styles was different than anything I’ve experienced in my academic or professional career. The other interns have been great resources in themselves, offering fresh perspectives to develop ideas with. Working with them was fun, and it made our project better off as well as myself.... One part of the BCe2 experience that stood out to me the most was...getting to pitch the big-picture vision of the Daylighting project to members of the city, community, the school district, and the University of Notre Dame. These experiences in meetings and at our final presentation really made me feel like an advocate for the ecosystem and for the neighborhood, which was a great feeling.

Mentors

During all processes of brainstorming, building, and reaching out into the community, part-time mentors were available. When present, they circulated among the groups, offering advice about potential stakeholders, sharing technical or scientific knowledge, evaluating plans put in place by the teams, and physically helping those who were in the neighborhood using equipment to test, dig, or install things. Mentor Squirrel provided vital technical assistance to the Arduino team, which was constantly problem-solving with technology new to some of its members. The mentors from the high school who were involved with the Daylighting project were able to evaluate the sketches drawn by the team and explain the measurements relating to the creek’s route and dimensions. One

afternoon, mentors “Rich” and “Jason” helped the Green Infrastructure team when they were digging the holes to expose the valves from South Bend’s water source to attach pipe connectors. Mentor “Andrew,” having significant experience with pipe work, was helping them dig and explaining what they needed to do with the connector.

Activities and Tasks

Weekly Presentations

Because the project designers emphasized the real-world practices of engineers, which often required persuading “stakeholders” of the value of the work, each Monday morning at 8 am, every team presented an update, with PowerPoint, to the entire community. Typically this included the 30 interns, the project manager, the faculty gurus (Squirrel and Poppa Panda), and several mentors. Other interested community members often attended. Like most of the US and other populations, many interns were especially anxious about presenting before large groups (Grieve, 2020). These weekly team presentations, of which we have five weeks recorded, took place in the large, dim gallery, with surplus chairs arranged in two sets of rows before the screen. The teams spent the final hours on each Friday afternoon preparing the update for the following Monday morning. Though there was no formal clocking in, nearly everyone was present at that very early hour each Monday—a rare and punishing requirement for most college students. Many had coffee, or water bottles. Some slouched or even appeared to be closing their eyes, but nobody looked at any devices.

Community

Between the Monday presentations and the Friday preparations, interns engaged in a wide variety of activities, including community outreach, which required identifying “community” and community groups; interacting with the city government; researching technical problems; planning; building websites; writing brochures; learning technical skills; assisting other teams; and conducting local surveys, often on foot. One team ran a one-week camp for children. Every few weeks BCe2 hosted late-afternoon cookout picnics in parks in the neighborhood, advertised and open to all. Several interns cooked hamburgers and veggie burgers over as many grills as possible. Neighbors brought children, city officials popped in, and people sat together at picnic tables eating burgers and chips, potato salad, watermelon, cookies. These less-scripted interactions demonstrated commitment both to the project and to the neighbors, revealed each other’s humanity, and fed often under-resourced people. Other outdoor activities, such as installation of rain gardens, required the entire group’s physical participation. Local professionals and community leaders dropped by, and periodically the BCe2 interns met with members of a separate city-promoted engineering-technology internship. Some

evenings and weekends the interns attended minor-league baseball games or went to bars or restaurants, sometimes organized and sometimes informally. Even interns from the area discovered new dimensions of their hometown.

Place and Modes

Headquarters

Because we saw how significant place and bodily experience were, it’s important to describe the physical location of the internship: Headquartered in the neighborhood at a former warehouse repurposed as a multipurpose incubator space known as LangLab, the group rented the main room at one end of the L-shaped building, with couches, plywood tables, boards, storage, walls for Post-its. Several small rooms were available for focused technical work and experiments with sensors, filtering, and soil. Scrounged coffee makers, cups, and refrigerators served to care for the interns’ bodily needs. The space housed other small businesses, including a café and coffee roaster, ecological printer, art exhibits, performances, community gatherings—even Mayor Pete Buttigieg’s wedding. Cast-off books, many academic or creative, lined the walls in a hodgepodge of shelves. The headquarters was three short blocks from a small park on Bowman Creek, the renovation of which drew much of the program’s attention the first several years, and four blocks from a recently built large city park. The flexibility of the space facilitated flexible interactions within it.

Bodily and Multimodal Involvement

Throughout the summer interns engaged in substantial amounts of physical labor and multimodal activities, such as hauling compost, digging holes, and lounging in LangLab’s irregular furniture. They pasted Post-its and moved among each other, getting physically close. To aid in planning processes, multiple groups used visual aids, such as diagrams or flowcharts, to organize ideas. The Vacant Lots team drew thought diagrams on multiple occasions. One day at the University of Notre Dame discussing how ArcGIS, a cloud-based online mapping tool, might be used to combine already existing data from the city and previous interns, they collectively created a diagram of possibilities on the whiteboard. Another day, the group left to investigate a lot in an old park that they wanted to clean. After thoroughly scoping out the area and talking with a neighbor about the Miami Village Association (which was supposed to be maintaining the park), they used a giant sketch pad to draw how they could organize a cleanup.

One of the leaders, Red Panda, once brought a big paper pad to the back room and, on the floor, began making a logic flow chart of the vacant lots, explaining that it was an organizing method that would allow her to later add information to her website in a more visually appealing way. Other groups used diagrams and maps to

represent the geographic areas and urban zoning layouts they needed for their projects.

Emergence and Open-Ended Learning

The tasks were not “closed” as in conventional classes, but rather “open” and emergent.

Problems and Problem-Solving

The interns continually encountered unforeseen complications and obstacles, forcing them to plan on the fly, and revise their plans. The early stages brought some frustrations which they noted would have typically been foreseen in a classroom or lab. Interns were sometimes overwhelmed by the quantity of data and information to understand; the danger that there might be no visible change implemented during the summer after all the time working on it; disagreement with the current direction of the project; and a sense that their efforts might be redundant given the previous year’s accomplishments.

Planning

The teams were required to create Gantt charts (Excel documents with detailed action plans, tracking progress toward completion). This proved to be difficult for groups early on. For example, on Monday morning of Week 3, the Stormwater Management team tried to fill out their chart, proposing the order of activities and deciding which stakeholders to contact. Facing uncertainty, one member declared that it was “starting to stress [her] out,” and suggested the group should not analyze specific details too much then because the plan could easily change. The others agreed because they really were not sure what needed to be calculated and tested given the already existent data from the previous year.

Improvising

Sometimes interns seemed to wish there were right answers because they wanted to get the job done by summer’s end, but over the summer they began to acknowledge the limits on their power, accepting that they might not be able to accomplish their goals, or at least not in their entirety. Already in Week 3, for instance, one group admitted they’d had to jettison their original plans because of the actual conditions. There was a lot of improvisation, with unpredictable timelines.

In their weekly updates many interns nonchalantly stated that they had had to learn a new software system, or work on their HTML, or learn to use new equipment, or read hundred-page manuals, or work their way through a body of research, because it was necessary for them to function properly on their project team. None of this could have been predicted but emerged out of necessity. One member of the Healthy Neighborhoods team spent five hours redoing the website

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after she renamed the domains. In Week 6 the Arduino team’s battery chargers blew up. The Stormwater team created simulated rain gardens to test the effectiveness of different types of soils in absorbing water and to learn how the Arduino sensors functioned, but they needed to observe actual “rain events,” obviously dependent on the weather, revising their end goals to be more realistic. The Green Infrastructure team experimented with different piping and connections so that they would know how to connect to the piping system in the neighborhood. The DNA Barcoding team had to collect data from the creek but had not discussed their methods and ended up “wasting” a day—because they had not properly documented the samples, only afterward brainstorming about how to do so. The Stormwater team had installed sensors into one of their soil containers to assess moisture levels, realizing only the next day that their SD card had not been plugged in and they had no data.

Most groups planned only day by day, rather than thinking long-term, due to the uncertain outcomes of each step. Even in groups that tended to delegate more individual tasks, there was some kind of daily check-in or meeting. Mufasa, from the Urban Natural Resources and Smart Green Infrastructure team, reflected on his team’s strategy of daily morning check-ins. First they debriefed, “and then we start like doing things I guess.” This included planning, rethinking their plans, learning about technology, making appointments, and whatever had arisen in addition to their planned activities.

Freedom and Responsibility

BCe2 provided both the freedom and responsibility of working independently. The interns had to discover how they would fulfill their initial promises. Often they had to define the problems themselves, and figure out where to turn to find information or skills. One intern explained:

Right now I am learning how to work ArcGIS. There really isn’t anyone to teach me. There is a training today, which should be fun. I’m excited for that. But as of right now there really has not been anyone around to teach me. I did some research on it, but one of the things that I have learned from here is how to build up a relationship really quick...It’s kinda weird, but I like it.

Another explained that they’d “already learned the basics of building a website, tinkering with Arduino...I’ve already been using stuff I already know and I’ve just been floating around between groups and been learning stuff from them.” Interns sought multiple places to learn and consult.

Responsibility—But Limited Control

Most members of the project teams seem panicked by Week 8, feeling real responsibility to the community partners who'd helped them develop their plans and visions. Some seemed surprised that things were taking longer than they'd expected, almost as if they brought with them their expectations from classes where professors ensure that projects can be completed within the space of a semester, or a lab period. According to Sitka,

Since this is independent work you really have the opportunity to just slack and go onto the internet and do whatever, but it is all up to the individual; you have to want to learn something—no one is going to micromanage you, you have to figure it out by yourself.

Sometimes interns were astonished that they didn't get answers to questions overnight, from overworked city agencies, or that there were limitations to what they were allowed to share or gain access to. The Healthy Neighborhoods team, working on informing families about lead detection and mitigation, discovered to their dismay that other entities in the city were already doing similar work, built on long-cultivated delicate relationships, and they would not allow a student-run summer internship to replace or even replicate their work. Mufasa commented about the surprising number of unforeseen problems that arose and the lengthy waiting that often had to be endured. "For some of them, it seems like we can't really do anything about it until we hear back from someone, and I'm just trying to think of things to do while we are waiting. And I'm really surprised that we don't, not exactly learn, but get to experience that when we're in college." The learning was not all cognitive or verbal; the bodily dimensions were substantial.

Interns took their responsibility seriously. Wolf's awareness of her responsibility was "motivating and intimidating." Tantor was "more afraid of failing in this situation than with GPA in school." Snake said that because he "always wanted to have an impact on the world" the internship and the work was fulfilling, even if what he did lacked immediate large-scale results. Tiger emphasized autonomy and responsibility, saying, "It makes me feel great...because that means I get to decide on something, that means I have to really work on being as safe as I can. It means that I will really have an impact on people's lives." Sitka admitted that the feelings could vary, precisely because of the real-world responsibility. "It depends, it feels good, but if you mess up one thing then everyone will remember that, so you will have to do like four good things to make it go away. So it's kinda scary, but when you do something good, then it makes you feel great. So it depends on the problem." Snake—the one who was so worried initially about his relative lack of preparation—claimed that this "job" (whether this is a job or education is another possible nuance that could be explored in greater depth

elsewhere) was the best he had ever had, given his personal creativity, because BCe2 provided the freedom to solve problems, not constrained to do it in a certain way. In his words, “it’s not A, B, and C—do this, but rather allows teams to create their own way of doing.” While mentors were generally, though unevenly, available to help with technical/scientific knowledge, to offer ideas for team members to think about, and to give feedback on team plans, groups had significant autonomy. Tiger reflected, “I am excited about [giving] this my best, leaving this place and feeling like I can’t blame myself for anything, like I gave it all I had.” One intern noted that “since we were all given tasks that we really had to define ourselves as much as actually work on them, having such an energized and talented group of coworkers was essential.”

Comparisons With Schools

One of our initial research questions involved a comparison, like Moore’s, between school/classroom learning and Real World/field learning. In many interviews and reflections, interns explicitly, and often voluntarily, contrasted the BCe2 work with experiences in classrooms.

Group Work

In group work for class, they said, students typically procrastinate, waiting until the last minute possible to complete their projects. Often, certain group members for school assignments do not complete their share of the work, due to general carelessness or interference from other commitments, the bulk of the tasks shifting to one person, which creates frustration, stress, and disinterest in engaging deeply with the material. In BCe2, they understood the necessity of each person working steadily. Cramming wasn’t an acceptable tactic.

Grade Focus and Failure

Another contrast has to do with the nature of assessment (see Blum, 2020). In school, almost every activity is completed for a grade. Even if school projects require community outreach or collaboration, students often do the work just for the grade, rather than out of genuine interest in a cause or relationships with the community. In much community-based learning, the students never even bother to show it to the community. Tantor’s comment about being more afraid to fail at Bowman Creek than in terms of his grades in school is illuminating. Here the assessment was authentic: did the project get done? How well? How did people honor the stakeholders in the process? There were no reductive grades, though there was ample feedback in the form of both self-assessments and narratives written by the project managers—but these were not the focus.

Free Exchange, and Real Deadlines

Students commented on their independence, the open-endedness of their tasks, and the difficulty. Failures were information that informed their iterated approach. Snake referred to his experience with class group work as “tethered,” meaning the structure hinders creativity because professors have clear objectives and procedures for their students, who all use the same knowledge gained from class material. This, along with scheduling constraints that prevent group members from working together in the same physical space, reduces the exchange of diverse, innovative ideas, and limits the potential of the project scope. In contrast, group work in BCe2 felt more fulfilling. People were involved by choice; they wanted to engage with peers and the community, and they preferred the loose, non-competitive, go-at-your-own-pace structure. Nemo, a member of the Arduino team, emphasized that “it’s...a lot more fun to come here and work despite waking up at eight and learning about circuits and learning about new technology, whereas in class I’m just stressed about meeting deadlines.” Moore writes that “In classrooms, students rarely have the opportunity to be truly responsible—not just punctual or obedient, but to have others actually count on them for something meaningful” (Moore, 1983, p. 43). Students were aware of this: On written reflections, another pointed out their responsibility to others: “When I’m in the classroom the only one who my work affects is me, whereas in the internship, I have a whole community—both in terms of the neighborhood and my fellow interns that are reliant upon me to do my work, which is a much better motivator than grades.” Another pointed out,

Here, everyone wants to do the same work, and even if someone does more work, it does not really matter; it is about the common goal and finished product. The environment is more conducive to creativity, not as much about getting it done as quickly as possible. It is about taking the time to find the best possible solution. Everyone wants to do it.

While schools include great diversity, uniformity—of age, learning outcomes, practices, assessment, languages—is often idealized. Here, diversity was needed and celebrated, in a way far beyond tokenism.

Mentors, Unpredictability, and Learning by Doing

Comparing “mentors” with teachers reveals another striking set of contrasts. (Some) mentors provided substantial amounts of guidance, while also permitting the interns—most of the time—to feel that they had significant agency. Project managers, mentors, and consultants aimed generally to allow the students to learn on their own, intervening only if there were going to be a great obstacle. But sometimes they told the interns what and how to do what they were doing, reverting to conventional roles of “sage on the stage.” Mentor interaction with the interns was

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uneven. In one case it seemed that a faculty mentor directed the interns to carry out a project conceived by the mentor rather than responding to needs perceived by the community.

Most mentors were conscious that the “efficiency” of school learning fails to prepare students for the actual realities of work in the world, where sometimes there is no chance to do anything because it depends on someone else’s actions. School had provided expectations about an efficient, bounded, artificial sense of mastery that did not match outside-school realities.

Problem-led Flexibility

Activities and inquiry were led by questions and problems rather than a pre-ordained syllabus; even students interested in technical or economic dimensions of neighborhood revitalization or sustainability had to grapple with all these dimensions. It would have been impossible to set out “learning outcomes” for such a project, or a list of skills that would be developed.

Bodily Involvement and Multimodality

In addition to technical knowledge and skills, there was much that required bodily involvement; as Zull points out in his book about the biology of learning (2002), the “motor” and sensual dimensions of learning are always present, but not always emphasized. At picnics and in rain gardens, being outside, struggling with materials and conveyances, walking and grilling, the learning was “extended,” as Clark 2008 puts it, by the body, the world, objects, and other beings (See also Hrach, 2021; Paul, 2021).

Respect for Learners’ Capacities

Interns were free to generate their own questions and solutions, and to take whatever steps they deemed appropriate. They could come and go as they wished, though they were generally expected to be present from 8 to 5 every day. Interns reported their hours on the electronic payroll system. Small teams went out into the neighborhood, downtown, to offices, to campuses. Nobody was monitored. There were no bells, no surveillance. Much time was spent outdoors, in environments without specific boundaries. The building was open to the public.

Mentors (versus Teachers)

Instead of all-knowing “sages on the stage,” the mentors were truly “guides on the side.” There were many experienced academic and professional mentors available at all times, and many city and neighborhood officials—including the mayor, who visited the project at least twice—offering their time and expertise.

In addition to comparison with schools, at the end of the summer, in our summary interviews, we noted the following characteristics—qualities—of this internship.

Multiple Forms of Diversity in a Community of Practice

The recognition that knowledge and skills are often distributed unevenly over a community that develops them in interaction, with experts and novices working together for a shared purpose, is one of the insights of the notion of the “Community of Practice” literature (Hoadley, 2012). BCe2 was deliberately shaped to welcome a high level of diversity, requiring everyone to contribute their particular skills and knowledge to various aspects of each project. Despite differences in personal backgrounds, life experiences, and areas of educational focus, interns were eager to bring what they could to their teams.

Cooperative Social Relations

The friendly, casual, respectful relationships had been carefully nurtured from the beginning; the interns reported that they felt connected to everyone. One said that she felt closer to the other 29 people in this internship than she had to anyone since she began college. The lack of competition between teams and individuals and the lack of a zero-sum assumption provided positive motivation for all involved.

Genuine Responsibility

The activities had real-world consequences, not grades or points. The consequences included accountability to the community, tangible results, and the final presentations to the public. The assessments and feedback came from outcomes, constant interactions, and the many dimensions of the ultimate results, which did not require perfection.

Security of Basic Needs

For most of the interns this was their sole activity during the summer. It was a paid 40-hour-a-week “job.” Thus, most interns felt their financial needs were taken care of. Because this was a well-funded project, affiliated with several institutions of higher and secondary education but especially The University of Notre Dame, interns began with credibility. The internship by 2017 was in its third season, and there were a number of projects and templates already in place.

Connection to Community and Place

Connections to the city and the neighborhood, to place, were nurtured in multiple ways every day. As you can see in Figure 2, from an initial lack of interest or involvement in the community, by the internship’s end the interns were very much committed to this specific place.

Pre vs Post Response to "I feel a connection to the Bowman Creek neighborhood"

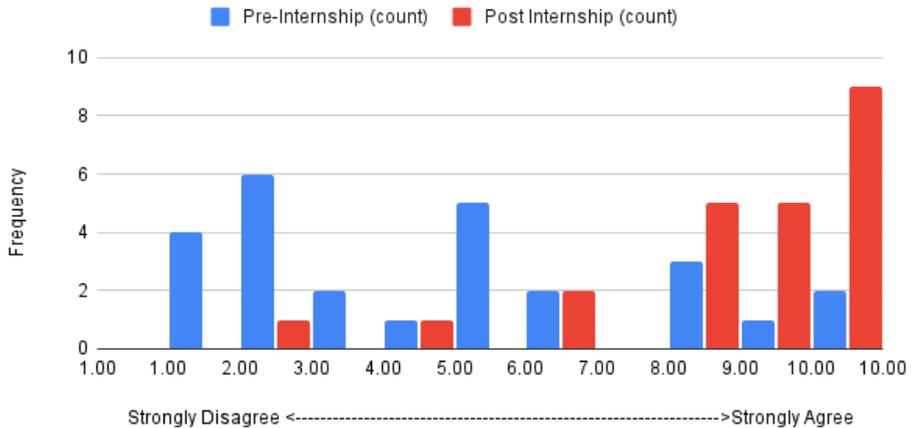


Figure 2
Change in connection to Bowman Creek neighborhood

Ample but Authentic Time Constraints

There was ample time and unrushed external pressure. Unlike conventional classroom learning, much of this would not have been possible to specify in advance. There were also simply a lot of hours: 10 weeks of 40 hours a week (400 hours), in contrast to a typical 15-week semester with perhaps six to nine hours devoted to each course (total 135 hours, if we use nine hours). (See Galeazzi, 2020 on “time.”) But also there were authentic deadlines presented by the summer’s constraints—not arbitrarily imposed, and palpably consequential.

This experiential learning, by doing, contrasts with what most of the interns had encountered in school. One of the project managers had given a day’s lesson on design thinking, which involves five steps: empathize, design, ideate, prototype, test. This reassured them that failures were useful. Asked about their views of “learning by doing” rather than being first instructed abstractly, in the experiential fashion that Deweyists would support, we note in Figure 3 changes over the course of the summer:

Pre vs Post Response to “I prefer learning by doing, rather than learning abstractly”

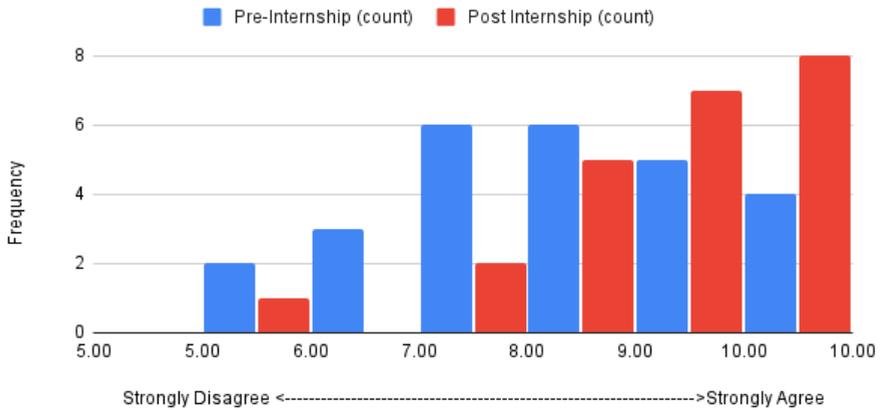


Figure 3
Change in attitude preference toward learning by doing

From initial suspicion of “learning by doing” the interns had been persuaded largely of the effectiveness of that experiential learning.

Back to The Tree Nurseries



The Tree Nurseries

“The Trees Need Water”

We focus here in part on the three-person “Urban Natural Resources and Smart Green Infrastructure” team because it illustrates so well the arc of their learning; one of their tasks was to plant and care for three tree nurseries. There were multiple goals addressed through this process. The tiny, inexpensive trees, called whips (about \$20 apiece), would grow at low cost into more valuable larger trees (around \$500 apiece), to be transplanted into new development. In the meantime, this would improve the feel of the neighborhood, so that instead of vacant lots recruited into trash accumulation or illicit behavior, they would provide beauty, shade, oxygen while increasing the diminished tree canopy of South Bend. This would provide positive use of the city’s excessive vacant lots. This was Year 3 of the internship so some tree nurseries were already in place. But there was a challenge: How do you get water to the fragile, tiny trees? (Once established they wouldn’t need this pampering.) Nobody knew a sure-fire method. This was a real-life problem that required a variety of skills to solve. And—this was urgent. Heat was predicted. This all had to be solved quickly. There was no negotiating the due date. The deadline was authentic.

The problems were numerous: Even when an adjacent house had a functioning spigot, and even though the internship/project was willing to pay the increased water bill, there had to be a signed contract. Neighbors were often at work during business hours. If spigots failed, the interns had to identify the reason, and then the solution, whether technical, interpersonal, or bureaucratic: Did the problem stem from the water line from the street (the city would be responsible), the pipe under the ground (to be repaired by a plumber), or the spigot itself (plumber)? And though the project had money to repair the spigots, some neighbors didn’t want strangers on their property. Residents who rented often lacked the authority to authorize the repairs. The interns had to figure out how to contact the actual owners, who might live elsewhere, or to go through property management companies.

Over the weeks, the team operated on a number of fronts. They learned how to negotiate with neighbors. They found property records. They requested estimates from plumbers. They worked with the technically advanced Arduino team. They developed skills and vocabulary, and both technical and bureaucratic knowledge. They also learned to wait.

There was so much waiting. In the first weeks, the interns moved from confidence that their problems would be quickly solved to frustration that their plans had not yielded immediate results; even after settling on a technical solution (rerouting irrigation lines), they faced unexpected social and practical obstacles, such as when a resident changed her mind about permitting city officials and plumbers to enter her house in her absence. In Week 6, this team was still waiting for plumbers. (They were also waiting to hear about rain garden locations—native plantings with deep roots to absorb heavy rains and prevent excessive strain on the

city's stormwater system—another dimension of their project, explained in a moment, and admitted, “It's possible that no rain gardens will be installed.”)

In Week 3 (the first week of the presentations), “Peanut” reported on the native tree nurseries and their challenges, comparing their original plan to include an irrigation system through a homeowner's back yard. Pointing to the images, he lamented, “We soon learned that that was just not gonna happen. There's a concrete pathway that goes through here.” And the problems multiplied. “He also doesn't have a spigot on this side. It's on this side. And that spigot also doesn't work.” Laughter from group. “So, we just adapted to the situation.” He hesitated slightly before relatively new terms such as *schematic*, *drip hose*, *irrigation system* or *spigot*, as they were becoming familiar with them.

They were still struggling in Week 5; one intern lamented that “everything takes longer than we think.” One of the neighbors, a renter, didn't want to sign the contract to allow their water to be used for the trees. During this presentation, Mufasa expressed his pressing alarm: “We need to get water to the trees 'cuz the trees are gonna die.”

The Trees Got Their Water

Interns' familiarity with bureaucratic processes grew rapidly over the course of the summer as they realized that nobody could magically make everything happen the way they had envisioned. While they spoke haltingly at first of *crimp lines* (a type of water line for irrigation), having to explain the meaning each time, after a few weeks they rattled off the names of key people, local organizations, city offices, equipment, the commonly used terminology of *deliverables* and *prototyping*, *milestones* and *Gantt charts*, *whips*, *Arduinos*, *timer belts*, and more. One morning, in the first few weeks, the Affordable Housing team advised the Lead Information team about how regulations are set up, how to combat risks, how the city's inspection process works, and how one may come across “fogginess” when contacting residents and landlords about current house conditions. By the final week, they had embraced their few triumphs and the atmosphere was much more relaxed. Everyone understood all the projects well, and they were eager to laugh and respond. The last update on the tree nurseries was much more positive than the earlier ones.

So...The tree nursery project is almost done. We promise. [group laughter]...Uh, last week we dug a trench—um that's a strong understatement. I think most of us feel like we've been digging nonstop last week just to get this all done before the end of the summer...The entire system on all three lots, it's about like ninety-nine percent done. We just have a few PVC...issues that we need to correct....The timer

“The Trees Need Water”

belts...those should be coming in today and ideally we can get those implemented either today or tomorrow, depending on when they come in.

This group had technical knowledge that they were still teaching their colleagues, though all interns also shared much understanding, such as the use of Gantt charts, which all teams were required to update weekly.

This is the specific Gantt chart for the tree nursery. We are...almost done with most of the components. The only things we have left are installing the timer belts and then also using the tree teepees. So, we need to work out a way to...do sort of a long-term experimentation to see if these tree teepees are useful.

As the expert, he explained what the tree teepees were:

If you haven't seen 'em, they're basically the black plastic...cone-shaped things that are...just randomly in the room over there. So you can take a look at those. They just wrap around the trees. They're marketed to hold ninety percent more moisture than without 'em. I feel like that's...really a huge number. So we'll see how that goes and...we can work something out with just anyone else who's gonna be here and keeping the project going to make sure we get good data over time.

The interns had become experts in their own areas and taught the others—without sheepishness for taking on an expert rather than novice role, as students often do in classroom settings. By the final weeks the work had been completed and all the interns knew substantial amounts about all the teams' work. All the tree nurseries had water. Rain gardens had been installed. Sensors were monitoring moisture levels. The problems had been solved.

Changes: From Nervousness to Confidence

Over the course of the summer, every intern experienced changes—the definition of learning. They spoke with much greater ease about local entities, the neighborhood organizations, various people in city government, the practicalities of doing things like installing crimp lines or working with “smart sensors.” They'd learned to consider a variety of “stakeholders”—people and organizations to be affected by their actions. Overall, there was a kind of arc of excitement that began early on, with perhaps unrealistic expectations, a dip in the middle when limitations and realities set in, and a strong rebound toward the end when they saw what had in fact been accomplished. Because they had different backgrounds, their growth differed. Some interns had arrived confident of their academic abilities but without having

had any exposure to the realities of life in a low-income urban environment. Others were perhaps “weaker” academically but stronger in terms of life experience. Final interviews and surveys showed gains in many areas, such as making public presentations. Increased confidence about public speaking is evident in the self-assessment in the surveys:

Pre vs Post Response to “I am comfortable speaking publicly about my work”

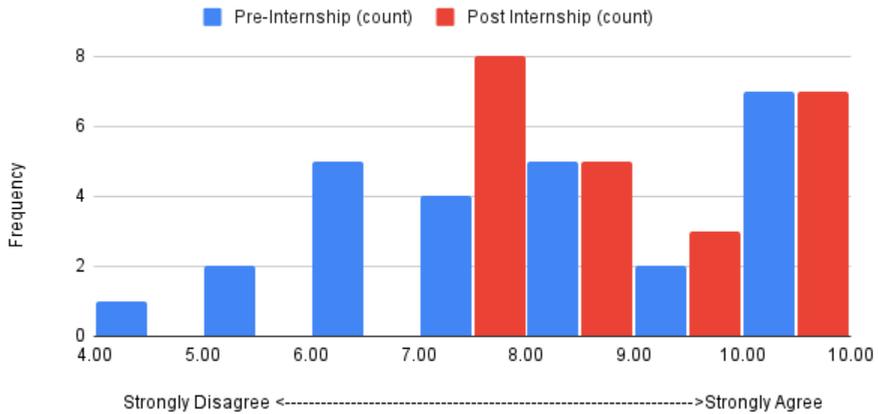


Figure 4
Change in comfort with public speaking

Presentations are just one of many skills and dispositions that increased over the ten weeks. Another notable change was a dramatic increase in concern for and connection with the neighborhood (see figure 2 above).

The interns frequently referred to “neighbors” and “the community,” reflecting deep commitment to and awareness of it, which grew over the course of the summer. One intern emphasized the importance of considering each project’s impact, and that it is especially important to keep in mind that it is *with*—not *for*—the community, noting tensions between what the project members regarded as best for the community in contrast to what the community needed and wanted.

Implications

This was clearly a complicated, somewhat unique (and well-funded) project. It is important to understand how student learning works, when it is perceived by all

participants to have been successful. This is valuable in its own right, and also suggests elements that could be incorporated from “field learning” into “regular” classrooms. One dimension deliberately fostered by the project’s founders was relinquishing control and permitting the unforeseen—the opposite of a “learning outcomes” approach, with strictly managed uniform learning, according to the “banking model” (Freire, 2018). Students in more formal settings expect something quite different from their classes. Students may harbor expectations for classes, and may expect the same thing for internships, with clear-cut goals and outcomes, no time wasted, nothing but success. A teacher who didn’t know the outcome of a lab might be seen as incompetent or irresponsible. “Productivity” suggests no waste, even though in our study “wasted” moments often led to shared experience, or taking a breath, or redefining the practices, or even learning from “failure”—a critical dimension of learning in most practices outside school.

Learning in school usually takes place inside; time to accomplish tasks is usually restricted; social dimensions are an afterthought; failure is punished; assessment is reduced to a single measure; competition is rampant; people distrust each other; emotional and physical elements are overlooked in favor of cognition. In contrast, “field learning” in a project like Bowman Creek is usually the opposite: it takes place in many places; time is abundant; social dimensions are central; failure is information; assessment is multifaceted; cooperation is necessary; people grow to trust each other; emotional and physical elements are essential. These can only benefit the learners, both in terms of their learning of skills and information, and in terms of their enjoyment. Internships like this one can demonstrate how learning almost-in-the-wild leads to effective and enjoyable experiences that engage the full learner.

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