

Scaffolding Civic Engagement Projects: A Study into the Effectiveness of Supported Small-Scale, Interrelated, Student-Designed Projects

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Abstract

This study examines the efficacy of scaffolding in a revised civic engagement project motivated by a desire to improve student progress and experience with the project. The project, Experiments in Ethics, consists of small-scale, interrelated assignments spread throughout the semester as opposed to a single, cumulative assignment due at the end of the semester. Course design ensures that scaffolding is built into this project through an iterative process of reflection and feedback to support students. Study results show that using scaffolding in civic engagement projects in this way significantly helps students gain important communication, citizenship, practical, and critical thinking skills. A limitation of this study is that data are self-reported by students. This scaffolding strategy can be applied to assignments from various disciplines in introductory classes at both two and four-year institutions. Future research could examine this.

Keywords

scaffolding; civic engagement; experience-based learning; service learning; community colleges

Introduction

Civic engagement projects (CE projects), a type of experience-based learning that is sometimes classified along with service learning, attempt to encourage agency (also called self-authorship) on behalf of students (Hawthorne et al., 2016; Ilea & Hawthorne, 2011; Iverson & James, 2013). Rather than simply volunteer as in a service learning course, students are encouraged to design their own actions that work to resolve the root of social problems and become more skilled citizens. Iverson and James (2013) and Hawthorne et al. (2016) report success with projects that require student agency, projects that might be classified as CE projects or change-oriented service learning. These projects are typically semester-long projects that culminate with a single, large assignment. However, early-stage college students may need more help to design and act on their

own projects and develop their own identity as change making agents. In order to provide this help, a CE project was created with deliberate scaffolding throughout. This project, called “Experiments in Ethics” created small-scale, interrelated assignments or “experiments” that together form the CE project and spread the work throughout the semester. Students move through a cycle of learning new content, reflection, and feedback while they complete each experiment. This cycle provides the scaffolding for them to develop agency and work toward more substantial experiments. For instance, the first experiment asks student to write a letter to someone asking them to make a change while the last experiment asks student to design their own change-making activity. There are six total experiments that were part of this study.

Research Question

To what extent did the redesigned project impact civic engagement skills as judged by student perception?

The Problem/Opportunity

Beginning college students can struggle to complete various aspects of semester-long projects that culminate with a single, large assignment. This may be particularly true for students who bear additional responsibilities outside of the classroom with regards to work or family. In addition, beginning college students may have difficulty identifying campus issues or finding a community in which to enact change. This was especially true for our population of students at a community college. For instance, according to the American Association of Community Colleges (2018), 63% of all community college students attend part time, 36% of students are first generation, and the mean age is 24. Our community college students have faced these specific problems when tackling a CE project that culminated with a single, large assignment due at the end of the semester:

- Failure to identify an issue about which the student felt passion or motivation on which to work.
- Lack of practical experience to organize themselves or the activities they wished to create in relation to large-scale CE project.
- Difficulty overcoming unexpected roadblocks, either related to the assignment itself, or in their lives.
- Inability to complete the writing, reflection, and/or other requirements of a large-scale, cumulative CE project.

Existing studies affirm that these struggles are reflective of the financial obstacles, time constraints, and psychosocial factors relating to community college student persistence and success (Abdul-Alim, 2016; Cochrane & Szabo-Kubitz, 2016; Fong et al., 2017; Fong et al., 2018; Michalowski, 2010; Tannock & Flocks, 2003). Although our experience is specific to a community college, we believe there are many instances where beginning college students face similar circumstances.

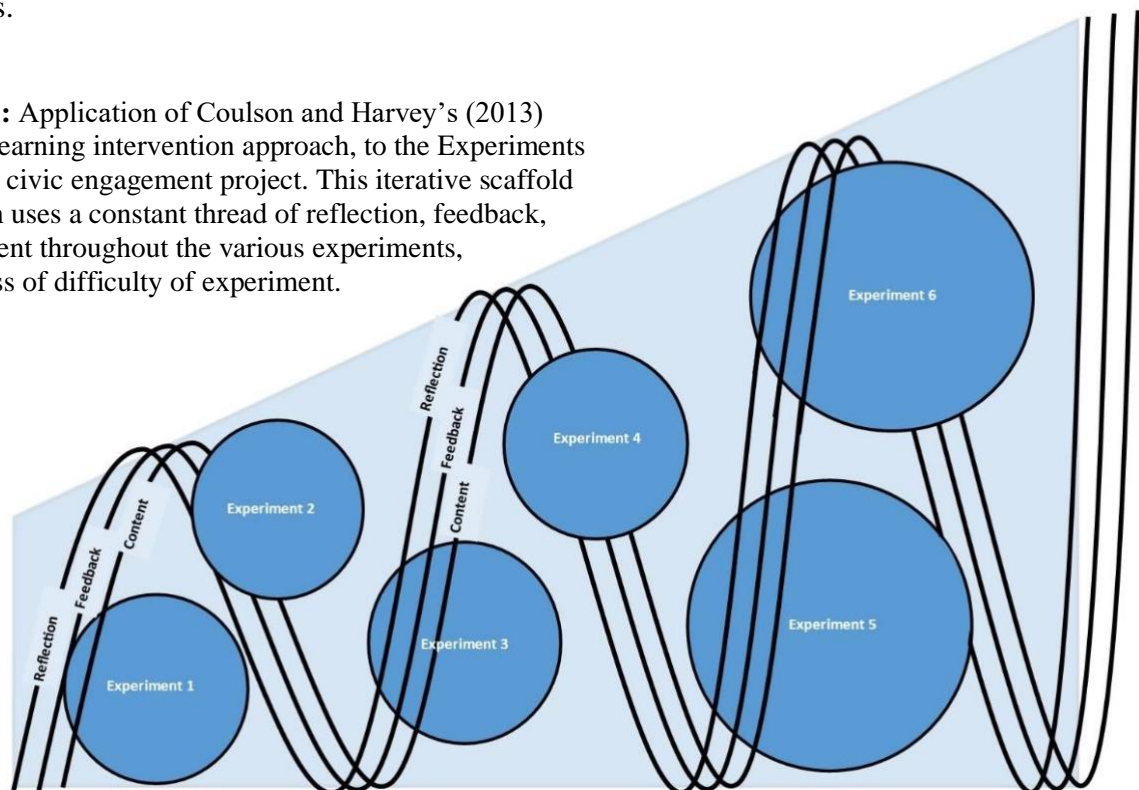
Our observation of students’ struggles prompted the following questions: How could CE projects be designed so all learners could be engaged and motivated, including students who typically underperform in the project? How could students be better supported so challenges can be turned into learning opportunities rather than roadblocks to success? How could more scaffolding be

incorporated so students could get more feedback that would help form learning and expectations earlier in the semester? How could a CE project be designed so that students who missed a substantive deadline or did not attend class for a period of time could still meet overall project objectives? As students learn about a particular theory or concept in class, what particular experience could be paired with this idea to make the content relevant to students' lived experiences?

Importantly, the Experiments in Ethics CE project aimed to address these concerns in two ways. First, rather than think about CE projects as a culmination of a semester's work, Experiments in Ethics concentrates on specific learning objectives and how small-scale, interrelated assignments throughout the semester could help students organize a more focused activity near the end of the semester. In addition, rather than think about "success" and "failure" Experiments in Ethics models the idea of experimentation found in science classes.

The scaffolding utilized in Experiments in Ethics is based on an iterative idea of reflection. Used in this way, student reflections can assist them in developing agency and making sense of their experiences which happen outside of the classroom. Coulson and Harvey (2013) argue that reflection serves two purposes. First, it helps "learners make sense and meaning from their experience and at its most critical level, contributes to transformative learning," (Coulson & Harvey, 2013, p. 403). Second, it helps them debrief the emotional aspects of their experiences. They suggest that there are four stages of reflection: *learning to reflect*, *reflection for action*, *reflection in action*, and *reflection on action*. Throughout the Experiments in Ethics, students are writing reflections and getting formative feedback. This helps them *learn to reflect*. In addition, when students plan their next experiment, they are engaging in *reflection for action*. An instance of *reflection in action* occurs as the students write a particular reflection accompanying the experiment they are working on in anticipation of the next experiment. Students write reflections after each experiment is completed (*reflection on action*) and a summative reflection (*reflection on action*). This process is layered, nonlinear, and iterative. As seen in Figure 1, the Experiments in Ethics utilizes this method to create a routine of reflection that serves to scaffold the Experiments in Ethics.

Figure 1: Application of Coulson and Harvey's (2013) layered learning intervention approach, to the Experiments in Ethics civic engagement project. This iterative scaffold approach uses a constant thread of reflection, feedback, and content throughout the various experiments, regardless of difficulty of experiment.



Literature Review

Scaffolding is typically defined as “any instructional method that provides strong initial support that is gradually removed as the learner moves toward independence...” (Smagorinsky et al., 2015, p. 71). When scaffolding is used effectively and is informed by evidence, researchers posit that it can help reduce disparity between groups of students and help achieve more equity in learning (Hill et al., 2017).

Coulson and Harvey (2013) argue that experience-based learning increases the need for students to develop agency. Agency is defined by Bandura (2005) as the ability to be “self-organizing, proactive, self-regulating, and self-reflecting” (p. 3). Agency is a similar concept to self-authorship. Drawing on Baxter Magolda’s work (2004), Iverson and James (2013) define self-authorship as “the outcome of three developmental dimensions: (a) cognitive maturity, (b) intrapersonal capacity, and (c) interpersonal ability” (p. 91). As students develop across these three dimensions, they become more skilled citizens and are able to take actions that benefit not only themselves but the good of their communities and society (Baxter Magolda, 2004; Iverson & James, 2013). Yet, this deep learning and work is dependent on a lot of assumed skills; not all students have the skills and experiences to exercise agency or self-authorship, especially in relation to experience-based learning. Experience-based learning, and certainly the Experiments in Ethics assignment, introduce students to new environments, experiences, and challenges with which they are unfamiliar. In addition, these new experiences often occur outside the boundaries of the classroom or college/university.

Traditional approaches to scaffolding in the classroom may introduce challenges when applied to CE projects. Coulson and Harvey (2013) report that some teachers may not be in a position to act as expert, especially in relation to the reflection that accompanies experience-based learning. In addition, some traditional approaches to scaffolding suggest that students should just follow the teacher’s lead (Smagorinsky et al., 2015). This can be detrimental if the goal of the assignment is to develop agency. Smagorinsky et al. (2015) note that Dyson (1990) challenges this traditional view of scaffolding with the metaphor of *weaving*, which highlights a back and forth between student and teacher. However, Smagorinsky et al. (2015) give a different, alternative idea for scaffolding that could be used effectively in experience-based learning. They argue that we should think about *distributed scaffolding* in which “multiple means of guidance are available to learners” (Smagorinsky et al., 2015, p. 72). The teacher does not lead this type of scaffolding but relies on a course design that allows a variety of ideas to emerge. On this view, scaffolding is not a set framework already established, but responsive to emerging student needs. This allows room for student agency to flourish and grow throughout the project. On this view, scaffolding should be seen as nonlinear and also as an integral part of course design. This view of scaffolding would also support the development of students as agents to make social change.

Heinrich et al. (2015) also discuss the need for deliberative scaffolding as part of course design. They comment that experience-based learning, and in particular service learning, are often touted as encouraging citizenship skills and critical thinking skills, but can sometimes fail to incorporate critical thinking in a deliberate way. In particular, they suggest that there are four effective features of instructional design that can help support gains in critical thinking: planning, instruction method, content, and explicit critical thinking outcomes (Heinrich et al., 2015). These four features

need to be scaffolded using iterative processes throughout the course (Heinrich et al., 2015). This too is different from the traditional view of scaffolding where students follow a teacher's lead and "ascend a staircase." Like Smagorinsky et al. (2015), scaffolding for Heinrich et al. (2015) is nonlinear. In addition, where Smagorinsky et al. (2015) focus on scaffolding as integral to course design, Heinrich et al (2015) deliberately incorporate reflection as part of the scaffold process.

Iverson and James (2013) report that, as students engage in civic activities, reflection helps students move "toward cognitive sophistication (their ideas were challenged and deepened), toward interpersonal maturity (developing the confidence to make their own decisions), and interpersonal development (seeing themselves as connected to others as they tackled issues together)" (p. 101). Interestingly, Iverson and James (2013) also point out that this reflection is often missing in co-curricular life—students have many opportunities to engage in civic activities, but sometimes no one facilitates reflection.

Coulson and Harvey (2013) describe a process for scaffolding student reflection for experience-based learning (mentioned above). These ideas about the importance of reflection and course design related to the work in designing the Experiment in Ethics. We wanted a process that was nonlinear, iterative, and continuous in nature. Students may move through different stages of learning, but they continue to reflect in various ways that facilitate growth and give students support; students receive feedback and a chance for further thinking throughout the reflection process. Students develop agency as they decide when and how to move to the next stage of the experience-based learning.

In addition to helping students develop agency, the iterative, nonlinear process of reflection and deliberate course design support students during times of challenge and allow them to "jump back into" the project, even if they have missed classes for an extended period of time. The Institute for College Access & Success published a report capturing the stories of thousands of California community college students (Cochrane & Szabo-Kubitz, 2016). The data reflected previously collected national data and gave voice to the many pertinent issues (financial aid, housing, time restraint, family responsibilities) facing numerous community college students (Cochrane & Szabo-Kubitz, 2016). These voices are an echo of Tannock and Flock's (2003) decade earlier reporting about the struggles of community college students who work. Fong et al. (2017) looked beyond the demographic and related variables to non-cognitive factors in their meta-analysis of psychosocial factors related to community college student success. Although small effect sizes, the results supported "meaningful relationships" between these non-cognitive factors and student achievement (Fong et al. 2017). These psychosocial factors Fong et al. (2017) describe include difficulty with motivation, self-perceptions, attributions, self-regulation, and anxiety. This matched the struggles we observed that disrupted students' ability to complete large-scale, semester long CE projects. Although this data is particularly relevant to our study of Experiments in Ethics at a community college, we believe it reflects the struggles of many beginning college students.

This review of literature helped us see ways in which a traditional view of scaffolding may prove inapplicable to the goals of CE projects. Alternatively, we focused on developing a method of scaffolding that is nonlinear and iterative. In addition, the scaffolding utilized in Experiments in Ethics focused on course design and reflection.

Study Context

Experiments in Ethics was developed in Spring of 2016 and was studied across two semesters of implementation. This assignment is typically included in an introductory philosophy class, Introduction to Ethics. This class can serve as a first class toward a philosophy major but more regularly serves as a student's only philosophy course in an effort to meet general education requirements at a community college. This class regularly enrolls approximately 45 students per class. The classes involved in this study all occur at a suburban, Midwest community college with beginning college students and were taught by the same instructor.

Curriculum Design

The Experiments in Ethics, an experience-based, semester-long CE project, consists of several small-scale, interrelated experiments (see Table 1). When designing the Experiments in Ethics project, the intent in course design was to develop a continuous, nonlinear, and iterative way to work through course materials, build skills, and develop agency. In this approach, new content is delivered to students, and students perform an independent "experiment" related to this content. Students then write a reflection connecting their experimental work back to class content. Students are often required to think about specific theoretical concepts in relation to specific experiments and personal experiences. The writing is then graded, and students are given feedback which is intended to be formative, helping students understand expectations, how to incorporate and reflect on class concepts and ideas, and what they might think about for the next experiment. This content, reflection, and feedback process are the mechanisms for scaffolding as illustrated in Figure 1.

Table 1

Individual Experiment in Ethics Examples and Rationale

Experiment	Task	Student Examples	Rationale for Scaffolding
Change Making Letter (Week 4)	Identify an ethical issue that personally affects the student	Student writes to elders at her place of worship asking for dancing policy changes	Develops skills for philosophical argumentation
	Identify a specific person who can do something about that issue	Student writes to parent's doctor asking to stop prescribing painkillers for parent	Connects philosophical arguments to student lives
	Write a letter making an argument for the change that needs to be made		Invites examination about actions that may lead to changes

<p>Changing a Habit or Developing a Virtue (Week 8)</p>	<p>Identify a virtue or habit to cultivate or change</p> <p>For 7 days, work to make this change</p> <p>Provide documentation of actions and write a reflection connecting actions to course materials</p>	<p>Students try planning vegan meals for a week</p> <p>Students limit their use of phones</p>	<p>Creates space for specific reflection on self as ethical agent</p> <p>Allows students to think about philosophy as both public and private</p>
<p>Volunteer Activity (Week 9)</p>	<p>Identify an organization that makes changes</p> <p>Volunteer at least 4 hours</p> <p>Provide documentation of actions and write a reflection connecting actions to course materials</p>	<p>Students pack food for those in hunger</p> <p>Students walk dogs at animal shelters</p>	<p>Helps students differentiate volunteering for an organization (charitable action) and organizing an activity (justice focused action),</p>
<p>Research Charitable Giving (Week 11)</p>	<p>Compare a familiar organization with a charity recommended by renowned Philosopher Peter Singer</p> <p>Provide notes on research</p> <p>Give an argument for where money should be donated and connect to Peter Singer's arguments</p>	<p>Students compare an organization suggested by Singer (Oxfam International, Against Malaria Fund, etc) to one they are familiar with (Red Cross, Make a Wish Foundation, etc.)</p>	<p>Provides flexibility to address specific concepts in depth</p> <p>Allows students to connect the way in which philosophical arguments can impact private decisions</p> <p>Examines the impact of individual acts in the world</p>

Organize an Activity (Week 15)	<p>Identify an issue Organize an action to make a positive change</p> <p>Provide documentation of actions and write a reflection connecting actions to course materials</p> <p>Create an e-portfolio, a 1-minute video, and tips for next semester's students</p> <p>Present to the class</p>	<p>Student organizes a walk to benefit an organization working to end eating disorders</p> <p>Student organizes shoe collection for a local organization benefiting people experiencing homelessness</p>	<p>Allows students to draw on lessons learned earlier in the semester (scaffolding) before initiating an activity</p> <p>Allows students to exercise their own agency as they design an action to help others</p>
Summative Reflection (Finals week)	<p>Reflect on the Experiments in Ethics objectives</p> <p>Write a reflection, drawing on any relevant class materials</p>	<p>“After taking this course, I have a more positive outlook on volunteering and charity as whole. I see just how truly accessible change is to an individual, and that gives me hope for the future of the world.”</p> <p>“Overall, I think that the experiments in ethics definitely opened my eyes to things I would not have considered to care about if I had not taken this class.”</p>	<p>Allows students to make connections across course content and unite the experiments as a singular assignment</p>

Thus, course design ensures that scaffolding is built into the Experiments in Ethics through an iterative process of learning new content, reflection, and feedback. Although each experiment is independent of one another, the Experiments in Ethics is designed so that as students progress through the sequence of experiments, they build skills and reflect on how the ideas learned in the classroom related to their experiences outside the classroom where they attempted to make changes in their own lives and the lives of others. This process was designed in collaboration with Dr. Ramona Ilea and utilized at their institution. One author and Dr. Ramona Ilea have also collaborated on assessment. Thus, we believe the general design process could be applied to any discipline at an introductory level (at either a two or four-year university) and paired with any experience-based learning seeking to build skills in a specific area.

Methodology

The study described in this paper utilized the instrument to track student perceived gains in communication, citizenship, practicality, and critical thinking skills as set forth in Hawthorne et al. (2016) because of the parallel course content and project objectives. The pre-and post-course survey include nineteen questions requiring a Likert-like response on a six-point scale. These questions are found in Table 2 and are aligned to the categories of communication, citizenship, practical, and critical thinking skills. These categories were used in order to explore whether scaffolding experience-based learning could demonstrate growth in these project objective areas.

Table 2
Survey Questions and Corresponding Short Names

	Survey Questions	Corresponding Short Name
Critical Thinking	1. I am able to analyze arguments	CT: Analyze Arguments
	2. I am able to understand philosophical theories discussed in class readings	CT: Understand Theories
	3. I am able to argue for my own values or perspectives	CT: Argue Values
	4. I am able to understand other people's arguments for their values or perspectives	CT: Understand Others' Arguments
	5. I am able to critically reflect on my own actions	CT: Reflect on Actions
Communication	6. I am able to clearly state my own values or perspectives	CO: State Values
	7. I am able to clearly state other people's values or perspectives	CO: State Others' Values
	8. I am able to express myself in writing	CO: Express Myself – Speech
	9. I am able to express myself in speech	CO: Express Myself – Writing
	10. I am able to communicate with diverse people	CO: Communicate w/Diverse People
Practicality	11. I am able to take a project from start to finish	PR: Start to Finish
	12. I am able to overcome challenges or obstacles	PR: Overcome Challenges
	13. I am able to manage time well	PR: Manage Time
	14. I am able to be a leader	PR: Be a Leader
	15. I am able to work in a team	PR: Work in a Team
Citizenship	16. I am able to recognize injustices and other social problems.	CI: Recognize Injustice
	17. I am able to initiate my own projects	CI: Initiate Projects
	18. I am able to improve the community	CI: Improve the Community
	19. I am able to see myself as a person who can bring about change	CI: Ability to Bring Change

After gaining IRB approval and student informed consent, students electronically accessed the pre-course survey within the 2nd week of the 17-week courses (Spring and Fall 2017) and then again

during the 16th week of the courses. The difference between the pre- and post- surveys included additional details relating to the type of experiment and choices students made to complete the experiments in the post-survey. The post-survey also captured characteristics of the final scaffolded experiment. Otherwise, all 19 questions appeared on both the pre- and post-course survey. Course work includes six small, interrelated experiments that compose the Experiments in Ethics assignment. The analysis plan included applying descriptive statistics to capture the change in frequency distribution by comparing pre- and post-course raw counts and percentages of individual questions and categorical composites.

After each experiment, students completed a reflection and received feedback. In the last week of the courses, students were required to write a final, summative reflection evaluating each of the experiments and the assignment (Experiments in Ethics) as a whole. This prompt aimed to capture student reflection on course content, self, and engagement in the experiments as well as student perception of improvement in project objectives.

Utilizing a two-person coding method (Creswell, 2009), we established a process to identify themes. The first author was the instructor for the course while the second author was not affiliated with the course. First, we independently coded the same 5 randomly selected reflections. We then collaborated to determine significant themes (taking a project start to finish, time management, persistence, originality, personal responsibility, capability to make change, life relevance, original/critical thinking, engaging the public) relating to individual experiments. Once themes were established, we independently coded the remaining reflections before returning to review together identified theme examples. Additionally, we intentionally identified positive and negative occurrences of the themes. For example, when a student was unable to manage time well, this was identified as a negative occurrence of time management. Likewise, if a student wrote that they realized the importance of starting an experiment early, this was coded as a positive occurrence of time management. In most instances, we marked and labeled the same passages similarly. In the few occurrences that the coding did not align, we engaged in discussion until we reached consensus.

Results

Quantitative Analysis

Of the 74 completed pre-course surveys and 52 completed post course surveys, 50 students provided paired data. This provided a 60% total participant response rate and a 58% paired response rate; it was only these paired responses that are included in the quantitative analysis. Twenty-two students who consented to participate in the study did not complete the post-survey. This was not singularly due to student course drop or withdrawal; we can only speculate as to other influencing reasons.

Student data consistently revealed student perceived growth in each of the four project objectives: critical thinking, communication, practicality, and citizenship. This is demonstrated in the shift toward “very certain or able” between the pre- and post- surveys Likert statements (see Table 2) indicating student growth across categories (see Figure 2).

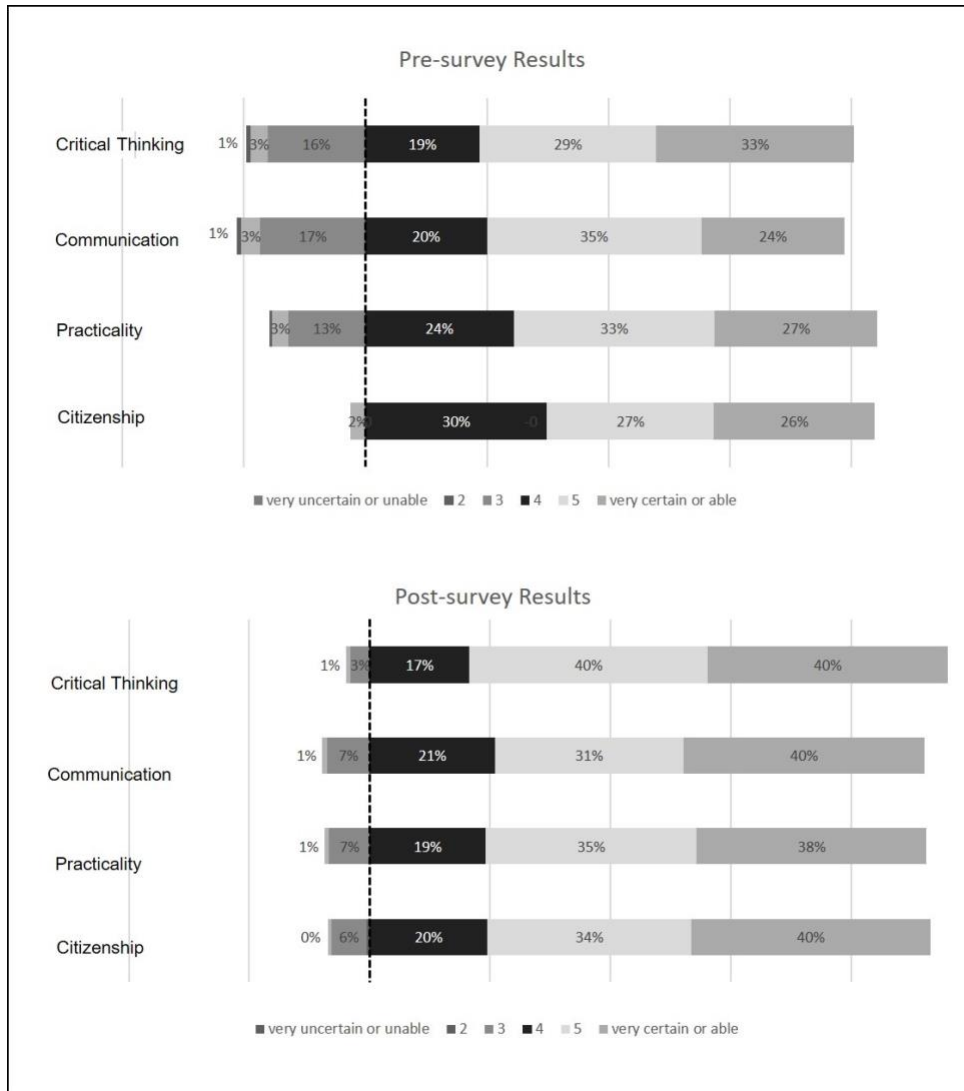


Figure 2: The comparison between the pre- and post-course surveys shows the shift in student perceived growth. The left of the vertical dotted line reveals the percentage of responses corresponding or closely corresponding to “very unable or uncertain.” The right of the vertical dotted line reveals the percentage of responses corresponding to or closely corresponding to “very certain or able”.

Note: Due to rounding of decimals, totals may not be 100%.

Categorically, the largest shift was in critical thinking. This category included five questions for which the raw counts across the Likert scale shifted 16% towards selections of 4, 5 or 6 “very certain or able” away from selections of 1 “very uncertain or unable”, 2, or 3 (see Figure 3). It is worth pointing out that within the critical thinking category, two questions revealed much higher shifts on this scale. The question CT: Analyzing arguments (Q1) shifted in responses by 23%. The second question CT: Understanding philosophical theories (Q2) shifted in responses by 33%.

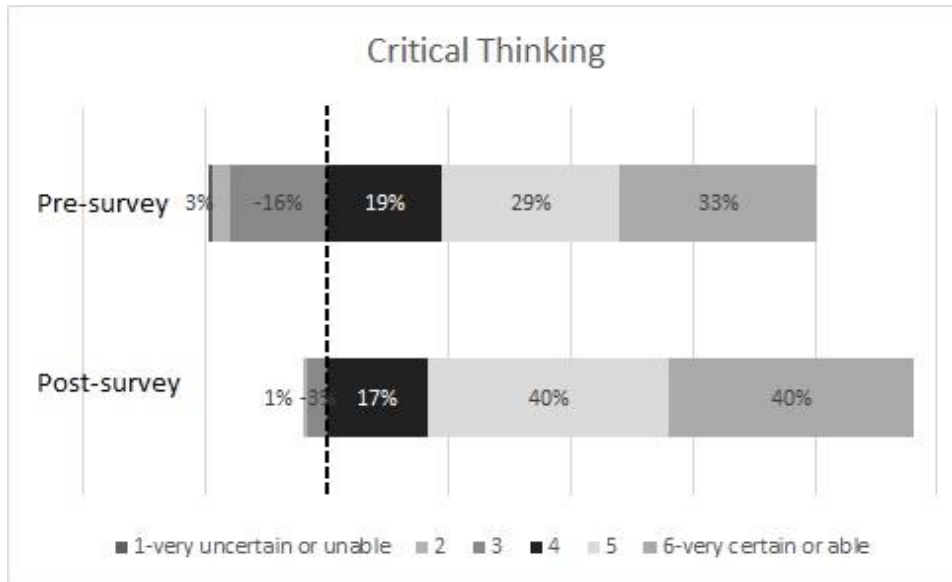


Figure 3: This divergent bar chart shows the composite distribution of Likert selection on both the pre- and post-surveys for the critical thinking category. This composite reflects the totals from the five questions related to this category. Percentages right of the dotted line shifted from 80% to 95% of total responses. Note: Due to rounding of decimals, totals may not be 100%.

Within the communication category, we also saw a significant shift. This category included 5 questions for which the Likert scale shifted 13% towards selections of 4, 5, or 6 “very certain or able” away from selections of 1 “very certain or unable, 2, or 3 (see Figure 4). Again, it is worth pointing out that a specific question within this category revealed much higher shifts on this scale. The question CO: State Others’ Values (Q7) revealed a 33% shift toward the positive end of the Likert scale.

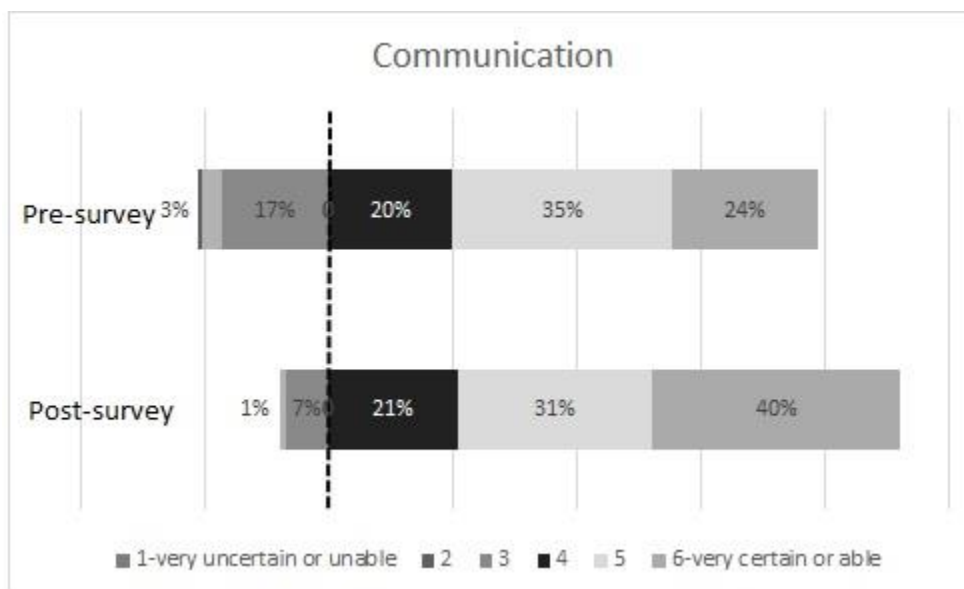


Figure 4: This divergent bar chart shows the composite distribution of Likert selection on both the pre- and post-surveys for the communication category. This composite reflects the totals from the five questions related to this category. Percentages right of the dotted line shifted from 79% to 92% of total responses. Note: Due to rounding of decimals, totals may not be 100%.

Although the shift in frequencies did change in the practicality and citizenship categories from the pre- survey to the post- survey, these were not as significant in comparison. The overall frequency shift for the citizenship category revealed a 9% change towards selections of 4, 5, or 6 “very certain or able” away from selections of 1 “very certain or unable, 2, or 3. However, two questions in the citizenship category revealed a positive shift of 10% (CI: Initiate projects (Q17)) and 16% (CI: Improve community (Q18)). Similarly, the practicality category experienced roughly the same 9% change.

Seventy-six percent of students chose to work with other students on the Organize an Activity experiment (see Table 1). In this same experiment, 26% volunteered for an established organization such as stocking shelves at a local food pantry. In comparison, 58% completed a self-designed project for an existing group such as organizing a neighborhood food drive to benefit a local food pantry.

Qualitative Analysis

The trends revealed in the descriptive quantitative analysis were affirmed by the qualitative analysis of the final student experiment, a summative reflection (see Table 1). The coding of the student reflections revealed nine themes (see Table 3). We identified both positive and negative occurrences of each theme. We coded 576 total comments across 50 summative reflections.

Table 3

Themes and Occurrences from Qualitative Analysis by Pre/Post Survey Category

Theme	+	-	Total	Student Examples
Practicality	82	87	169	
Taking project start to finish	36	19	55	<p>“I thought I would have to have my hand held throughout the process, and I wouldn’t be able to initiate any part of the project without the help of someone. In fact, I was wrong,” (positive example)</p> <p>“If someone is thinking about doing something similar, my advice would be to get the word out. We didn’t plan this part very well and I wish we would’ve invited more people.” (negative example)</p>
Time management	6	33	39	<p>“Something I would do differently would definitely put some more time and effort into actually organizing the activity. Things were almost last minute with our group and we probably didn’t do as well as we could have.” (negative example)</p>

Persistence through time and difficult circumstances	40	20	60	<p>“...to be honest I just expected myself to do it for the project then go back to normal afterwards. But that didn’t quite happen, after the week of talking with my coworker and getting to know her, and letting her get to know me, we actually became friends.” (positive example)</p> <p>“I think you should find a way to make them seem less overwhelming. Whenever I told someone about the experiments they decided in an instant that they didn’t want to take an ethics class...” (negative example)</p>
Originality (student wanted his/her idea/ experiment to be original)	0	15	15	<p>“My volunteer experiments, I wish I did something more creative and not so cliché, but I was taught that there is nothing wrong with doing the same good old thing, as long as it still is effective and helps people in need.” (negative example)</p>
Citizenship	139	11	150	
Personal responsibility	55	3	58	<p>“I learned a lot doing the experiments in ethics but I will say that they made me think more about my social obligations and material taught to us in class.” (positive example))</p>
Capability to make change	84	8	92	<p>“This class helped me learn how to look at life more differently than what I was. Knowing that by the little things I do in the day-to-day life could help change the world goes along way. Trying to be a leader is hard and all but being able to step up and take charge in different situations can change many things.” (positive example)</p>
Critical thinking	193	24	217	
Life relevance (to student’s own life)	76	17	93	<p>“All together the experiments in ethics provided me some incredible life lessons and experiences I would not have received otherwise. If it were up to me I would say yes, you should continue to assign these experiments. For me they really did make a difference.” (positive example)</p> <p>“I didn’t reach to engage in an issue that is important to me because there just wasn’t anything I was strongly engaged in.” (negative example)</p>
Critical or original thinking, reflection, and/or application of class materials to instances of experience	117	7	124	<p>“It teaches how we can make a difference, and honestly there are a handful of other professors that teach ethics that do not focus on the physical side of it. This project gives the students who learn better by acting or doing an option.” (positive example)</p> <p>“It didn’t really make me think of my obligations to others differently. I have always thought we should help people who are in need and struggling. This activity made me think more about what organizations I should donate to.”</p>

(negative example)

Communication	23	17	40	
Engaging the public	23	17	40	“...we just went to the shelter...and brought the clothes in and got a receipt. I would have liked some more engagement in the organize an activity but there wasn’t any.” (negative example)

Note: The total 576 coded comments are from 50 summative reflections. Coded responses were identified as positive or negative occurrences of the 9 themes. These 9 themes are grouped by project objective categories—practicality, citizenship, critical thinking, and communication.

Four of the nine themes are aligned to the practicality category in the pre-and post-course survey; these included “Taking project start to finish,” “Time management,” “Persistence through time and difficult circumstances,” and “Originality.” “Taking a project start to finish” had closely balanced positive and negative components; although, this theme had significantly more overall positive instances than negative. The four coded themes related to practicality only represent 29% of the 576 total coded comments (see Figure 5).

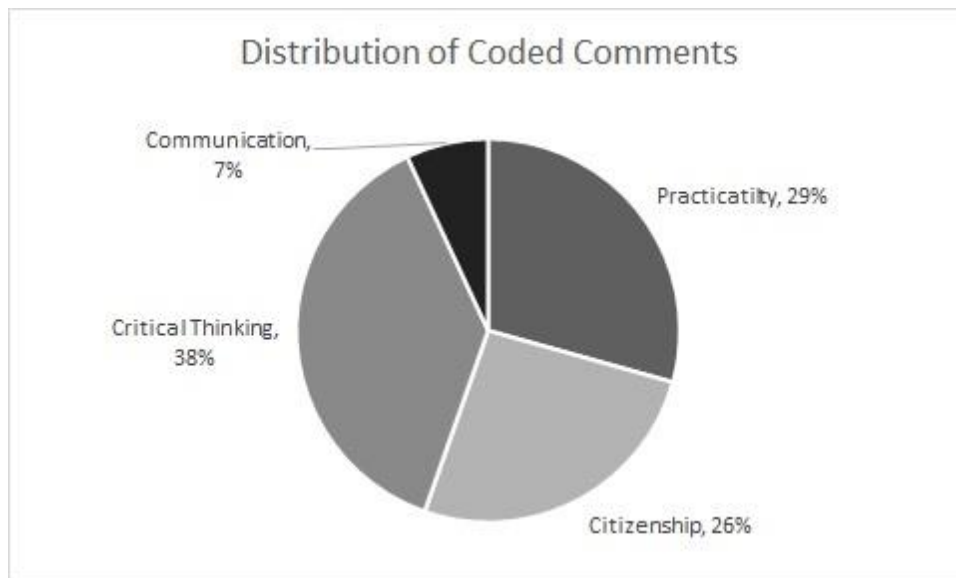


Figure 5: This pie chart shows the composite distribution of the 576 total coded comments across the four project objective categories – practicality, citizenship, critical thinking, and communication.

On the other hand, the largest percentage of the 576 total coded responses related to the critical thinking category, accounting for 38% of all coded comments. The comments related to critical thinking included two coded themes, “Life relevance” and “Original Thinking/Application of Class material”. In addition, communication related coded responses were at a minimum and only appeared in 7% of the overall 576 coded comments. While the prevalence of the coding associated

with the critical thinking category mirrored the prevalence in quantitative analysis, the prevalence of the coding associated with the communication category did not mirror the quantitative data in the same way.

Discussion

Results show that outcomes from the Experiments in Ethics assignment reveal students gain in important philosophical and citizenship skills. These results lead us to believe that replacing semester-long CE projects that culminate with a large-scale assignment with scaffolded and supported smaller-scale, interrelated experiments is an effective strategy for increasing student agency and meeting course objectives.

The large percentage of students able to self-design the last experiment may indicate that students did experience growth in agency. Furthermore, the themes in the qualitative analysis reflected the psychosocial factors associated with student success identified by Fong et al. (2017). Specifically, Fong et al. identified self-perception, attribution, self-regulation, and anxiety as ways beginning college students experience setbacks. Our qualitative analysis of student data revealed that students felt more capable to take a project from start to finish, make a change, grow in personal responsibility, improve in time management, and persist through time and difficult circumstances. Our strong qualitative results show that creating scaffolded, small-scale, interrelated experiments is a highly effective strategy for addressing areas of student struggle, especially for beginning college students.

Although it was anticipated that the Experiments in Ethics CE project would perform well because of the scaffolded approach taken, a close examination of previous work helps explain and confirm the results obtained in this study. As discussed earlier, agency or self-authorship is an integral part of CE projects and change-oriented service learning. In the Experiments in Ethics, students' experience of exercising their agency was more deliberately scaffolded; students move through the content, reflection, feedback process as they work on the different experiments.

In Experiments in Ethics, substantive gains in critical thinking skills are made. This also may be due to the deliberate instructional design where critical thinking was planned for, included in instructional method and content, and related to explicit learner outcomes. We believe it is the scaffolded approach of the Experiment in Ethics that may have led to significant gains in skills reported by students. Thus, students demonstrate achievement of course learning objectives because they create a routine of reflection where students get feedback and support throughout their learning.

The iterative scaffold approach could be used in any discipline outside of the context of experience-based learning. However, it is particularly useful in achieving project objectives, especially for beginning college students, in a context of experience-based learning. For example, a Lifespan Psychology class could employ small, interrelated, experience-based assignments in relation to an overall course goal to teach research methods and child development. Students might select a real child to study and gather data by using research methods like naturalistic observation, parent interview, and "testing" the child (using methods discussed in class). An English Research and Writing class could utilize small, interrelated, experienced-based learning assignments where

students complete a series of interviews with immigrants to the United States. Students might use this information in various ways to write profile papers and create portraits of their interviewees. Like the Experiment in Ethics, these projects may help students gain communication, citizenship, practical, and critical thinking skills.

Conclusion

In conclusion, pairing scaffolded, small-scale, interrelated civic engagement projects with classroom study of philosophy helps students significantly gain in important skills related to communication, citizenship, practicality, and critical thinking. This study helps support the conclusion that small-scale, interrelated experience-based learning projects can have significant impact on student learning when this experiential learning incorporates an iterative scaffold approach. The repetition in reflection, action, and feedback acts as scaffolding for student learning: it helps students gain insight on expectations about the assignment, design experiences outside the classroom, comprehend theoretical materials, and improve their writing process. Similar outcomes are expected for future repeated use in philosophy courses or other academic disciplines. Furthermore, while this assignment was highly effective for community college students, benefits are expected for beginning college students at four-year colleges and universities.

Limitations

The data gathered were self-reported by students, and the study does not capture why students may have left the course or not completed the scaffolded assignment. This creates a selection bias and does not account for the voices of those who do not participate. This study does not correlate with student grades or course completion. Furthermore, this study did not examine overall graduation or transfer rates for community college students. In addition, there was no differentiation of lower performing or traditionally underserved students from typically high performing students. It would be necessary to take these additional factors into account to determine how Experiments in Ethics affects overall student success.

Future Research Implications

Future research is encouraged in this area. A number of questions remain. One area of interest is to consider the length of experience-based learning and whether a difference exists between bigger (both in duration and complexity) and smaller-scale experiences. In addition, it would be worth studying how many experiments or small-scale experiences are needed to impact student learning and the extent to which assignments can be scaled and still have impact on learning goals. Studies of scale in experienced-based learning in any discipline could help answer these questions.

Many additional questions remain relating to student success and equity. This study concludes that students gain in a particular skill set, but it is not known if the Experiments in Ethics affect retention of students and overall student success, particularly in relation to typically underserved or underperforming students. Future research may help reveal if experienced-based learning of this sort can help solve issues of equity among learners. Again, studies from any discipline could help contribute to our understanding of experienced-based learning techniques and their relationship to equity.

Additionally, Experiments in Ethics was assessed as a whole for meeting class objectives, but individual experiments were not assessed. Future research could determine which experiments are more formative or helpful in achieving objectives. These questions could be answered in a philosophical context, or in other disciplines working on experienced-based learning.

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