

Assessing Tolerance of Ambiguity and Locus of Control in a Service-Learning Course

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Abstract

Students from a regional state university participated in a semester-long project in community service-learning with local community nonprofit agencies to plan, promote, and implement an event. Student tolerance of ambiguity and locus of control were evaluated before the beginning of the course and after completion of the project. Results from this study demonstrated that students' sense of control was enhanced by the service-learning project component of the course. In addition, they exhibited an increase in intolerance of ambiguity.

Keywords: service-learning, tolerance of ambiguity, locus of control

For some time now, service-learning has been used to incorporate community service into the college curriculum by giving students real-world learning experiences designed to enhance academic learning and provide tangible benefits to communities (see Arellano & Jones, 2018; Asghar & Rowe, 2017; Einfeld & Collins, 2008; Hébert & Hauf, 2015; McNatt, 2020; Simons & Cleary, 2006; Ward & Wolf-Wendel, 2000). In addition, faculty members hope that students will develop creative solutions to problems and develop more care, compassion, and responsibility (see Gardner & Baron, 1999; Ocal & Altinok, 2016; Shumer et al., 2012; Strage, 2004; Wilson, 2011; Yorio & Ye, 2012).

Previous studies found that service-learning increased students' knowledge about a subject (Porter et al., 2008), helped them understand theories and concepts (Markus et al., 1993), and enhanced their academic performance in college courses (Reeb et al., 1999). In addition, students who engaged in service-learning evaluated their courses more positively and scored significantly higher on community engagement, academic engagement, interpersonal engagement, academic challenge, and retention scales (Gallini & Moely, 2003). Civic-mindedness and the ethical effects of service-learning have also been examined in detail (Astin & Sax, 1998; Battistoni, 2006; Boss, 1994; Butin, 2010; Rocheleau, 2004).

Findings include heightened connection to communities and understanding of one's responsibilities and place in the world after a service experience in the community. However, other studies have shown mixed results or have not demonstrated a significant difference between students who engaged in service-learning and those who did not (see Gardner & Baron, 1999; McKenna & Rizzo, 1999; Miller, 1994).

Service-learning's impact in the college classroom has been explored extensively, including its impact on affective learning (Astin et al., 2000; Davis, 2013; DeGenaro, 2010; Eyler & Giles, 1999; Hurd, 2006; Kiely, 2005; Pierrakos et al., 2013; Stephens et al., 2016; Warren, 2012).

Astin et al. (2000), for example, explored the effects of cognitive and affective learning of undergraduates through a quantitative longitudinal study of 22,236 college students and a qualitative study of faculty and students at a subset of those students' colleges and universities. They found that service-learning impacts affective learning because it increases a sense of personal efficacy, an awareness of the world, an awareness of personal values, and engagement in the classroom. Hurd (2006) found that classes that use service-learning promote cognitive and affective integration and facilitate the development of connections between students, faculty, and

community members in ways that allow for diversity and encourage student retention.

Other researchers have investigated the cognitive and affective outcomes of service-learning. Davis (2013) examined cognitive and affective differences between students who completed a short-term service-learning experience and students who watched a video of the same task (reading a book with an elementary school student). Although no significant cognitive differences were found, significant affective differences were found, even when academic level and course performance variables were controlled for. Similarly, Pierrakos et al. (2013) used a mixed-methods approach to study cognitive and affective learning during a problem-based service-learning (PBSL) sophomore design experience. The researchers found that despite being challenged by the complexity of the experience, students valued the problem-based service-learning and gained professionally relevant knowledge and skills.

What has not been explored is the impact of service-learning on students' tolerance of ambiguity and locus of control. Does having students engage in service-learning activities affect their tolerance of ambiguity and influence their locus of control while helping them to understand theories and important concepts?

Tolerance of Ambiguity

Tolerance of ambiguity has been studied as a mitigating variable in individual behavior (see Hancock & Mattick, 2020; Robinson et al., 2019). Budner (1962) attempted to define intolerance of ambiguity in terms of its component dimensions, construct an adequate measure based on the definition, and illustrate some of the varied situations in which intolerance of ambiguity may be a significant variable.

Budner asserted that intolerance of ambiguity referenced a covert activity (evaluation) and a nonspecific goal and was therefore an abstraction of many responses to many situations. The correlates that he reported are generally viewed as manifestations of intolerance of ambiguity. As an example, he stated that being intolerant of ambiguity does not lead a person to favor censorship, but favoring censorship is part of being intolerant of ambiguity (Budner, 1962, p. 49). Forty-two years later, Lane and Klenke (2004)

defined ambiguity as those situations that lack sufficient information in three different contexts: (1) a completely new situation that offers no familiar cues, (2) a complex situation in which there are numerous cues that need to be considered, and (3) a contradictory situation in which different cues suggest different structures.

Owen and Sweeney (2002) measured students' tolerance of ambiguity by using two previously developed psychometric instruments that they correlated with ambiguity tolerance ratings on two projects. The subjects were students enrolled in a senior-level information technology course that required two group projects related to the installation of an operating system, a web server, and related software on two different computer platforms. Owen and Sweeney found that students with a high tolerance for ambiguity perceived the instructions to be more ambiguous than did those students with a lower tolerance for ambiguity, but the relationship between ambiguity and student learning was not investigated because final grades assigned to the projects did not exhibit a great deal of variability and tended to be high.

Locus of Control

Like tolerance for ambiguity, locus of control has been studied for more than 50 years (see Galvin et al., 2018; Kumaravelu, 2018) as a mitigating variable in individual behavior. Levenson (1973) was one of the first researchers to modify Rotter's internal-external locus of control scale on a sample of hospitalized psychiatric patients to measure more accurately expectancies of control as they related to adjustment and clinical improvement. Levenson designed three new scales—the internal scale, the powerful others scale, and the chance scale—to measure belief in chance or fate expectancies that were separate from a powerful others orientation. The items attempted to measure the degree to which a subject perceived events to be a consequence of his or her own acts, under the control of powerful others, or determined by chance. Preliminary analyses indicated that the three dimensions of control added to an understanding of how locus of control was perceived.

Thirty-three years after Levenson's study, Ng et al. (2006) employed a meta-analysis to investigate the relationships between locus of control and well-being, locus of

control and motivation, and locus of control and behavioral orientation. Those with an internal locus of control believed that they were the masters of their fate and were often confident, alert, and directive in attempting to control their external environment. Those with an external locus of control believed that they did not have direct control of their fate and perceived themselves in a passive role regarding the external environment. The study found that internal locus of control was positively associated with favorable work outcomes such as positive task and social experiences, and greater job motivation. There were no research studies found that looked at tolerance of ambiguity and service-learning or community-based learning, nor were there studies relating to locus of control and service-learning.

The goal of the present research study was to examine the outcomes of a service-learning experience for students enrolled in an organizational communication course. We were interested in answering one question:

RQ: What is the relationship between students' tolerance of ambiguity and locus of control following the completion of a major service-learning project?

Method

Participants

Forty-eight students, ages 20–22, enrolled in two sections of an organizational communication class at a medium-sized public university in the mid-Atlantic region of the United States and self-selected into one of six groups per class to complete a service-learning project during the fall semester. Of the 25 students in Class 1, 21 were women and four were men. There were 22 White students and three Asian students. Thirteen were juniors and 12 were seniors. Of the 23 students in Class 2, 19 were women and four were men. There were 21 White students, one Black student, and one Asian student. Twelve of the students were juniors and 11 were seniors.

Procedure

The Class 1 instructor secured the projects for both classes, helped the clients to understand what the students were capable of doing, and made sure the clients adhered to the service-learning requirements. Due to time constraints of the semester,

the instructor identified the projects and students could self-select into one of six service-learning projects in each class that focused on planning events for a nonprofit community agency.

Class 1 projects included a prematurity awareness kickoff event, as well as a "Family Fun Night" for the March of Dimes. In addition, other not-for-profit projects included a canned art event for a local food bank, a pet dog extravaganza event for an animal health nonprofit organization, and a Par 3 golf event for the United Way. An awareness party to celebrate the first anniversary of a local gift shop was also planned.

In Class 2, three of the six projects involved planning events (a talent show, a brunch, and a "Fall Fun Fest") at a nearby retirement community. Two of the projects involved planning holiday parties in December. The first was a holiday open house for a nonprofit organization dedicated to promoting learning and literacy; the second was a holiday party for grandparents sponsored by the community hospital. The final project in Class 2 was the creation of a "communication blitz" targeted at local automobile dealers, garages, and parts providers for a nonprofit organization whose mission is to help low-income working families become more self-sufficient by assisting them with their vehicle transportation needs.

Each group selected the project on which they would work for the duration of the semester. There was no minimum or maximum number of hours required for the completion of each project. However, we asked students to log how many hours they spent on the project. In addition, students were required to write responses to four discussion board/email posts that focused on organizational communication theories and write evaluation responses for nine articles about organizational theories (see the Appendix for the evaluation response prompts).

The two independent variables in this study were measured by using the tolerance of ambiguity scale (Budner, 1962) and the locus of control scale (Levenson, 1973). Study participants completed the instruments as a pretest and a posttest following the approval of the Institutional Review Board.

To measure tolerance of ambiguity, students

answered a 16-item questionnaire. The items were measured on a 7-point Likert-type scale (1 = *Very strongly disagree* and 7 = *Very strongly agree*) and included statements like “Many of our most important decisions are based upon insufficient information” and “People who insist upon a ‘yes’ or ‘no’ answer just don’t know how complicated things really are.” To measure locus of control, the participants answered a 24-item survey instrument. The instrument measured responses on a 5-point Likert-type scale (1 = *Strongly disagree* and 5 = *Strongly agree*). It included statements like “To a great extent my life is controlled by accidental happenings,” “People like myself have very little chance of protecting our personal interests when they conflict with those of strong pressure groups,” and “In order to have my plans work, I make sure that they fit in with the desires of people who have power over me.”

The dependent variable, cognitive learning, was operationalized as the students’ final grades for the course and was measured at the time final grades were calculated.

Results

Paired samples *t*-tests were used to analyze the pretest and posttest responses for the locus of control and tolerance of ambiguity instruments to ascertain if there was any change on either scale after the completion of the service-learning projects. In Class 1, there were no significant changes noted between the pretest and posttest scores for either tolerance for ambiguity or locus of control. In Class 2, there were significant changes noted on several items for both tolerance of ambiguity and locus of control.

Tolerance of Ambiguity

On the tolerance of ambiguity scale, there were 16 paired statements, and three displayed significant changes when pretest scores were compared to posttest scores. These significant relationships were noted in only Class 2, not Class 1. The first item that showed a significant change was “A good job is one in which the what and the how are always clear.” The second significant change was noted on the item “The most interesting people are ones who don’t mind being original.” The third significant change was noted for the statement “A good teacher is one who makes you wonder about your way of looking at things.” (See Tables 1a and 1b.) The significance value for these three

items was less than the 0.05 threshold, which means that changes between the pretest scores and the posttest scores are not due to chance but can be attributed to the service-learning experience in Class 2.

Locus of Control

For the locus of control scale, there were 24 paired responses. Two showed significant changes when pretest scores were compared to posttest scores in Class 2, not Class 1. The first item stated, “If important people were to decide they didn’t like me, I probably wouldn’t make any friends,” and the second item stated that “In order to have my plans work, I make sure that they fit in with the desires of people who have power over me.” (See Tables 2a and 2b.) The significance value for these two items was less than the 0.05 threshold, which means that changes between the pretest scores and the posttest scores are not due to chance but can be attributed to the service-learning experience in Class 2.

Cognitive Learning

Cognitive learning was measured at the end of the semester when final course grades were calculated. Class 1 grades (Mean = 3.64, *SD* = 0.349) and Class 2 grades (Mean = 3.70, *SD* = 0.154) were similar. (See Table 3.)

Discussion

Service-learning projects gave students ways to connect organizational communication theories to real-life organizations and their settings. Because this group of students’ work experiences had been limited to lifeguarding, waiting tables, and babysitting, they struggled to relate the organizational theories to any real-world experience. In qualitative course evaluations, students stated that this organizational communication course provided them with the real-life experiences they lacked and made the theories understandable. In addition, students commented on how the work they produced for these clients helped them to create and build a portfolio filled with material that they could use to get a job upon graduation.

Tolerance of Ambiguity

There were only three significant changes on the tolerance of ambiguity scale for Class 1 and none for Class 2. Personality and directedness could explain why there was no

Table 1a. Tolerance of Ambiguity Paired Samples Test (Class 2)

Item	Mean	SD	Std. Error Mean	t	df	Sig. (2-tailed)
1. An expert without a definite answer probably doesn't know much.	-.591	1.764	.376	-1.572	21	.131
2. I would love to live in a foreign country for a while.	-.045	.722	.154	-.295	21	.771
3. There is no such thing as a problem that can't be solved.	.591	2.261	.482	1.226	21	.234
4. People who fit their lives to a schedule miss out on the joy of living.	.045	1.988	.424	.107	21	.916
5. A good job is one in which the what and the how are always clear.	.682	1.524	.325	2.098	21	.048
6. It is more fun to tackle a complicated problem than to solve a simple one.	-.455	1.503	.320	-1.418	21	.171
7. In the long run you get more done by tackling small, simple problems.	.000	1.976	.421	.000	21	1.000
8. The most interesting people are ones who don't mind being original.	.455	1.011	.215	2.109	21	.047
9. What we're used to is always preferable to what is unfamiliar.	.136	1.781	.380	.359	21	.723
10. People who insist on yes/no answers don't know how complicated things are.	.409	1.563	.333	1.227	21	.233
11. A person who leads a regular life has a lot to be grateful for.	-.045	1.327	.283	-.161	21	.874
12. Many important decisions are based on insufficient information.	-.545	1.335	.285	-1.916	21	.069
13. I like parties where I know most of the people.	-.273	1.120	.239	-1.142	21	.266
14. Supervisors who hand out vague assignments give one chance to show initiative.	-.591	1.817	.387	-1.526	21	.142
15. The sooner we acquire similar values, the better.	-.545	1.654	.353	-1.547	21	.137
16. A good teacher is one who makes you wonder about your way of looking at things.	-.318	.568	.121	-2.628	21	.016

Note. $p < .05$

significant change in Class 1 and there was significant change in Class 2. The faculty member in Class 1 had more experience with service-learning (in writing, research, and practice). This instructor secured the projects for both classes, helped the clients to understand what the students were capable of doing, and made sure the clients adhered to the service-learning requirements. The faculty member in Class 1 is more concrete, has more experience, and is more direct when explaining the parameters of the service-learning projects to her students.

The faculty member in Class 2, on the other hand, understands service-learning more from an academic perspective. His focus is on institutions, which is less broad than that of the faculty member in Class 1. The faculty member in Class 2 had used service-learning in a general education learning community and in other college courses. However, he is less direct than the faculty member in Class 1 and is more likely to say, "Make this project your own. Work with the client to develop this project."

Table 1b. Tolerance of Ambiguity Paired Samples Test (Class 1)

Item	Mean	SD	Std. Error Mean	t	df	Sig. (2-tailed)
1. An expert without a definite answer probably doesn't know much.	.000	1.543	.329	.000	22	1.000
2. I would love to live in a foreign country for a while.	.455	2.464	.525	.865	22	.397
3. There is no such thing as a problem that can't be solved.	.227	1.875	.400	.568	22	.576
4. People who fit their lives to a schedule miss out on the joy of living.	.227	1.798	.383	.593	22	.560
5. A good job is one in which the what and the how are always clear.	-.318	1.323	.282	-1.128	22	.272
6. It is more fun to tackle a complicated problem than to solve a simple one.	.000	1.746	.372	.000	22	1.000
7. In the long run you get more done by tackling small, simple problems.	.136	1.283	.274	.498	22	.623
8. The most interesting people are ones who don't mind being original.	.182	1.468	.313	.581	22	.568
9. What we're used to is always preferable to what is unfamiliar.	-.045	2.058	.439	-.104	22	.918
10. People who insist on yes/no answers don't know how complicated things are.	-.273	1.980	.422	-.646	22	.525
11. A person who leads a regular life has a lot to be grateful for.	.364	1.620	.345	1.053	22	.304
12. Many important decisions are based on insufficient information.	.091	1.716	.366	.249	22	.806
13. I like parties where I know most of the people.	.227	1.572	.335	.678	22	.505
14. Supervisors who hand out vague assignments give one chance to show initiative.	-.273	1.667	.355	-.767	22	.451
15. The sooner we acquire similar values, the better.	-.455	2.087	.445	-1.022	22	.319
16. A good teacher is one who makes you wonder about your way of looking at things.	.136	.990	.211	.646	22	.525

Note. $p < .05$

Table 2a. Locus of Control Paired Samples Test (Class 2)

Item	Mean	SD	Std. Error Mean	t	df	Sig. (2-tailed)
1. Whether I get to be a leader depends mostly on my ability.	-.318	.839	.179	-1.779	21	.090
2. To a great extent, my life is controlled by accidental happenings.	-.227	1.020	.218	-1.045	21	.308
3. I feel like what happens in my life is mostly determined by powerful people.	.182	1.053	.224	.810	21	.427
4. Whether or not I get into a car accident depends mostly on how good a driver I am.	-.091	1.269	.271	-.336	21	.740
5. When I make plans, I am almost certain to make them work.	-.136	.640	.136	-1.000	21	.329
6. Often there is no chance of protecting my personal interest from bad luck happening.	-.091	1.269	.271	-.336	21	.740
7. When I get what I want, it's usually because I'm lucky.	.000	.816	.174	.000	21	1.000
8. Although I might have good ability, I will not be given leadership responsibility without appealing to those in power.	.227	1.110	.237	.961	21	.348
9. How many friends I have depends on how nice a person I am.	.136	1.246	.266	.513	21	.613
10. I have often found that what is going to happen will happen.	-.182	1.368	.292	-.624	21	.540
11. My life is chiefly controlled by powerful others.	.182	1.006	.215	.847	21	.406
12. Whether or not I get into a car accident is mostly a matter of luck.	.136	.889	.190	.720	21	.480
13. People like myself have very little chance of protecting our personal interests when they conflict with those of strong pressure groups.	.136	.834	.178	.767	21	.451
14. It's not always wise for me to plan too far ahead because many things turn out to be a matter of good or bad fortune.	.318	1.492	.318	1.000	21	.329
15. Getting what I want requires pleasing those people above me.	.318	.839	.179	1.779	21	.090
16. Whether or not I get to be a leader depends on whether I'm lucky enough to be in the right place at the right time.	.318	.945	.202	1.578	21	.129
17. If important people were to decide they didn't like me, I probably wouldn't make any friends.	.364	.581	.124	2.935	21	.008
18. I can pretty much determine what will happen in my life.	-.227	.869	.185	-1.226	21	.234
19. I am usually able to protect my personal interests.	-.091	.294	.063	-1.449	21	.162
20. Whether or not I get into a car accident depends mostly on the other driver.	-.273	.767	.164	-1.667	21	.110

Table 2a. Continued

Item	Mean	SD	Std. Error Mean	t	df	Sig. (2-tailed)
21. When I get what I want, it's usually because I worked hard for it.	-.182	.501	.107	-1.702	21	.104
22. In order to have my plans work, I make sure that they fit in with the desires of people who have power over me.	.455	1.011	.215	2.109	21	.047
23. My life is determined by my own actions.	.045	.486	.104	.439	21	.665
24. It's chiefly a matter of fate or not that I have few friends or many friends.	.000	.926	.197	.000	21	1.000

Note. $p < .05$

Table 2b. Locus of Control Paired Samples Test (Class 1)

Item	Mean	SD	Std. Error Mean	t	df	Sig. (2-tailed)
1. Whether I get to be a leader depends mostly on my ability.	-.130	1.517	.316	-.412	22	.684
2. To a great extent, my life is controlled by accidental happenings.	.391	1.076	.224	1.744	22	.095
3. I feel like what happens in my life is mostly determined by powerful people.	-.130	1.217	.254	-.514	22	.613
4. Whether or not I get into a car accident depends mostly on how good a driver I am.	-.087	1.240	.259	-.336	22	.740
5. When I make plans, I am almost certain to make them work.	-.217	1.085	.226	-.961	22	.347
6. Often there is no chance of protecting my personal interest from bad luck happening.	-.043	1.022	.213	-.204	22	.840
7. When I get what I want, it's usually because I'm lucky.	-.087	.949	.198	-.439	22	.665
8. Although I might have good ability, I will not be given leadership responsibility without appealing to those in power.	.043	1.224	.255	.170	22	.866
9. How many friends I have depends on how nice a person I am.	-.304	1.363	.284	-1.071	22	.296
10. I have often found that what is going to happen will happen.	-.348	1.027	.214	-1.624	22	.119
11. My life is chiefly controlled by powerful others.	-.217	1.043	.217	-1.000	22	.328
12. Whether or not I get into a car accident is mostly a matter of luck.	-.217	1.313	.274	-.794	22	.436
13. People like myself have very little chance of protecting our personal interests when they conflict with those of strong pressure groups.	.130	.968	.202	.646	22	.525

Table 2b. Continued

Item	Mean	SD	Std. Error Mean	t	df	Sig. (2-tailed)
14. It's not always wise for me to plan too far ahead because many things turn out to be a matter of good or bad fortune.	-.261	1.010	.211	-1.239	22	.228
15. Getting what I want requires pleasing those people above me.	-.130	1.140	.238	-.549	22	.589
16. Whether or not I get to be a leader depends on whether I'm lucky enough to be in the right place at the right time.	-.348	1.191	.248	-1.400	22	.175
17. If important people were to decide they didn't like me, I probably wouldn't make any friends.	.043	.976	.204	.214	22	.833
18. I can pretty much determine what will happen in my life.	-.348	1.774	.370	-.940	22	.357
19. I am usually able to protect my personal interests.	.043	1.296	.270	.161	22	.874
20. Whether or not I get into a car accident depends mostly on the other driver.	-.217	1.043	.217	-1.000	22	.328
21. When I get what I want, it's usually because I worked hard for it.	-.391	1.158	.241	-1.621	22	.119
22. In order to have my plans work, I make sure that they fit in with the desires of people who have power over me.	-.087	1.379	.288	-.302	22	.765
23. My life is determined by my own actions.	-.217	1.622	.338	-.643	22	.527
24. It's chiefly a matter of fate or not that I have few friends or many friends.	.217	1.166	.243	.894	22	.381

Note. $p < .05$

Table 3. Class 1 and Class 2 End of Semester Course Grades

	Class 1	Class 2
Min.	3.00	3.30
Max.	4.00	4.00
Mean	3.64	3.70
Median	3.70	3.70
SD	0.349	0.154

The significant change in Item 5 (“A good job is one in which the what and the how are always clear”) between pretest and posttest showed that students went from “Slightly disagree” to “Moderately disagree,” which means that they exhibited less tolerance for ambiguity after completing the service-learning projects than they did before starting them. This increased intolerance of ambiguity occurred despite in-class reflection sessions, frequent project updates, and encouragement for the students to ask questions of the client during the project. However, formal feedback from the clients and the professor is not given until the service-learning projects are completed.

The significant change in Item 8 (“The most interesting people are ones who don’t mind being original”) between pretest and posttest showed that students went from “Moderately agree” to “Slightly agree,” which suggests that at the completion of the service-learning projects they exhibited less tolerance for ambiguity than they did before starting them. Getting a good grade on the project presentations and portfolios is a priority for these students, which could explain this result. If the presentations and the portfolios look similar, then there is a good chance, they believe, that they will receive a grade of “A.” Competition results when groups in the same class compete to see which group gets the best grade on the project presentation and portfolios. New service-learning projects and/or new “takes” or perspectives on earlier projects require taking risks and daring to be original. Students may not want to be original if it jeopardizes their final course grade.

The significant change in Item 16 (“A good teacher is one who makes you wonder about your way of looking at things”) showed that students went from “Slightly agree” to “Moderately agree” between pretest and posttest. This outcome could be explained by the nature of the course, which relies less on exams and more on having students reflect on what they are learning in the classroom and applying that knowledge and understanding to their service-learning projects. We believe this slight change is a positive indicator of the impact of service-learning. As with any experiential pedagogy, it is messy and unpredictable. In this case, the students had to deal with the perception of lack of control with the community partner, the project, and their team members.

Participation in this course and the service-learning projects they completed may have caused them to reconsider what they know about organizations, and their tolerance of ambiguity could have increased due to aspects that are out of their reach (e.g., a community partner who does not give clear directions or tells the students, “Just make this event your own”). (See Table 4.) However, final course grades are not based solely on grades earned on the presentations and the portfolios or on exam scores. Students must also write responses to four discussion board threads, provide written evaluations of nine supplemental readings on different organizational theories, and analyze a current film using one of the five theoretical perspectives discussed in class.

Locus of Control

The first significant change occurred with Item 17 (“If important people were to decide they didn’t like me, I probably wouldn’t make any friends”). Students went from disagreeing with that statement in the pretest to more strongly disagreeing with it after completing their service-learning projects. This change suggests that the students believed that their friendships were a consequence of their own acts and not under the control of powerful others or because of chance. Wanting to make friends is important because the nature of service-learning creates tension both individually and in group situations as people work to accomplish group goals. However, a tension exists between making friends and getting good grades (Whitfield, 2005).

The second significant change occurred with Item 22 (“In order to have my plans work, I make sure that they fit in with the desires of people who have power over me”). Students went from neither agreeing nor disagreeing with this statement in the pretest to disagreeing with it by the time they completed their service-learning projects. This change again suggests that the students believed that they controlled their own actions — they were not under the control of powerful others. Chance also does not seem to play a part. Indeed, student increase in confidence is related to accomplishments of the events they planned and implemented. Their group norms and the needs of the community agency could have created a stronger sense of adaptability that allowed them to demonstrate or at least feel that they controlled their own outcomes.

Table 4. Tolerance of Ambiguity Comparison of Pretest and Posttest Mean (Class 2)

Item	Pretest Mean	Posttest Mean
5. A good job is one in which the what and the how are always clear.	3.50	2.82
8. The most interesting people are ones who don't mind being original.	6.05	5.59
16. A good teacher is one who makes you wonder about your way of looking at things.	5.86	6.18

Table 5. Locus of Control Comparison of Pretest and Posttest Mean (Class 2)

Item	Pretest Mean	Posttest Mean
17. If important people were to decide they didn't like me, I probably wouldn't make any friends.	2.05	1.68
22. In order to have my plans work, I make sure that they fit in with the desires of people who have power over me.	3.14	2.68

Prior to this study, we believed there were three factors in service-learning that affected students' sense of control: the dependency on the client, other group members, and the professor (through the final course grade). We believed that these tensions existed because these three factors could contribute to their perceived lack of control. However, the analysis of the pretest and posttest means alters that understanding.

The significance of Item 17 ("If important people didn't like me, I wouldn't have any friends") could be explained by the fact that these group members worked together over a 16-week semester and developed cohesion. The synergy they developed could have created a sense of confidence that they could work with others to control their own fate. Regarding Item 22 ("In order to have my plans work, I make sure that they fit in with the desires of people who have power over me"), students may have adapted to their surroundings, to the desires of their clients and team members, and to their professor's expectations. (See Table 5.)

The research question asked, "What is the relationship between students' tolerance of ambiguity and locus of control following the completion of a major service-learning project?" The evidence used to answer this

question is not very strong, given that we saw significant change in only one of the classes and then on only five items (three out of 16 tolerance of ambiguity items and two out of 24 locus of control items). However, the evidence seems to suggest that the students wanted clear instructions from the professor (the what) and a clear "road map" they could follow as they worked on their service-learning projects. Anyone who has used service-learning in their college classrooms knows that providing a clear and unambiguous "road map" is difficult. On a more positive note, the students seemed to have learned new things about organizations while showing that they, rather than powerful other people like a client or a professor, controlled their own destinies.

Although controlling ambiguity in any experiential activity is nearly impossible, faculty members who use service-learning could instruct students in how to ask for more clarity from community partners and team members. In addition, conversations about and skill building activities on how to assert themselves in these situations could help students improve their tolerance of ambiguity. However, students need to know that they cannot control all the variables at work (or what happens at school or at home). Learning how to cope with those

feelings of ambiguity now may benefit them in the future. Obsessing over grades instead of focusing on the learning outcomes may continue to grow (O'Connor & Lessing, 2017), but we believe that taking the grade pressure off the service-learning project itself should allay some of the intolerance of ambiguity and improve locus of control as well.

The outcomes of this study reveal important aspects related to service-learning, tolerance of ambiguity, and locus of control. The findings did show changes between classes and from pretest to posttest that

warrant attention and contribute to the existing outcome-based research. As faculty continue to utilize service-learning in classrooms, care should be taken to make sure all involved have an active and reciprocal stake in the process.

Future research could discover the connection between tolerance of ambiguity and locus of control in the pursuit of service-learning projects and how instructor differences may affect these strategies. In addition, examining these strategies on a large scale could provide insight into the overall effects of service-learning.



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Appendix

Email Journal Assignment 1

This assignment is the first part of your journal assignment of the service-learning aspect of this class. You should also be keeping a brief journal of weekly thoughts or occurrences as you progress. Occasionally (about 5 times) I will ask for you to respond to some specific journal comments.

You may need to re-read the service-learning part of the syllabus to answer these questions. Please write at least one paragraph for each part. Remember, thoroughness in internalizing your personal feelings and experiences and use of application of terms and concepts from your readings best demonstrates your understanding and synthesis of the experience and the course materials.

1. Reflect on your own personal values and how they relate to the concepts of service-learning. What specific values are called on for service? How do any of these relate to Communication?
2. What are your personal value systems as they relate to the workplace? What ethical code might you use to guide you in your future career? Be specific, and take the time to write down a bulleted list of codes that you would follow and explain them.
3. What ethical aspects relate to your group assignment, client or organization? What ethical concerns or issues have you noticed or have come to mind since you began this activity? Have you identified any clashes with your personal code of ethics? If so, explain them.
4. In your next group meeting or via email with your group members, discuss everyone's code of ethics and see what similarities and differences exist. Create a group code of ethics that you will use as a guide for the remainder of the semester and send this code to me. Look at all the aspects to create this code. Designate one person from your group to send me your group's code of ethics.

Email Journal Assignment 2

Since we have now essentially dealt with Classical Management, Human Relations, and Human Resource theories, I am asking you to think about these three theories in relations to your organization and your group.

Even though they were designed to be prescriptive rather than descriptive, the Classical, Human Relations, and Human Resources approaches to organizational behavior have influenced most organizations today. Based on your observations and interactions with at least one person in your organization, please address the following questions:

1. What elements of Fayol's Classical Theory, Weber's Theory of Bureaucracy, and Taylor's Theory of Scientific Management have manifested themselves in your organization? Provide specific examples and illustrations to support your observations. How have the advantages and disadvantages of the classical management approach played out within this organization? What about in your group?
- 2a. Using Blake and Mouton's Managerial Grid, how would you describe the management style of the person in the organization whom you are working with (or with whom you are working the closest) during this service-learning project? What are the advantages and disadvantages of her management style for volunteers who are giving time to the organization?
- 2b. By now, leadership roles have emerged within your group. How does the grid relate to those leadership styles—specifically from the concern for performance/results (production) to concern for people? How does that affect your performance in the group?
3. How would you describe the content, direction, primary channel(s), and style of

communication that is used with the organization? How do these manifest themselves as strengths and weaknesses from a volunteer's perspective?

4. On a scale of 1–10 (1 = low; 10 = high), how would you rate your service-learning experience so far? Why? What are some of the specific feelings you have experienced while “on the job”?
5. Has your service-learning experience met your desires and expectations? Why or why not?
6. With what aspects of your volunteer assignment are you most comfortable? With what aspects are you least comfortable? What could the organization do (if anything) to better prepare volunteers for what is desired and expected of them?

Email Journal Assignment 3

Systems approaches to organizational management are premised on the argument that organizations are living, breathing entities with their own behavior patterns. Early systems thinking involved the application of such concepts as input, output, throughput, interdependence, open system and closed system.

In 1990, Peter Senge went one step further and argued that organizations (like all systems) have the capacity to learn. However, to do so, the “people [who comprise the organization] must put aside their old ways of thinking (mental modes); learn to be open with others (personal mastery); understand how the company really works (systems thinking); form a plan everyone can agree on (shared vision); and then work together to achieve that vision (team learning)” (Quotation from *Business: The Ultimate Resource*, 2002.)

Part I:

From the five concepts mentioned above that are related to early systems thinking, select a minimum of four and use them to describe your service-learning experience so far. To support your argument, use examples from your work with group members and the organization you are working with.

Part II:

Once you have completed that task, consider how Senge would view the growth and development of your service-learning team since the beginning of this semester. To do so, answer the following four questions:

1. What old ways of thinking, if any, have you personally set aside in order to work effectively with your team?
2. What conversations, if any, have transpired (both with yourself and your colleagues) that have helped you and the group to be more open to the experience?
3. Has your group been able to create a shared vision? If yes, what processes did you use to arrive at consensus? If no, what barriers and challenges have kept you from agreeing on a shared vision?
4. What advice would you give to service-learning teams in the future about how to work together to achieve a shared vision?

Please organize your responses as they were posed so that there is structure to your response.

Email Journal Assignment 4

Please note that this email is comprised of two parts. Take your time with the assignment and have fun with your entry. Please respond to this email by following the pattern EXACTLY. In fact, you can reply **IN the text** after each question.

Part I. Please write at least one paragraph in which you answer the following questions about your service-learning experience in SCOM 350 this semester.

- a. On a scale of 1–7 (1 = low, 7 = high), how would you rate this service-learning experience overall? Why this rating?
- b. Would you consider taking another SCOM class if you knew that a similar service-learning project was required for completion of the course? Why or why not?
- c. Do you have any specific stories or incidents that you would like to share that have affected your responses to the two previous questions? If so, what are they?
- d. Would you recommend your “client” to other SCOM students for service-learning projects in the future? Why or why not?
- e. What have you learned about yourself while doing this assignment (e.g., your best working environment, what motivates you to work, etc.)?

Part II. Please write at least one paragraph in which you answer the following questions about yourself in SCOM 350 this semester.

- a. What one strength or skill did you personally bring to your service-learning team?
- b. What communication strategies (if any) did your group use to get the “very best” out of you? What strategies did you use to get the “very best” out of them?
- c. What was your biggest “pet peeve” when it came to working with your service-learning team?
- d. What did you like and dislike about the way your team’s meetings were run?