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Abstract

Much of service-learning research has been characterized as anecdotal and testimonial with widespread calls for more empirical data to support the claimed benefits of this pedagogical tool. The present longitudinal experiment answered these calls by testing the effect of service-learning projects on several oral communication skills during a 4-month period, as well as some boundary conditions affecting this impact. The intervention consisted of involvement in 1 of 20 different team-developed service-learning projects compared to traditional research projects. This was hypothesized to boost management students' public speaking self-efficacy, lower anxiety, and improve public speaking mechanics competence along with actual public speaking performance (evaluated by independent raters). Results indicated that a wide array of service-learning projects can positively impact students in each of these important areas of public speaking. It was also found that service-learning more strongly benefited those initially lower in public speaking self-efficacy. Thus, this experiment suggests that instructors can include a service-learning component in their courses that can aid students' oral communication skill development.

Keywords: service-learning, oral communication, public speaking, self-efficacy, empirical, experiment

1. Introduction

Many scholars have proffered definitions of service-learning. One such definition is “a credit-bearing educational experience in which students participate in an organized service activity that meets identified community needs, and *then* reflect on the service activity so as to gain further understanding of course content, a broader appreciation of the discipline, and an enhanced sense of civic responsibility” (Bringle and Hatcher, 1996, p.222). With the recognition of the importance of engagement within the learning process, there has been a tremendous increase in the number of service-learning programs at colleges and universities (Steffes, 2004; Ward and Wolf-Wendel, 2000). This amazing growth has taken place in (1) all levels of education and age-groups from elementary school students to adults in businesses, (2) in private, public, secular, and nonsecular institutions around the world, (3) across a broad variety of disciplines, and (4) even in online and distance education course curriculums (Becnel and Moeller, 2017; Gerholz, et. al., 2018; Lee, Bell, and Shaulskiy, 2017). Thus, “the efficacy of service-learning has been accepted by researchers and educators as demonstrated by its increasing adoption into higher education programs” (Yorio and Ye, 2012, p. 9). However, accepting the benefits of any educational activity based on its adoption rate or popularity is not the way science should work. Our mandate as researchers is to provide evidence based on empirical means.

Yet, when one looks past the notoriety, closer examination of articles reveals that only a small number contain studies that empirically test and measure outcomes of service-learning. Even then, many empirical studies are limited to self-report measures of the benefits students think accrued from completing service-learning. Management scholars have recognized this disconnect—that the literature has been mostly qualitative and descriptive, that there are few empirical studies assessing the outcomes, value, and effects of service-learning programs on students, and they have thus called for such empirical research (e.g., Dymond, Renzaglia, and Chun, 2008; Seider et al., 2011; Yorio and Ye, 2012).

As a response to these calls, there has been some increase in empirical studies; but, that response is still in its infancy and there is yet much to do. For example, Yorio and Ye's (2012) literature search of the 18 years from 1993 to 2010 identified just 40 college/university empirical service-learning studies for their meta-analysis; and only 15 of those used objective measures. To ascertain the nature of the objective areas I examined each of those studies. Twelve were cognitive achievement (e.g., exam results), and just three investigated skill development: two of which were cognitive skills (critical/creative thinking) and only one was a behavioral skill (writing a research paper).

Scholars have stated that service-learning projects should contribute to behavioral skill development and personal growth (e.g., Toncar et al., 2003). Many companies indicate that interpersonal skills such as oral communication are central when considering potential recruits, but that most business students are lacking in this area (Lester, et. al, 2005). Therefore, the primary purpose of the present study was to conduct an experiment to test the relative impact of engaging in a service-learning project on several oral presentation variables including objective performance. Thus, this study will address some of the limitations of and build upon past service-learning research to fill in a gap in the body of knowledge by meaningfully answering the myriad of calls for more empirical research, particularly related to behavioral skills.

2. Categories within the Service-Learning Literature: Contributions and Limitations

I completed an in-depth review of the service-learning literature to understand the past and present state of this pedagogical method, and more particularly to discover and highlight limiting factors and calls for future research. This enabled me to develop a categorization of past articles, and to pinpoint the most omitted needs in order to design and complete a study to address those needs (i.e., to support the unique value, strength, and contribution of the present study).

2.1. Non-Empirical Studies

The first category of studies is a narrative of benefits of service-learning based on logic. Articles discuss the limitations and concerns of traditional management education and then propose that service-learning can answer those criticisms by providing a broader, richer educational experience (Godfrey, Illies, and Berry, 2005). Such experiences are said to benefit both service-learning participants (e.g., better learning the content area, and gaining greater civic responsibility and citizenship), and benefit organizations (e.g., grant and other funding, and pro-bono service and consulting) (Godfrey, Illies, and Berry, 2005; Papamarcos, 2005).

A second category consists of articles that review and then summarize the service-learning literature according to factors, participants, practices, or outcomes related to service-learning (e.g., Tschirhart, 2002). For example, Beatty's (2010) review of 40-years of service learning, documented the evolution of service-learning from (1) a social change model, which focuses on empowerment and social justice (e.g., Poon, Chan, and Zhou, 2011), to (2) a civic engagement model, which focuses on character development and active and engaged citizens (e.g., Ayub, et. al., 2015), to the current thrust (3) a professional model, which focuses on cognitive learning or career training (Aldridge et. al., 2015).

The third category is comprised of recommendation studies that share specific "how to" suggestions describing the components or steps of successful service-learning programs (e.g., Bringle, et. al., 2016; Kenworthy-U'ren and Peterson, 2005; Papamarcos, 2005), or provide a detailed description of successful service-learning programs at a particular university (e.g., Bentley by Salimbene, et. al., (2005) or Western Illinois by Rands, (2009). Articles in these first three categories do not contain an empirical investigation.

2.2. Empirical Studies

The final two categories represent articles that include some kind of study. Articles in the fourth category assess students' and/or community partners' feelings, impressions, or reactions from participating in the service learning experience. Overall, these studies have found that students, organizations, and alumni value their experience and participation (e.g., Aldridge, et. al., 2015; Lester, et. al, 2005). Some researchers have observed that service-learning empirical research is comprised mostly of such "testimonials," and assert that without empirical evidence of the positive effects on student's behavioral skill development, learning, or well-being, that there is little objective reason for including service-learning into curricula (Dymond, Renzaglia, and Chun, 2008; Yorio and Ye, 2012).

Thus, the fifth (and smallest) category of articles are those reporting a study that measured some kind of outcome or perceived benefit from participating in service-learning. The majority of these studies use students' self-report. This can be the best method for measuring "attitudinal" constructs such as the importance of ethical and moral behavior (Poon, Chan, and Zhou, 2011), awareness of societal problems (Markus, et. al., 1993), and commitment and motivation to perform volunteer service (Giles and Eyler, 1994). Likewise, service-learning students' report greater learning and knowledge (e.g., Aldridge et. al., 2015) and skill development in areas as diverse as childbirth labor support (Jordan, et. al., 2008) to group counseling skills (Keim, et. al., 2015). With such knowledge and skill constructs, self-report is

an important first step; but they also need to be measured objectively. The smallest subset of studies addresses this limitation by examining quiz scores and course grades in areas such as accounting taxation topics (Aldridge et. al., 2015) and aging and mental health (Leung, Chan, Kwan, Cheung, Leung, and Fong, 2012).

2.3. Literature Limitations and Opportunities

A review of the service-learning literature also reveals systematic factors that limit the strength of conclusions we can draw, but thus highlight the kind of current research that can make the greatest contribution. First, sometimes articles may be overly optimistic in the claims made, stating that other authors found certain benefits from service-learning, when these are not supported or no empirical study was done. In one approach, researchers state that a measured variable differed significantly from perceptions prior to the service-experience, when the study only had a post-measure of student's perceptions and there was no statistical significance analysis. Another is assuming service-learning caused a given outcome just because the sample was from a service-learning course. Most common are articles that state that other articles have found various service-learning benefits, when the cited articles contain no empirical studies. For example, one publication cited 19 articles for a plethora of listed benefits; but in 13 of them, no study had been done.

Second, the strength of what we "know" is limited due to design, measurement, and analysis limitations. For example, some studies have used restrictively small sample sizes (four publications had 11-16 participants, and seven publications averaged just 28 participants). Next, almost all studies only examine the impact of a single service-learning project. Thus, any results could be limited by the characteristics of that particular service-learning intervention (e.g., preparing tax returns, or teaching high school students, etc.). The specificity of such projects limits the potential generalizability of results to service-learning in general. Also, many studies contain no comparison or control group, but only measure variables of students in a service-learning class. In addition, some studies do not follow preferred standards of measurement reliability and statistical analysis. Too often variables are measured with just one-item statements. Also, weak or non-existent statistical testing constrains the impact or interpretation of results. For example, some studies simply calculate means or frequencies among the service-learning students and conclude they are high, and thus service-learning had an impact (even frequencies as low as only 11 out of 80 participants). Finally, other studies seem to go "data fishing" by testing excessive numbers of variables (e.g., 22) in order to find something statistically significant (e.g., 3 variables). With this many relationships, typically there is little theoretical support and the risk of type 1 error is increased.

Thus, the current study seeks to build upon, overcome the limitations of, and answer the calls of past service-learning research mentioned above by (1) conducting an empirical test of the benefits of service-learning on student behavioral-skill development, (2) using an objective measure of performance—Yorio and Ye (2012, p. 14) indicate that "objective measures include formal assessments of student performance" (i.e., independent raters), (2) adhering to prescribed design, measurement, and analysis protocols, (3) studying business majors in management education (much previous research draws on arts and science majors), and (4) examining the impact of multiple, varied projects (versus a single service-learning project) to provide results that are more fully generalizable.

3. Oral Communication Skills and Service-Learning

For some time organizations have stressed that oral communication and presentation skills are among the top qualities needed by employees and a central competency they consider when hiring (Maes, Weldy, and Icenogle, 1997). This is not surprising considering that research has found that employees who possess greater oral communication and presentation competencies receive higher performance ratings and are more successful (Penley, et. al., 1991). With today's ever-evolving organizations, Schlee1 and Harich (2010) found that oral communication skills are still the number one broad-based skills sought-after by employers. Even entry-level positions can involve speaking within teams, interacting with people from other departments, and making presentations before clients or other persons inside and outside an organization. As such, oral communication leads the list of applied skills and attributes most requested for entry-level jobs (85%), and is even more important for higher-end jobs (92%) (Schlee1 and Karns, 2017).

Given the agreed-upon importance of oral communication and public speaking skills, it is troubling that industry surveys indicate that far too many employees, and particularly new graduates, lack these essential skills (Lester, et. al, 2005). Thus, constituencies are urging educators to adapt their pedagogies to better develop students' capability in oral communication and public speaking (Schlee1 and Karns, 2017). Some scholars have argued that service-learning projects could help students develop oral communication skills (Lester et. al, 2005; Papamarcos, 2005). In initial

investigations with projects like delivering a health education campaign or providing income tax preparation assistance, students reported feeling their confidence or skill in communicating had improved (Aldridge et. al., 2015; Ayub, et. al., 2015; Tucker and McCarthy, 2001)—although some of these studies used one-item measures and no comparison to a control group.

4. Public Speaking Constructs

Students have overwhelmingly indicated that to improve their oral communication skills, one of their greatest needs is more self-confidence—i.e., self-efficacy (Reinsch and Shelby, 1996). Self-efficacy theory (Bandura, 1982) states that people’s judgments of their ability to perform tasks at given levels comes from a variety of experiences and sources. These sources in descending order of impact include *enactive mastery* or actual performance episodes, *modeling* or observations of others’ behaviors and the related outcomes, *verbal persuasion* or communications regarding a person’s competence, and persons’ attributions of what their *physiological states* reflect about their competence (e.g., Bandura, 1997). Based on a review of the service-learning literature, it seems that service-learning projects could provide oral communication mastery experiences and opportunities to view positive, similar-to-self models, and therefore raise students’ public speaking self-efficacy. Such public speaking experiences could include (1) organization meetings to discuss and listen to their needs, (2) networking with people from diverse backgrounds and organizational and social levels, (3) team meetings to brainstorm, identify, design, and implement a project, and (4) reflective activities in class. These interactions could also provide positive peer and service organization oral communication modeling. Therefore, it was expected that public speaking self-efficacy would be greater for students who participated in service-learning.

Hypothesis 1: Participating in a service-learning project raises students’ public speaking self-efficacy.

A review of the oral communication literature revealed three other related important constructs that would likely be effected by service-learning projects. First, researchers have long recognized the problem of public speaking anxiety (e.g., McCroskey, 1970), defined as “the fear or apprehension associated with either real or anticipated *oral communication in front of others*” (Dwyer and Fus, 2002, p. 29). Along with low self-efficacy, a high level of anxiety is a primary challenge for oral communication effectiveness; and thus, it has been identified as an important construct to study (Tucker and McCarthy, 2001). Relatedly, academics have pondered whether interventions to increase feelings of personal efficacy can contribute to a reduction in anxiety (e.g., Karpanty, 1998). Since oral communication apprehension is viewed as stemming from both learned behavior and cognition, researchers have proposed that public speaking anxiety is likely related to cognitive factors such as self-efficacy (Lucchetti, Phipps, and Behnke, 2003). According to self-efficacy theory, individuals who think they will do well on public presentations would be less worried and so less likely to experience anxiety than those who think they will do poorly. In addition, higher levels of anxiety may cause people to avoid public speaking opportunities, which rob them of mastery experiences to boost their lower self-efficacy. Self-efficacy judgments, then, may influence one’s level of public speaking anxiety; and as outlined above, service-learning could help benefit both. Therefore, it was expected that students who participated in service-learning would develop less public speaking anxiety.

Hypothesis 2: Participating in a service-learning project lowers students’ public speaking anxiety.

Another important construct is public speaking mechanics competence, a self-assessment of a person’s performance capability regarding communication mechanics such as eye contact, voice pitch, rate, and variety, facial expressions, and gestures (Ellis 1995). Again, based on the quantity and nature of oral communication experiences connected with service-learning projects, students may have meaningful opportunities to develop and to view positive models of public speaking mechanics. In addition, some research has found an inverse relationship between anxiety and perceived public speaking mechanics competency (Rubin, Rubin, and Jordan, 1997). Thus, to the extent that a service-learning intervention helps reduce anxiety, it may also improve perceived mechanics competencies. Therefore, it was hypothesized:

Hypothesis 3: Participating in a service-learning project raises students’ public speaking mechanics competence.

According to self-efficacy theory, weak efficacy beliefs contribute to behavior avoidance, whereas strong efficacy beliefs promote behavior initiation and persistence (Bandura, 1997). Students with higher self-efficacy have been found to participate more readily, work harder, and persist longer when they encounter difficulties (Lent, Lopez, and

Bieschke, 1993). Inasmuch as self-efficacy judgments influence the amount of effort and persistence people expend, they are theorized to influence one's levels of performance (Gist and Mitchell, 1992). This has been borne out in research where self-efficacy influenced performance outcomes from athletic performance (Mathieu, Martineau and Tannenbaum, 1993) to on-the-job work performance (McNatt and Judge, 2004). In fact, a meta-analytic review of 114 studies found an average correlation between self-efficacy and performance of .38 (Stajkovic and Luthans, 1998). In addition, anxiety hinders proper functioning so it can impede performance. Therefore, if engaging in service-learning projects can increase students' public speaking self-efficacy and decrease their anxiety, this should lead to better public speaking performance. Thus, it was hypothesized:

Hypothesis 4: Participating in a service-learning project improves students' public speaking skills.

5. Self-Efficacy as a Moderator

Brockner's (1988) behavioral plasticity theory contends that persons low in self-esteem or self-efficacy (Eden and Zuk, 1995) are more susceptible to external influence than are those with high self-efficacy. Since persons with low self-efficacy are less confident, they are more open to and influenced by experiences and others' actions. Those with greater self-efficacy are likely more self-assured, look inward for confirmation, and possibly discount external sources. Thus, those lower in self-efficacy should be impacted more by self-efficacy boosting interventions. In addition, those lower in self-efficacy are not subject to ceiling effects compared to those extremely high in self-efficacy where little room may exist for positive change (Gist and Mitchell, 1992). Some empirical results examining this moderating role of initial self-efficacy levels have been generally supportive (Eden and Zuk, 1995; Tucker and McCarthy, 2001). Therefore, it was predicted that:

Hypothesis 5: Initial public speaking self-efficacy moderates the impact of participating in a service-learning project on oral communication constructs, in that the service-learning intervention is more effective among students with lower initial self-efficacy.

6. Method

6.1. Sample, Measures, and Design

The sample consisted of 188 university students enrolled in one of six sections of a management course. They averaged 21 years of age, 59 percent were males, 56 percent were juniors, 44 percent were seniors, and the vast majority were Caucasian (87.6 %). The study was a four-month experiment with survey data collected at the beginning and end of the semester. One hundred fifty-nine participants completed both surveys for a response rate of 84%. Each of the class sections were almost identical in format using similar amounts of lecture, discussion, videos, and in-class exercises, along with similar requirements and grading in terms of exams, homework, reading, and a required group project and presentation. Three of the sections were randomly selected to have a service-learning requirement as the team project. This was the intervention being tested. Students in the other three sections completed a traditional research project (control group).

All variables measured in the surveys used a seven-point response scale. The self-efficacy measure assessed students' level of confidence to accomplish given public speaking tasks from 1=*Not at all confident* to 7=*Extremely confident*. *Public speaking self-efficacy* was measured with 10 items modified from Pintrich and DeGroot (1990). Since Bandura (1997) stresses that self-efficacy judgments are task-specific and that measures must be tailored to the tasks being assessed, the items were adapted to reflect public speaking opportunities. For example, one item was "Deliver a well-organized, interesting, and engaging presentation" ($\alpha=.91$ [t-1], and .92 [t-2]). See Appendix for a list of all 10 items.

The scale for public speaking anxiety and for mechanic's competence measured participants' level of agreement with given statements from 1=*Strongly disagree* to 7=*Strongly agree*. *Public speaking anxiety* was assessed using the 15-item version of the Personal Report of Public Speaking Anxiety (Hensley & Batty, 1974; McCroskey, 1984). A sample item is "I breathe faster just before starting a presentation" ($\alpha=.93$ [t-1], and .93 [t-2]). *Public speaking mechanics competence* was measured with 17 items from Ellis's (1995) Public Speaking Competency Scale. It was developed based on the National Communication Association's (NCA) "Competent Speaker Speech Evaluation Form." Items included "Maintaining eye contact is a problem for me" (reversed scored) and "I use appropriate facial expressions during oral presentations" ($\alpha=.86$ [t-1], and .88 [t-2]).

Presentation performance was captured by filming all of the end-of-semester project presentations. The recordings were then moved into a random order. Two “blind” raters (management doctoral candidates) were trained and then independently viewed and evaluated the presentation performance of each person using a form acquired from a top management communication department. The form was comprised of eight performance criteria including effective use of voice, hand gestures, and body movement, as well as content factors like sequence and knowledge of subject matter. Ratings of each criteria were based on a seven-point response scale ranging from 1=*Very poor* to 7=*Outstanding*. This performance measure was extremely similar to those used in other studies (e.g., Thomson and Rucker, 2002). The coefficient alpha among the items was .96, and the inter-rater reliability for the overall score was assessed using a two-way mixed, consistency, average-measures intra-class correlation (McGraw and Wong, 1996) and was .87.

6.2. Procedures and Service-Learning Intervention

On the first day of class, students completed the first survey. Students were randomly formed into project teams comprised of either four or five persons each. Teams worked on their projects throughout the four-month semester. In the control group classes, the project consisted of either an in-depth analysis of a business organization or a topic area from the course—all of their choosing. Intervention sections instead completed a service-learning project. They were given the following instructions:

The purposes of this project are to integrate and apply what you are learning in this class with an actual experience, to learn more about and develop your skills, and to accomplish good within the community. You will work with your team members to design and implement a meaningful project to benefit a non-for-profit organization in meeting its service mission. This is not a passive activity where you participate in a prearranged event (such as walk-a-thons, Habitat for Humanity, etc.). Instead, this will entail identifying a nonprofit organization, consulting with the leadership of that organization to understand its mission and what service might be helpful, developing a plan to provide meaningful assistance, and implementing the service. This project will require planning, coordination, and execution of effort from all team members.

This resulted in 20 unique service-learning projects. Examples of projects included: (1) A breast-cancer awareness event for the American Cancer Society with a mobile mammogram van at a large shopping mall; (2) a supply drive for a local homeless shelter resulting in thousands of items collected; (3) organizing and executing a 5-K race that raised \$1,140 dollars for a State botanical gardens location; and (4) Interactive presentation visits with 8th grade classes that were connected with high drop-out-rate High Schools to encourage education as well as how to succeed. See Table 1 for a complete listing of all intervention and control-group projects. [insert Table 1 here] During the last week and a half of the semester, both control and service-learning teams completed 20-25 minute presentations of their projects. All students only gave one project presentation; and the audience members were fellow students. During the last class period, participants completed the second survey.

7. Results

To assure pre-treatment equivalence between students in the intervention and control groups, each of the time-1 variables was regressed on the treatment. None of the coefficients were significant, demonstrating the equivalency of the intervention and control groups at the beginning of the experiment. Next, to assure there was no “class effect” among conditions, an ANOVA of the time-2 variables was run among the three classes within each condition. None of the differences were significant. Thus, any end-of-study differences were not due to an effect of a particular class. The descriptive statistics, reliabilities, and intercorrelations among the study variables are reported in Table 2. [insert Table 2 here] Intercorrelations between the service-learning intervention and the dependent variables, as well as effect size calculations were used to test the main-effect hypotheses. Hierarchical moderated multiple regression (Evans, 1991) was used to test the moderator hypothesis. To create sufficient interpretability of interactions, the independent variables were centered using their means before calculating the interaction term (Stone, 1988), and the illustrative figure was prepared by analyzing participants high and low (± 1 SD) on the proposed moderator (Aiken, West, and Reno, 1991).

First, I tested whether the service-learning projects bolstered students’ public speaking confidence more than traditional research projects. As predicted, correlation and effect-size results indicated that the intervention produced significantly greater public specific self-efficacy ($r=.32$, $p \leq .001$; $d = .74$), supporting H1. Next, the impact on

presenter's anxiety was examined. Results indicated that the intervention effectively reduced students' public speaking anxiety ($r = -.18, p \leq .05; d = -.40$), so H2 was supported. Students who completed service-learning projects also reported greater competency in the mechanics of their public speaking ($r = .20, p \leq .05; d = .51$) providing support for H3. The last main effect tested was the impact of engaging in service-learning projects on subsequent presentation performance. Results confirmed hypothesis H4 as service-learning students' presentation performance was rated significantly higher ($r = .44, p \leq .001; d = 1.02$).

Finally, moderator analyses tested whether those with lower initial public speaking self-efficacy benefitted more than did those with higher initial self-efficacy (results reported in Table 3). [insert Table 3 here] Results indicated significant interaction effects for public speaking self-efficacy ($\beta = .21, p \leq .001$), public speaking anxiety ($\beta = -.16, p \leq .01$), and public speaking mechanics competency ($\beta = .17, p \leq .05$), but not for presentation performance ($\beta = .11, ns$). Analyses of the interactions revealed that as predicted, the service-learning project had a greater impact on those with lower initial self-efficacy. As an example illustration, results were graphed for public speaking self-efficacy and are displayed as Figure 1. [insert Figure 1 here] Thus, H5 was supported for the affective variables, but not for presentation performance.

8. Discussion and Conclusions

The majority of work studying service-learning consists primarily of non-empirical, anecdotal accounts of the benefits of such projects. The closest previous research to the present one tested the impact of a single service-learning project solely on presentation self-efficacy, and did not have a control group (Tucker and McCarthy, 2001). As such, the present experiment constitutes a meaningful "constructive replication" (Eden, 2002) since it is significantly dissimilar to and extends previous research by examining several previously untested boundary conditions and hypotheses.

Most singular is that this experiment tested the effect of service-learning on behavioral skill development and used an objective measure. This provides evidence that service-learning can increase students' actual public speaking abilities and performance (not just perceptions). Another contribution is finding that as students engage in service-learning, they become more confident and less anxious and apprehensive about speaking in public. In addition, service-learning activities can help students develop presentation mechanics such as maintaining eye contact and assuring the presentation is logically organized. Taken together, being able to increase students' oral communication confidence, competence, and performance and to decrease their related anxieties provides meaningful practical value for both individuals and their work organizations. Employers overwhelmingly indicate that these skills are vitally important for obtaining employment and for job performance (Schlee1 and Karns, 2017), and are connected with organizational productivity and performance (Snyder and Morris, 1984).

We also gain some insights due to the design of the present study. For example, given the comparison to a control condition, the effects represent the incremental benefit of service-learning projects above traditional group research projects. Next, testing and examining the average impact of 20 different service-learning projects (versus a single project) has several implications. First, not only did it show that a service-learning project consisting of something other than teaching people can positively impact oral communication constructs, but that on average many different kinds of projects can produce these benefits. Second, the varied nature of the projects suggests that there can be a fair amount of flexibility in the kinds of projects students undertake, while still gaining the positive impact on skill development. Third, faculty members need not spend much time identifying organizations and securing projects; instead, students can find and direct projects themselves.

Next, results provided partial support that students lower in self-efficacy can benefit more from confidence-boosting interventions such as a service-learning project. Specifically, they had greater increases in public speaking self-efficacy and mechanics competency, and a greater decrease in public speaking anxiety. Although mastery experiences can help increase people's confidence and skills, unfortunately those lower in self-efficacy are more likely to avoid them. Thus, those who most need such experiences limit their own development due to low confidence. The current results provide hope in breaking the cycle as a service-learning project provides a required structured opportunity and incentive for them to so engage. Specifically, as low self-efficacy students engaged, they were likely called upon to push past fears, giving them a glimpse of how much more they are capable of. This caused their public speaking confidence and sense of competence to increase.

There were a few limitations of the present experiment that future studies could address. First, for communication skill development to accrue, is it necessary that service-learning projects be carried out by groups (as in the present study) instead of as individuals? With individual work, there would be less interaction with others. Future research might also examine whether a service-learning experience can produce gains in other communication areas besides presentations, such as interpersonal communication confidence and skills, or on non-communication development such as project management skills. Next, although the experiment was longitudinal, there was no evidence of how long after the four months the gains lasted. Future research might examine the effect duration of service-learning interventions, as well as whether participants engage in more self-generated service afterwards. In addition, since the experiment used a college student sample, results are not inherently generalizable to other populations. Future research could test the effect with older or non-traditional students, or with employees within business organizations.

Another item is that several self-assessed measures were used. This was likely not a meaningful issue for the following reasons. First, the relationships tested were with an experimental intervention, and thus there was no common-method variance. Second, the very nature of personal insight constructs such as self-efficacy or anxiety lend themselves to valid and preferred measurement by self-report. However, Rama et al., (2000) do question whether students can adequately evaluate their own skills and cognitive performance, and caution researchers from using self-report measures on such outcomes from service-learning experiences. This concern is empirically supported in Yorio and Ye's (2012) meta-analysis of service-learning studies. For personal insight variables, they reported no difference in the effect sizes when measuring with self-report versus non self-report (.29 vs. .28). However, there was a significance difference in effect sizes between self-report and non-self-report measures of cognitive performance and skill variables ($p = .02$). I mitigated this concern by using a non-self-report measure (independent raters) to evaluate public speaking skill/performance.

Based on my review of the literature, I also issue the following two calls related to future research. One, we still need more experimental empirical research testing the proposed benefits of service-learning. Two, as authors we need to exercise sufficient care not to overstate findings from past studies, and to make sure studies were actually empirical and followed sufficient statistical protocols. This is vital so as not to propagate the notion that we know more about the benefits of service-learning than has been empirically supported.

As a pedagogical tool, service-learning projects can be a "win-win-win." Foremost, the students benefit. In the present study, the students faced challenges and setbacks, were creative and conscientious, and worked together within diverse groups to complete some amazing projects. In addition to measured oral communication results, students shared that they were touched, affected, and enthused by the experience. Thus, students win by increasing their public speaking skills and confidence, being better prepared for the job market, and receiving a good feeling from having done something meaningful for someone else. Second, faculty members and instructors can win by helping students learn more and develop important skills, making learning settings more enlivened, and accomplishing this with little extra work or in-class time. Finally, non-for-profit organizations and communities win by having good done for them. Students indicated that the organizations and people whom they served were grateful and looked up to them as role models for what they accomplished. As one student summarized, "It was an awesome experience to apply what we were learning in class while helping out other people."

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Table 1

Student group projects

Organization / Topic	Description
<u>Intervention Group Projects</u>	
1. Homeless Sanctuary	Three drives collecting \$2,670 of underwear, hygiene, and healthy snack items
2. WCA Thrift Store	Clothing drive collecting 1,000 articles to generate \$2,500 for WCA
3. American Cancer Society	Breast-cancer awareness event with mobile mammogram van
4. Humane Society	Dog food and item donation drives
5. Agency for New Americans	Organized thousands of items in four large storage units
6. Homeless Shelter	Supply drive collecting thousands of items
7. Early Education Center	Interactive instructional activity; conducted food/hygiene product drive (\$350)
8. Book It Forward	Collected, cleaned, and donated 3,000 children's books
9. Ronald McDonald House	Toy donation drive and St. Patrick's Day activity help
10. Boys & Girls Club	Cleaned library and stocked it with thousands of books; ran two activity sessions
11. State Botanical Gardens	Organized and executed 5-K race that raised \$1,140 dollars
12. Low-Income Medical Clinic	Office-related services: designed forms and filing system, and tech. training
13. Ronald McDonald House	Easter activity: BBQ, egg/candy hunt, craft/activity stations, and Easter Bunny
14. Homeless Center	Upscale lunch event with donated specialty vendors for 175 homeless people
15. Women's & Children Center	Created 8 film vignettes to raise awareness of teen/young adult dating violence.
16. Jr. High School	Interactive visits with 8 th graders to teach and encourage education
17. Troubled Youth Thrift Store	Developed tech. tools for cataloging, spreadsheet sharing, and data management
18. Ronald McDonald House	Recreational event for families; and collected/donated 30 new sport's toys
19. The Bicycle Project	Construction work at shop, and donation drive of 13 bikes
20. American Cancer Society	Developed and ran Bark-for-Life event with Easter-egg hunt, photo area, etc.

Control Group Projects

- | | |
|---------------------|-------------------------------------|
| 1. Google | 12. Emotions, Attitudes, and Values |
| 2. Costco | 13. Organizational Culture |
| 3. Zappos | 14. Power & Politics |
| 4. Fast Enterprises | 15. Human Resource Management |
| 5. Aflac | 16. Technology and Work Design |
| 6. Walmart | 17. Communication |
| 7. Amazon | 18. Conflict & Negotiation |
| 8. Facebook | 19. Groups & Teams |
| 9. Adobe | 20. Motivation |
| 10. Starbucks | 21. Leadership |
| 11. AT & T | |

Table 2

Means, standard deviations (SD), scale reliabilities, and intercorrelations among study variables

Variables	Mean	SD	1	2	3	4	5
1. Service-learning intervention			--				
2. Public speaking self-efficacy	5.02	(.94)	.32	.92			
3. Public speaking anxiety	4.08	(1.13)	-.18	-.68	.93		
4. Public speaking mechanics competence	4.78	(.70)	.20	.70	-.64	.88	
5. Presentation Performance	4.45	(.90)	.44	.53	-.37	.57	.96

$n = 159 - 179$. The service-learning intervention is coded as 0/1. Statistics reported are from post intervention.

Coefficient alpha reliability estimates are on the diagonal.

$r \geq .16, p < .05$ $r \geq .27, p < .001$

Table 3

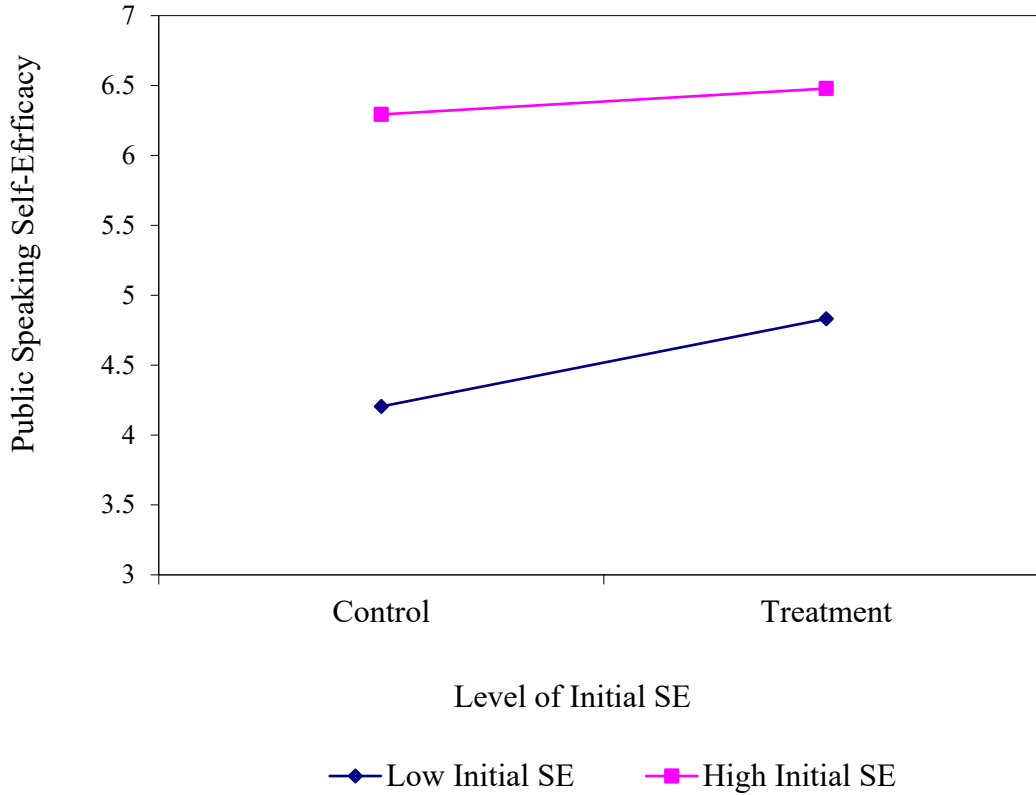
Regression analyses of the service-learning intervention moderated by initial self-efficacy

Variables	Initial Self-Efficacy	
	Step 1 Main Effect	Step 2 Interaction
<u>Public Speaking Self-Efficacy</u>		
Service-learning intervention	.22***	
Initial self-efficacy	.65***	
Initial self-efficacy X intervention		.21***
R ²	.53	.57
ΔR ²		.04
F	86.02***	66.01***
<u>Public Speaking Anxiety</u>		
Service-learning intervention	-.12*	
Initial self-efficacy	-.63***	
Initial self-efficacy X intervention		-.16**
R ²	.41	.44
ΔR ²		.03
F	53.55***	38.96***
<u>Public Speaking Mechanics Competence</u>		
Service-learning intervention	.13*	
Initial self-efficacy	.55***	
Initial self-efficacy X intervention		.17*
R ²	.33	.37
ΔR ²		.04
F	37.78***	27.05***
<u>Presentation Performance</u>		
Service-learning intervention	.39***	
Initial self-efficacy	.26***	
Initial self-efficacy X intervention		.11
R ²	.25	.27
ΔR ²		.02
F	24.42***	16.42***

$n = 159-179$. Entries are standardized betas (β s). * $p \leq .05$ ** $p \leq .01$ *** $p \leq .001$

Figure 1

Interaction of the service-learning intervention and initial public speaking self-efficacy for public speaking self-efficacy.



Appendix

Public speaking self-efficacy items

1. Calmly deliver a speech.
2. Deliver a well-organized, interesting, and engaging presentation.
3. Actively participate in daily class discussions to share my viewpoints and experiences.
4. Informally and formally explain concepts from courses to others.
5. Give exceptional oral reports on course readings.
6. Express my ideas, concerns, and opinions to group members.
7. For class projects, interview people to ask them questions.
8. Explain to others what I am learning in my courses.
9. Talk with authority figures about my ideas in relation to class projects.
10. In a professional and well-polished manner, present what my group and I did for a project.