The Impact of Participation in Service-Learning on High School Students' Civic Engagement

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Executive Summary

This study compared more than 1,000 high school students who participated in service-learning programs with those who did not participate in schools matched for similar demographics and student achievement profiles. The intention was to estimate the effects of service-learning compared to more traditional ways of teaching similar subject areas. The outcomes measured ranged from civic knowledge, behaviors, and dispositions to school engagement factors, such as attachment to school and enjoyment of coursework, that generally predict academic success. Students came from sites in the southeast, north central, and western parts of the United States. More than half of the students in the sample were Latino/Hispanic.

Key Results

Although service-learning students scored higher than comparison students on several outcomes, most of the differences were not statistically significant. Service-learning students were significantly more likely to say that they intended to vote and that they enjoyed school.

There were substantial differences in outcomes among the various service-learning programs in the study. The study suggests that service-learning is effective when it is implemented well, but it is no more effective than conventional social studies classes when the conditions are not optimal. In particular:

- Student outcomes improved when service-learning programs lasted longer, although year-long programs often had slightly less benefit than semester-long programs.
- Teacher characteristics were related to outcomes. Number of years of teaching experience was significantly related to some student outcomes (valuing school, enjoying math and science, civic skills, and civic dispositions). Longer experience using service-learning was associated with higher civic knowledge, civic dispositions, and efficacy scores
- The type of service project was related to the outcomes. Students who engaged in direct service (e.g., tutoring or visiting seniors) were most attached to their communities. Students who engaged in indirect service (e.g., fundraising or research) showed the highest levels of academic engagement. Students who engaged in political or civic action (e.g., circulating a petition or organizing a community forum) scored highest on civic knowledge and civic dispositions.
- The literature has identified a set of best practices or "Essential Elements" of service-learning. The study found that some of these elements were related to positive student outcomes, but some were not. Results related to this aspect of the study are presented in the Exhibit below.

Teachers who did not use service-learning were almost as likely as those who did to use "active" instructional techniques. Thus, based on this study, it does not appear that service-learning competes against passive, lecture-style classes. Instead, it competes against mixed forms of instruction that include student projects, presentations, debates, and field trips. The study found that the use of active teaching techniques was most beneficial for student outcomes, and service-learning conferred a small additional benefit over other active pedagogies.

Exhibit. Relationship Between Service-Learning Quality Elements and Student Outcomes

	Elements of Service-Learning Practice	Significant *Positive* Relationships	Significant *Negative* Relationships
1.	Clear educational goals that require the application of concepts, content, and skills from the academic disciplines and involves students in the construction of their own knowledge.	Civic knowledge, civic dispositions, efficacy, civic engagement	Community attachment
2.	Students are encouraged in tasks that challenge and stretch them cognitively and developmentally.	School attachment, civic skills, efficacy, civic engagement	
3.	Assessment is used as a way to enhance student learning as well as to document and evaluate how well students have met content and skills standards.	School attachment, enjoy reading/language/social studies, community attachment	Civic dispositions
4.	Students are engaged in service tasks that have clear goals, meet genuine needs in the school or community, and have significant consequences for themselves and others.	School attachment, civic knowledge, civic skills, civic dispositions, civic engagement	
5.	Employs formative and summative evaluation in a systematic evaluation of the service effort and its outcomes.		Valuing school, civic dispositions, efficacy
6.	Seeks to maximize student voice in selecting, designing, implementing, and evaluating the service-learning project.	Civic knowledge, self-reported civic knowledge	Subject matter enjoyment
7.	Values diversity through its participants, its practice, and its outcomes.	Academic engagement, valuing school, enjoy math/science, enjoy reading/language/social studies, civic dispositions, civic engagement	Community attachment
8.	Promotes communication and interaction with the community and encourages partnerships and collaboration.	School attachment, civic knowledge, self-reported civic knowledge, community attachment, civic engagement	Valuing school, enjoy math/science
9.	Students are prepared for all aspects of their service work including a clear understanding of task and role, the skills and information required by the task, awareness of safety precautions, as well as knowledge about and sensitivity to the people with whom they will be working.	Academic engagement, valuing school, enjoy math/science, enjoy reading/language/social studies, civic dispositions, civic engagement	Civic knowledge
10.	Student reflection takes place before, during and after service, uses multiple methods that encourage critical thinking, and is a central force in the design and fulfillment of curricular objectives.	School attachment, civic knowledge, self-reported civic knowledge, civic skills, civic engagement	Valuing school, enjoy math/science
11.	Multiple methods are designed to acknowledge, celebrate and further validate students' service work.		Enjoyment of subject matters

Introduction

Recent evidence suggests that there is a growing problem of civic disengagement among youth in the United States. Young people in high school report having little interest in civic and political affairs and little knowledge of or trust in the political system (Levine & Lopez, 2002; National Commission on Service-Learning, 2001; Rahm & Transue, 1998; Torney-Purta, 2002). Results from a recent poll indicate that many young people do not feel they can make a difference, solve problems in their communities, or have a meaningful impact on politics or government (Lake Snell Perry & Associates and The Tarrance Group, Inc, 2002). Policymakers and educational leaders alike have noted the woeful lack of interest in civic activities among youth and express concern about the future of democracy (for example, Education Commission of the States, 2002; National Commission on Service-Learning, 2001). Lack of engagement in the political system is particularly pronounced for young women and urban youth (Niemi & Junn, 1998; Hart & Atkins, 1992). There are also differences between students based on achievement levels. Research has shown that students with a stronger record of academic achievement demonstrate greater political knowledge (Niemi & Junn, 1998), and higher rates of community participation (Nolin, Chaney, Chapman, & Chandler, 1997) than those with lower achievement levels.

Interestingly, this decline in civic engagement has been paralleled by an increase in volunteerism by young people. Studies estimated that over half of young people participate in voluntary service (Skinner & Chapman, 1999). As Putnam (2000) optimistically remarked,

> *A wide range of evidence . . . suggests that young Americans in the 1990s displayed a commitment to volunteerism without parallel among their immediate predecessors. This development is the most promising sign of any that I have discovered that America might be on the cusp of a new period of civic renewal, especially if this youthful volunteerism persists into adulthood and begins to expand beyond individual caregiving to broader engagement with social and political issues.* (p. 13)

Groups, such as Campus Compact (2000), believed that this is part of the "new student politics" and that education may be able to capitalize on the willingness of young people to volunteer as a way to engage in active teaching of those civic concepts necessary for the health and well-being of American democracy.

The school-based practice of *service-learning* offers a promising approach to the challenge of civic engagement since it capitalizes both on students' willingness to volunteer and on the options presented in community settings for students to become civically engaged. Service-learning is broadly defined as a teaching strategy wherein students learn important curricular objectives by providing service that meets authentic community needs. Typically the service-learning cycle includes student planning, action, reflection, and celebration. In high quality service-learning projects, students have considerable voice in determining activities, and teachers facilitate knowledge and skill acquisition. According to Skinner and Chapman (1999), service-

learning is practiced in half of all public high schools. Private school participation is estimated to be even stronger, with nearly 80% implementing service-learning (Pritchard, 2002).

Several studies have provided evidence for an association between participation in service-learning and civic outcomes. A gradually accumulating body of evidence suggests that service-learning helps students develop knowledge of community needs, commit to an ethic of service, develop more sophisticated understandings of politics and morality, gain a greater sense of civic responsibility and feelings of efficacy, and increase their desire to become active contributors to society (Billig, 2000; Westheimer & Kahne, 2000; Youniss & Yates, 1997; Youniss, McLellan, & Yates, 1997). Studies have provided evidence for positive effects of service-learning on:

- Civic-related *knowledge*, including awareness of community needs (Berkas, 1997; Melchior, 1999; Morgan & Streb, 1999) and knowledge about government (Berkas, 1997; Hamilton & Zeldin, 1987; Morgan & Streb, 1999).

- Civic-related *skills*, including an understanding of how to design and implement a service project (Melchior, 1999).

- Civic *attitudes*, including aspects of social and personal responsibility like students' concern for social issues (Metz, McLellan, & Youniss, 2000) and concerns for others' welfare (Scales, Blyth, Berkas, & Kielsmeier, 2000), the belief that they can make a difference in their communities (Hamilton & Zeldin, 1987; Melchior, 1999; Morgan & Streb, 1999; Scales et al., 2000), and acceptance of diversity (Melchior, 1999; Morgan & Streb, 1999).

- Service *behavior* (Melchior, 1999) and *intentions* to serve in the future (Berkas, 1997; Metz et al., 2000; Morgan & Streb, 1999).

- *Social capital*, including increased connections to schools and other organizations and increased social networks (Morgan & Streb, 1999).

Service-learning experiences may be expected to influence civic identity formation and related values and attitudes through the opportunities it provides for students to tackle community problems, feel efficacious, and express social responsibility and through benefits generated for the community. Similarly, social capital may be advanced through the ways in which service projects promote the development of social networks or provide experiences of being mentored by an onsite supervisor or other community members. By sharing work responsibilities and objectives, feelings of solidarity may be increased with classmates, teachers, and other school personnel.

Given the wide range of types of service-learning programs and the range of quality within each type of program, however, programs can be expected to vary substantially in the extent to which they are successful in promoting civic identity and engagement. While the potential for service-learning to impact civic engagement is considerable, the research shows that unless certain practices within service-learning are in place, the impact may not be maximized. In this regard, quality components such as presence, amount, frequency, and duration of reflection activities matter in the outcomes obtained, along with linkage to standards, direct contact with those being

served, and youth voice in planning and implementing the service (Meyer, Billig & Hofschire, 2004). In addition, the literature suggests that duration, nature, and type of service-learning activities could influence outcomes. The individual teacher may also be particularly important in facilitating implementation of quality practice. Through his/her curricular decisions and actions, the teacher can mediate students' exposure to particular concepts of citizenship as well as serving as a model for how citizenship is enacted.

This study examined the impact of participation in service-learning on high school students' civic engagement. Using a national sample of classrooms of students that participated in service-learning matched with classrooms of students of similar demographic and achievement background that do not participate in service-learning, the study investigated the effect of service-learning participation on students' civic knowledge, skills, dispositions, and activities and the degree to which many of the variables related to the service-learning experience served as moderators of outcomes.

Methodology

The study addressed the following research questions.

1. To what extent do students that participate in service-learning show increases over time on measures of a variety of aspects of civic engagement and academic and civic knowledge and skill acquisition as compared with students in the same or matched schools that participate in classes on the same subject matter and do not participate in service-learning?

2. To what extent do aspects of program quality and other features of the service-learning experience moderate the association between participation in service-learning and civic outcomes? What teacher characteristics and practices serve to moderate outcomes?

Sites were selected for participation in this study based on a two step process. First, sites were nominated by several service-learning experts, including active researchers and several state Learn and Serve directors. Teachers from each of the nominated sites were interviewed by telephone to determine:

- The potential interest in participation;
- History of service-learning in the school;
- Type and quality of service-learning implementation;
- Qualification of the service-learning teachers and descriptions of the service-learning they facilitated;
- Availability of comparison teachers; and
- Any indicators of impact.

Nominations from the first pool were analyzed and potential sites for the study were identified. A second screening call was then made to determine the ability to commit to the study and to engage a comparison teacher for the study that taught the same subject matter, and grade level but that did not implement service-learning. The comparison teacher had to teach students with approximately the same demographic and achievement profile as the service-learning teacher so that the effects of demographics and previous achievement would be minimized. Respondents were also asked what would be needed to obtain approval to participate in the study from the district and school administration. The final sample was selected on the basis of the reported quality of the site, the availability of a comparison site, and the approval of the school and district, as well as an effort to gain a broadly representative sample from different regions of the country, locales, and socioeconomic, and ethnic backgrounds. As shown in Exhibit 1, the sample included:

- **Academy High School** 9th-12th-grade television production class, two 9th-12th-grade environmental science classes, a 9th-12th-grade art class matched with **Dunbar High School** 9th-12th-grade television production class, 9th-12th-grade environmental science class, and 9th-12th-grade art class. Both schools are located in the *Fort Myers, Florida* school district.

- **Anoka High School** 12th-grade government and economics class and 11th-grade modern world history class matched with **Coon Rapids High School** 12th-grade economics and government class and 11th-grade world history class. Both schools are part of the *Anoka-Hennepin, Minnesota* school district.

- **Homestead Senior High School** matched service-learning with non service-learning classrooms in 11th- and 12th-grade American government classes; **Miami Coral Park Senior High School** matched six service-learning with six non service-learning classes in 12th-grade government and economics; the **Miami Lakes Educational Center** matched four service-learning with four non service-learning classes in 11th- and 12th-grade world history and government; **South Miami High School** matched four service-learning and two non service-learning 11th- and 12th-grade American government classes; and **William G. Turner Technical Arts High School** matched three service-learning and three non service-learning 11th- and 12th-grade English classes. All of these schools are located in the *Miami-Dade County, Florida* school district.

- **Quest High School** 12th-grade senior project class matched with **Humble High School** 12th-grade government class and 12th-grade economics class. All schools are in the *Humble, Texas* school district.

- **Tillamook High School** service-learning senior class matched with the senior class at **Neah-Kah-Nie High School.** The schools are located in the *Tillamook, Oregon,* school district and the *Rockaway Beach, Oregon* school district, respectively.

Data Analysis

A two (pre-test versus post-test) by two (service-learning versus comparison) mixed multivariate analysis of variance (MANOVA) model, with pre-test and post-test as repeated measures was initially used to analyze the effects of service-learning on subscale scores and individual survey items. When MANOVA tests yielded significant findings, follow-up analysis of covariance (ANOVAs) were conducted to explore the results. In order to control for student grade level and subject area, hierarchical MANOVAS with repeated measures using nested pairs (service-learning versus comparison groups at each study site) were subsequently used to analyze student outcomes, and ANOVAs were used to explore results of statistically significant MANOVAs. Multivariate *t* tests were also used to compare student groups when appropriate.

In order to determine the contribution of particular moderating variables (e.g., engagement in service-learning) to the outcomes, two approaches were used. Multivariate regression analyses were conducted to determine relationships between more than one continuous predictor variables and a dependent variable. When multiple independent, as well as dependent measures were involved, a canonical correlation approach was used. Results of statistically significant canonical correlational analyses were followed by bivariate correlational analyses to further explore the results.

Exhibit 1. Sample Site Characteristics

Site	Service-Learning High School	Comparison School	Subject Matter	Grade Levels	Number of Service-Learning Classes	Number of Comparison Classes
Fort Myers, FL	Academy	Dunbar	• TV production • Environmental science • Art	9–12	4	3
Anoka-Hennepin, MN	Anoka	Coon Rapids	• Government and economics • World history	11–12	2	2
Miami-Dade, FL	Homestead Senior	Homestead Senior	• American government	11–12	1	1
	Miami Coral Park	Miami Coral Park	• Government and economics	12	6	6
	Miami Lakes Educational Center	Miami Lakes Educational Center	• World history and government	11–12	4	4
	South Miami	South Miami	• American government	11–12	4	2
	William G. Turner Technical	William G. Turner Technical	• English	11–12	3	3
Humble, TX	Quest	Humble	• Senior project matched with government and economics	12	1	2
Tillamook/ Rockaway Beach, OR	Tillamook	Neah-Kah-Nie	• Senior class	12	1	1

Methods of Data Collection

The study utilized a mixed-method approach to addressing the research questions, involving the collection of both quantitative and qualitative data.

Student surveys were administered in fall and spring of the 2003-2004 school year. In addition to questions about student characteristics, student pre-surveys included measures of civic outcomes and attitudes toward school. C**ivic outcomes** addressed by the surveys comprised civic knowledge, skills, dispositions, and civic engagement.

- *Civic knowledge* was measured through items from the National Assessment of Academic Progress (NAEP), about government institutions, leaders and so forth, and the like, as well as

a single question about local community service organizations. A second knowledge measure ("self-reported civic knowledge") also asked students to rate how well informed they were about various aspects of politics (e.g., registering to vote, the difference between democracy and socialism, etc.).

- *Civic skills* were assessed by asking students to rate their ability to perform particular activities required for effective civic participation such as their ability to lead others, conduct a campaign to get someone elected, or work to solve a community problem.

- The measure of *community attachment* tapped indicators of positive student community feeling, such as contributing to, taking pride in, or being viewed as a valued part of the neighborhood or local community.

- The *civic dispositions* measure assessed civic responsibility; for example, through questions about the degree to which students acted to help the needy.

- Student *efficacy* was measured by two items that addressed feelings of making a difference and having adult responsibilities.

- Finally, the measure of *civic engagement* measured political and civic participation such as how often students discussed politics, attended rallies, raised funds for a cause, or wrote letters to public officials.

Academic outcomes addressed in the study included academic engagement, valuing school, school attachment, enjoyment of math and science, and enjoyment of reading, language arts and social studies.

- The measure of *academic engagement* asked students about the degree to which they were cognitively, affectively and behaviorally engaged in school.

- The *valuing school* items were designed to capture the extent to which students felt that school work was meaningful and important.

- The *school attachment* measure assessed students' sense of connection to school (e.g., belonging, making a contribution, doing things to make the school a better place).

- Several items asked students about the extent to which they *enjoyed specific school subjects*.

Subscales were created for each of the constructs. Item analyses were performed to determine whether the theoretically-derived constructs measured by student survey items were internally consistent. Internal reliability coefficients were calculated for each subscale. Pre-test surveys from all students that completed both pre-tests and post-tests were used for this analysis.

Exhibit 2 displays the characteristics of the subscales and the internal reliability of each subscale created from the student survey. As Exhibit 2 reveals, all of the subscales had moderately high reliability, with the exception of the civic knowledge measure, which included items assessing

both knowledge of government and communities. The civic knowledge score was normally distributed and positively correlated with student self-reports of grades. In the results section, subscale averages were calculated only from those item subsets with at least 50% valid responses.

Exhibit 2. Characteristics of Pre-Test Student Survey Subscales

Subscale	Mean or Average	Standard Deviation	Number of Items	Range	Internal Reliability
Academic Engagement	4.06	.696	4	1-5	.837
Valuing School	3.69	.716	5	1-5	.790
School Attachment	2.74	.708	7	1-4	.879
Enjoyment of Math and Science	3.00	1.079	2	1-5	.508
Enjoyment of Reading/ Language Arts and Social Studies	3.50	1.012	2	1-5	.639
Civic Knowledge	2.48	0.651	5	0-8	.462
Self-Reported Civic Knowledge	2.48	.651	8	1-4	.878
Civic Skills	2.81	.628	5	1-4	.749
Community Attachment	2.50	.776	6	1-4	.884
Civic Dispositions	3.34	.515	5	1-4	.695
Efficacy	3.76	.759	3	1-5	.586
Civic Engagement	2.27	.733	6	1-5	.725

Variables That May Serve as Moderators of Outcomes

This study also investigated a number of variables that, based on the literature review, were thought to be possible moderators of outcomes. Variables identified as possible moderators were characteristics of the service-learning experiences and characteristics of teachers and their practices. Characteristics of service-learning included duration, nature and type of service, and quality. Quality was measured in two ways: by asking students to rate various aspects of their experience on the post surveys and by asking teachers to describe and rate aspects of service-learning on the teacher survey. Qualitative information was also collected through interviews and focus groups.

Specifically, the service-learning post surveys asked students about:

- The *quality of their experiences*, that is, opportunities to reflect, make important decisions, develop and use their own ideas, feel that they had made a contribution, experience challenge, or experience adult criticism (reverse scored);

- The *extent to which they believed that they had acquired academic and work-related skills* as a result of their service-learning experience;

- A *measure of engagement in service-learning*, e.g., the degree to which students worked hard on the service-learning project, enjoyed school more when working on service-learning, and/or whether they just acted as if they were working on service-learning (reverse scored).

Principal components factor analysis with varimax rotation of the measure of self-ratings of gains in subject matters and other skills yielded three factors: 1) reading, writing and computer skills, 2) math and science skills, and 3) work-related skills. Exhibit 3 shows that internal reliabilities as for these scales were high. The overall service-learning engagement subscale was also highly reliable. Factor analysis of the measure of student engagement in service-learning yielded three subscales: service-learning engagement, school engagement, and work ethic. Exhibit 3 shows that the first and second subscales had high internal consistency, however, the third, which consisted of negatively worded items, did not and so was dropped from further analysis.

Exhibit 3. Characteristics of Student Service-Learning Subscales

Subscale	Mean or Average	Number of Items	Range	Internal Reliability
Service-learning quality	3.74	8	1-5	.844
Perceived gains in reading, writing, and computer	1.13	3	0-3	.758
Perceived gains in math/science skills	0.45	2	0-2	.689
Perceived gains in work related skills	1.81	3	0-3	.674
Overall service-learning engagement	3.35	11	1-5	.829

Data from students with a pre-test, post-test, and parent permission to participate in the study were included in the analysis. The resultant data may be slightly skewed toward more positive results since students with chronic attendance problems or those that have dropped out may not be fully represented in the data. However, it is assumed that these sources of error were randomly distributed among the treatment and comparison sites, so the differences between groups should not have been affected.

Teacher Surveys

Teacher surveys were administered to service-learning and comparison teachers in the spring of 2004. All teachers were asked about their field of certification, teaching experience, frequency of use of various instructional methods (e.g., lecture, debate, mock trials, cooperative learning, community service, etc.), coverage of civics topics, and perceived student growth in civic knowledge and skills. The service-learning teacher survey also included questions about teacher experience using service-learning as an approach, and the nature and quality of the teachers' service-learning practice.

Two techniques were developed to classify teachers' self-reported instructional methods. Using subscales developed in prior research, RMC Research categorized the instructional methods

assessed in this study as active (α = .685 for this study) or passive (α = .480 for this study). Active teaching strategies required relatively high levels of student participation and included:

- Community service or volunteering;
- Visits to government or community institutions;
- Debates or discussions;
- Mock trials, role plays or other simulations;
- Assignments in which students analyzed media presentations of information;
- Research reports;
- Student-generated projects; and
- Cooperative learning.

Passive teaching techniques included lectures; textbook reading; videos, DVDs, or television; and multiple choice tests.

A cluster analysis was performed that resulted in three alternative ways to analyze data: subscales on traditional teaching techniques (α = .669), interactive techniques (α = .719), and product development techniques (α = .763). Traditional teaching techniques included lecture, as well as assessment techniques such as multiple choice tests, or essays. Interactive techniques provided opportunities for peer-peer or student-community interaction such as debates, working with the community, and cooperative learning. Product development techniques involved students in the creation of work products such as writing, videos, media, or mock trials. These subscales were used in a series of exploratory analyses.

To examine the quality of service-learning, subscales were created by combining items on the teacher survey intended to measure the degree to which service-learning reflected the 11 Essential Elements of Service-Learning (National Service-Learning Cooperative, 1998). Exhibit 4 displays the descriptive results for these subscales. The Exhibit shows that the subscales varied with regard to internal reliability. Internal reliability could not be completed for service-learning elements measured with only one item.

Exhibit 4. Subscales Designed to Measure Service-Learning Quality

Service-Learning Element	Mean or Average	Standard Deviation	Number of Items	Range	Internal Reliability
1. Clear educational goals.	3.64	.285	5	1-4	.183
2. Involve students in cognitively challenging tasks.	3.67	.346	3	1-4	.520
3. Assessment used to enhance student learning and evaluate how well students have met content and skill standards.	3.39	.656	2	1-4	.690
4. Students are engaged in service tasks with clear goals that meet genuine community needs and have significant consequences.	3.32	.608	4	1-4	.773
5. Use of evaluation.	3.07	.997	1	1-4	---
6. Youth voice in selecting, designing, implementing, and evaluating service-learning projects.	3.23	.683	4	1-4	.800
7. Valuing diversity.	3.86	.363	1	1-4	---
8. Communication, interaction, partnerships, and collaboration with the community.	3.20	.508	5	1-4	.719
9. Students are prepared for all aspects of their service work.	3.39	.388	5	1-4	.394
10. Use of reflection.	3.31	.577	6	1-4	.807
11. Celebration and acknowledgment of service work.	3.29	.579	2	1-4	.607

Note: Items range from 1 to 4 with 1 = Never or Almost Never; 2 = Sometimes; 3 = Often; 4 = Always or Almost Always.

Data from the teacher survey allowed testing of several variables hypothesized to moderate outcomes including service-learning duration, nature, type, and quality; student characteristics; and teacher experience and practices. Differences between schools were also investigated.

In addition to the surveys, each site was visited and qualitative data were collected in order to construct case studies. These methods are summarized along with the quantitative measures in Exhibit 5. Only quantitative results are presented here.

Exhibit 5. Summary of Data Collection Methods

Site	Student Surveys		*Teacher Surveys*		Interviews		*Service-Learning*	
	Service-Learning	Comparison	Service-Learning	Comparison	Teacher	Administrator	Observations	Student Focus Group
Fort Myers, FL	Academy *N* = 19	Dunbar *N* = 25	*N* = 4	*N* = 3	*N* = 4	*N* = 1	1	*N* = 6
Anoka-Hennepin, MN	Anoka *N* = 60	Coon Rapids *N* = 49	*N* = 2	*N* = 2	*N* = 2	*N* = 1	1	*N* = 15
Miami-Dade, FL	Homestead Senior *N* = 19	Homestead Senior *N* = 13	*N* = 1	*N* = 1	*N* = 1	*N* = 1	1	*N* = 7
	Miami Coral Park *N* = 134	Miami Coral Park *N* = 103	*N* = 1	*N* = 1	*N* = 1	*N* = 1	1	*N* = 4
	Miami Lakes Educational Center *N* = 99	Miami Lakes Educational Center *N* = 38	*N* = 1	*N* = 1	*N* = 1	---	1	*N* = 5
	South Miami *N* = 153	South Miami *N* = 57	*N* = 2	*N* = 1	*N* = 2	*N* = 1	1	*N* = 15
	William G. Turner Technical *N* = 72	William G. Turner Technical *N* = 49	*N* = 1	*N* = 1	*N* = 1	*N* = 1	1	*N* = 13
Humble, TX	Quest *N* = 34	Humble *N* = 12	*N* = 1	*N* = 1	*N* = 3	*N* = 3	1	*N* = 15
Tillamook/Rockaway Beach, OR	Tillamook *N* = 83	Neah-Kah-Nie *N* = 33	*N* = 1	*N* = 1	*N* = 1	*N* = 1	1	*N* =10
TOTAL	**673**	**379**	**14**	**12**	**16**	**10**	**9**	

Results

Overview

The results are organized into three major sections. The first section is a brief overview of student characteristics. The second section addresses the impact of service-learning over time by comparing participating students to their control group counterparts. Between group differences related to student perceptions of school and measures of civic development are analyzed for the whole sample and then for matched school pairs. The third section explores the roles of moderators in service-learning student outcomes. Potential moderators, including engagement, nature and type of service, duration of service, and the quality of the service-learning experience are examined for their relationships to outcomes for service-learning students. Finally, differences between service-learning and comparison teachers in civics content coverage and the use of active versus passive instructional strategies and the effects of these differences are discussed.

Only students who completed both a pre-test and post-test were included in the analysis of survey results. A total of 1,052 students comprised the sample, 645 of whom were service-learning participants and 407 of whom were comparison group students.

Student Characteristics

Exhibit 6 presents a profile of the demographics of the sample. Nearly 60% of the sample was comprised of seniors and nearly 60% was female. The largest ethnic group represented was Hispanics, primarily from the Miami-Dade School District. Just over 60% of the sample spoke English at home. Most of the rest spoke Spanish.

Exhibit 6. Demographic Profile of Students That Completed Both Pre-Tests and Post-Tests

Characteristic	Number	Percent
Grade		
9	146	13.9
10	7	0.7
11	260	24.7
12	617	58.7
Not specified	22	2.1
Gender		
Male	419	39.8
Female	627	59.6
Not specified	6	0.6
Ethnicity[1]		
White	323	30.8
Asian/Pacific Islander	16	1.5
Black/African American	135	12.9
American Indian/Alaskan Native	10	1.0
Hispanic/Latino	572	54.5
Other	54	5.1
Language Spoken at Home		
English	662	62.9
Spanish	329	31.3
Other	36	3.4
Not specified	25	2.4

[1] Percentages do not sum to 100 because respondents could select more than one answer.

Students were asked to report the grades they typically earned in classes. These self-reports are consistent with the achievement profiles for the schools. Over half of the students averaged "mostly Bs" with about a third of the sample averaging "mostly Cs" or below. About 18% reported "mostly As." This profile represents an "average" national population, with a slight trend toward lower than average scores.

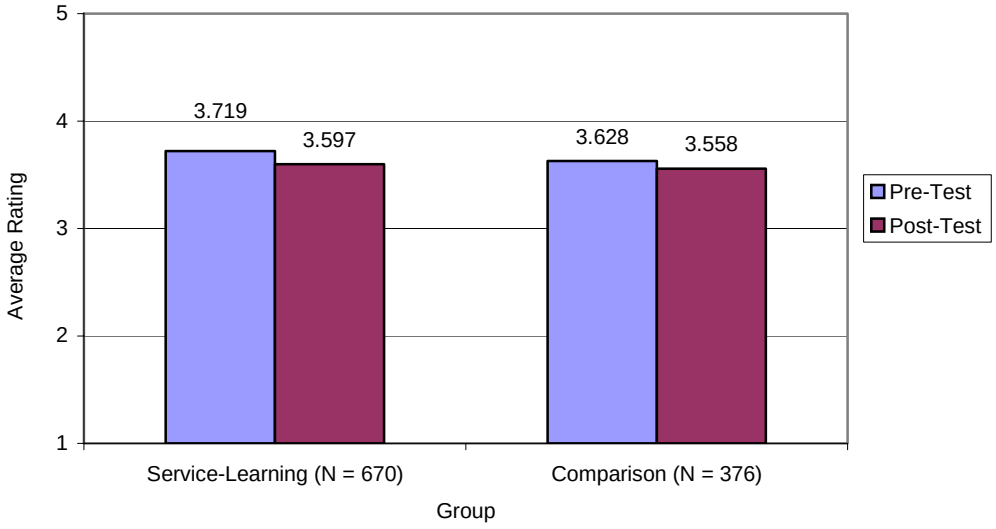
About half of the students performed service in school before the academic year in which the study took place. More than 25% were volunteers with a youth organization and/or church. About 17% served the neighborhood, an indicator that service probably took place within the school. Less than 15% of the sample had no prior experience with service.

Student Perceptions of School

It was hypothesized that students that were engaged in service-learning would value and be more engaged in school than nonparticipating peers. To investigate this hypothesis, comparisons were made between the service-learning and comparison groups for the entire sample. Student ratings of the degree to which they valued school are presented in Exhibit 7. The results showed that students generally found school to be meaningful and important for later life sometimes or often. The ratings of school value declined over time for both groups. A repeated measures ANOVA

that compared the two groups revealed that there were only slight, non significant differences between the service-learning and comparison groups on this subscale.

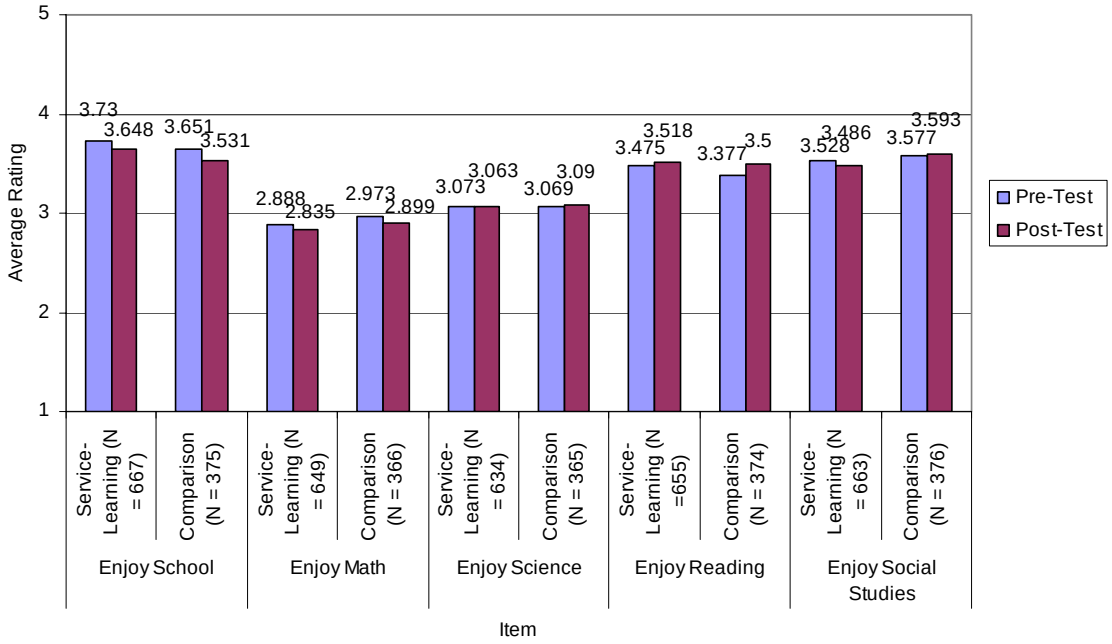
Exhibit 7. Service-Learning and Comparison Student Ratings of the Value of School



Note: *N* = 1,046. Items range from 1 to 5 with 1 = Low Value, 5 = High Value.

As illustrated in Exhibit 8, there was a small statistically significant difference between the service-learning and comparison groups in school enjoyment, favoring the service-learning group. There were no differences in ratings of enjoyment of specific subject matter.

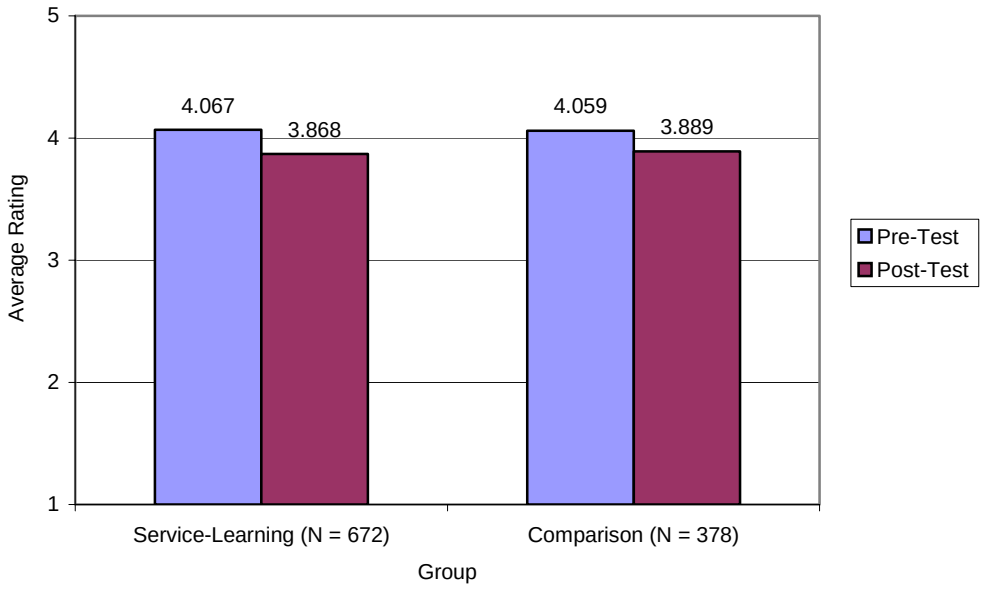
Exhibit 8. Service-Learning and Comparison Student Ratings of Enjoyment of School and Specific Content Areas



Note: Items range from 1 to 5 with 1 = Never/Almost Never, 5 = Always/Almost Always. Enjoy school $p < .05$.

Students responded to a number of other indicators that measured their affective, behavioral, and cognitive engagement in school. Exhibit 9 displays their overall responses on the subscale for Academic Engagement. This Exhibit shows that service-learning and comparison students rated their academic engagement higher at the pre-test than the post-test. Differences between groups were not statistically significant.

Exhibit 9. Service-Learning and Comparison Group Ratings of Academic Engagement (*N* = 1,050)

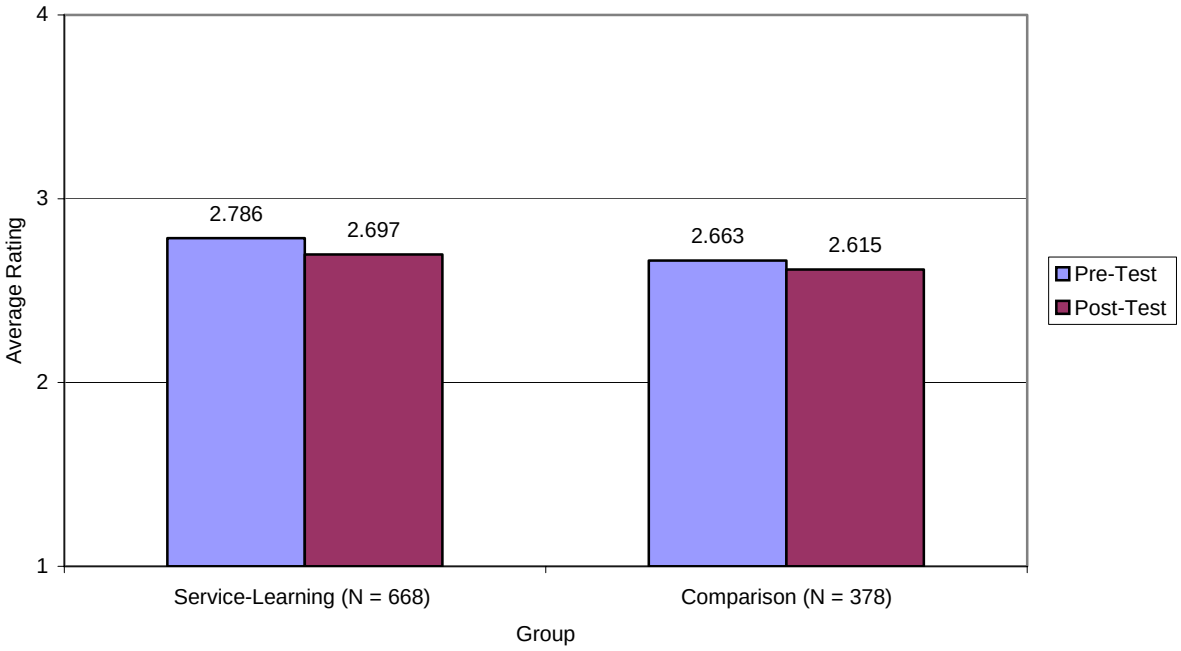


Note: Items range from 1 to 5 with 1 = Never/Almost Never, 5 = Always/Almost Always.

Student Attachment to School

Exhibit 10 shows the overall differences in the subscale of School Attachment for service-learning participants and comparison students. The service-learning group had higher overall attachment to school than the comparison group in the fall and spring; however, the differences were not statistically significant. Declines over time may reflect the fact that a large percentage of students in the sample were seniors and were leaving the school upon graduation in the next few weeks after the survey was administered.

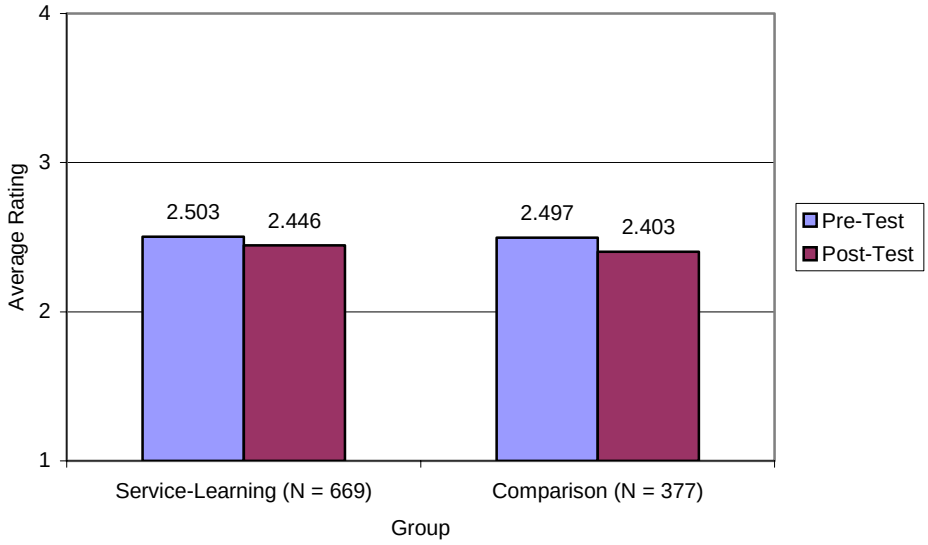
Exhibit 10. Service-Learning and Comparison Student Ratings of Attachment to School (*N* = 1,046)



Note: Items range from 1 to 4 with 1 = Not At All, 4 = A Lot.

Students were asked to respond to a set of questions about their community attachment that paralleled the questions on attachment to school. As can be seen in Exhibit 11, the service-learning and comparison groups responded at the midpoint between "a little" and "some" at the pre-test, and their ratings declined slightly over time. The decrease for the service-learning group was somewhat smaller than the comparison group, but the difference was not statistically significant.

Exhibit 11. Service-Learning and Comparison Student Ratings of Community Attachment (*N* = 1,046)

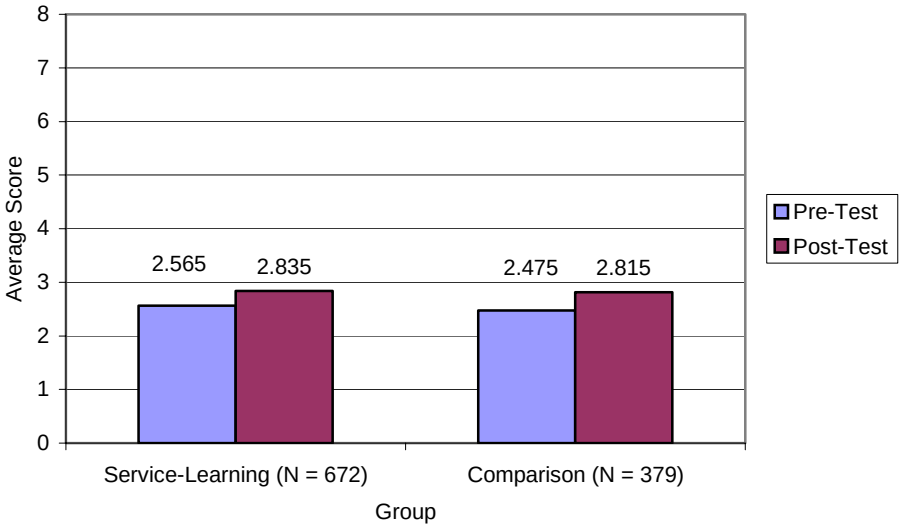


Note: Items range from 1 to 4 with 1 = Not At All, 4 = A Lot.

Measures of Civic Engagement

Two measures of civic knowledge were administered. Students were asked a number of factual questions about government and civics. As illustrated in Exhibit 12, both the service-learning and comparison groups scored higher on the post-survey. Differences were not significant across groups.

Exhibit 12. Service-Learning and Comparison Student Scores on Civic Knowledge Questions (*N* = 1,051)



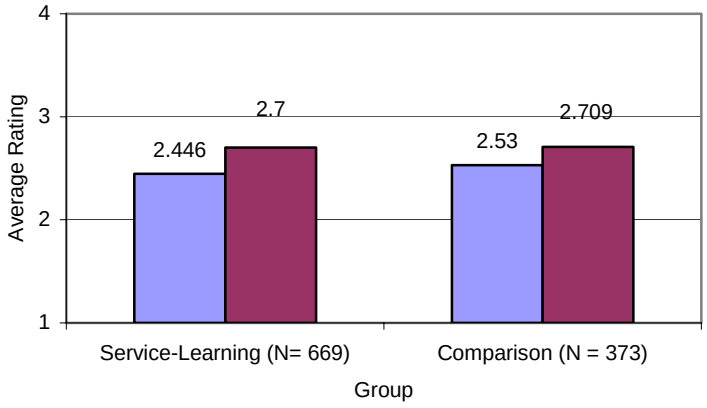
Note: Scale reflects total questions correct out of 8.

Students were also asked to identify the names of the two United States Senators serving their state and to identify the three branches of government. Students generally did not know the names of the two United States senators serving their state. On the post-test for this question, service-learning students scored significantly higher than their peers. Students in both groups typically knew one or two of the branches of government, and the comparison group performed significantly better over time on this question.

Students were asked to identify the year in which the next presidential election was to be held. About two thirds of the students in both groups knew when the next Presidential election was scheduled and both improved over time, probably because the next election was only months away and news about the election was prominent in the media. About a third of each group could name two community service organizations in their city or town at both the pre- and post-test. Less than 20% could provide an example of how the United States government limits the power of the government at the pre-test. This increased slightly at the post-test for both groups, with a larger increase for the comparison group than the service-learning group. The differences for each of these items were not statistically significant.

On a second measure of civic knowledge, students were asked to rate themselves on a series of items that measured the degree to which they felt well informed about the ways in which society and government works. Results for the self-ratings are presented in Exhibit 13. The comparison group reported being better informed than the service-learning group, while the service-learning group demonstrated greater gains over time. These differences were not statistically significant.

Exhibit 13. Service-Learning and Comparison Student Ratings of Their Civic Knowledge (*N* = 1,042)

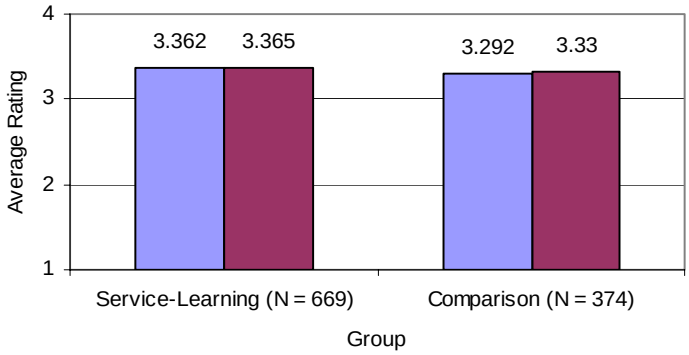


Note: Items range from 1 to 4 with 1 = Not At All Informed, 4 = Very Well Informed.

Both groups reported feeling better informed over time about how to register to vote; how local state, and federal government decisions are made; the difference between democracy and socialism; the difference between how decisions are made in the United States and in Great Britain; how interest groups locally operate; and how the Electoral College works. No statistically significant differences between service-learning participants and comparison students were found for these items. Both groups increased slightly over time in the reported intention to vote when they are of age.

Students were asked to respond to a series of questions designed to measure civic dispositions including their attitudes toward civic responsibility, and intent to participate in civic and political life. Service-learning students had slightly higher scores on this measure than comparison students at both points in time. Exhibit 14 shows that the service-learning group's civic dispositions remained the same over time, while the comparison group increased slightly. More generally, the data show that students tend to be favorably disposed to being civically engaged.

Exhibit 14. Service-Learning and Comparison Student Ratings of Civic Dispositions (*N* = 1,043)

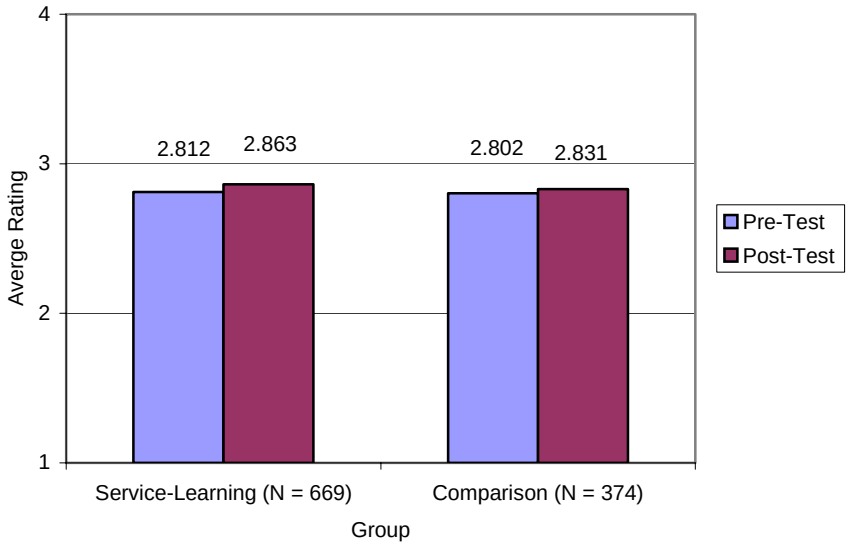


Note: Items range from 1 to 4 with 1 = Definitely Disagree, 4 = Definitely Agree.

Most students in both groups felt that doing something about community problems is a job for all young people and that being informed about state and especially local issues is an important responsibility for everyone. Fewer students saw the importance of being actively involved in community issues. Doing things to help improve America was seen as very important to nearly all of the students. Students showed a slight tendency to agree that being actively involved in political issues was not that important, but generally reported that they intended to vote and intended to volunteer when they got older. The difference between the two groups on intention to vote was statistically significant, favoring the service-learning group. Interestingly, about 15% of students said they might run for political office sometime in the future. Most agreed they were interested in the news and current events. Most said that they did not know how to conduct an election campaign. There were no statistically significant differences on the last three items.

Students rated themselves on a number of civic skills, such as leading other students and conducting a campaign. As shown in Exhibit 15, differences between the service-learning students and comparison students were very small but slightly favored the service-learning students. In the analysis of specific skills items, group differences were found for those that pertained most directly to service-learning. Over time, the service-learning participants were more likely to report that they knew how to work with others to solve a community problem and that they knew how to identify community needs. However, these differences were not statistically significant.

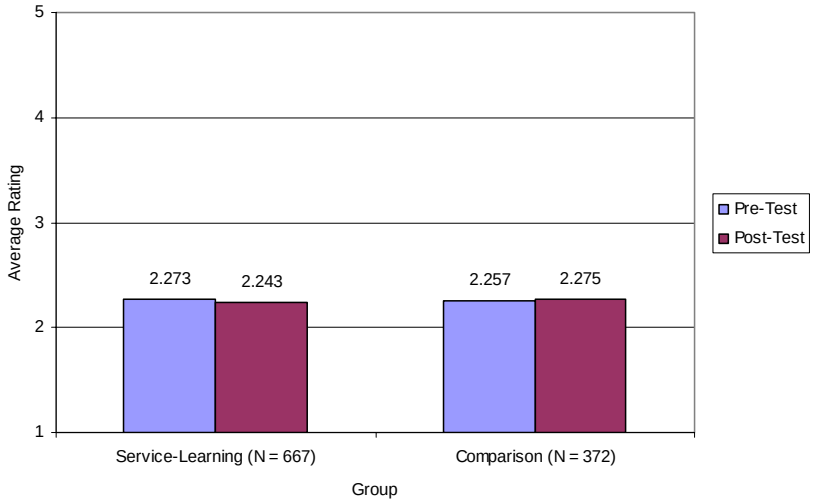
Exhibit 15. Service-Learning and Comparison Student Ratings of Civic Skills (*N* = 1,043)



Note: Items range from 1 to 4 with 1 = Definitely Disagree, 4 = Definitely Agree.

Students were asked about the frequency with which they engaged in a variety of activities related to civic life, such as discussing politics with friends, families, or teachers, participating in rallies or going to political or civics lectures, and following the news. Responses indicated that students averaged between "seldom" and "sometimes" on most activities. Differences between groups were not statistically significant, as shown in Exhibit 16. Results showed that students sometimes discussed politics. Political discussion occurred more often in the spring of 2004 than the fall of 2003, probably due to the Presidential elections that occurred in November 2004. Few students attended rallies, and this percent decreased over time for both groups. Still fewer wrote letters expressing an opinion to a public official. About two thirds of the sample said that they never or almost never did this. Nearly the same percentage never or almost never refused to purchase a product because of where it was made, though ratings on this item increased slightly over time. Environmental protection and taking care of the needy were more common activities for this sample of students though ratings on helping the needy declined for both groups over time.

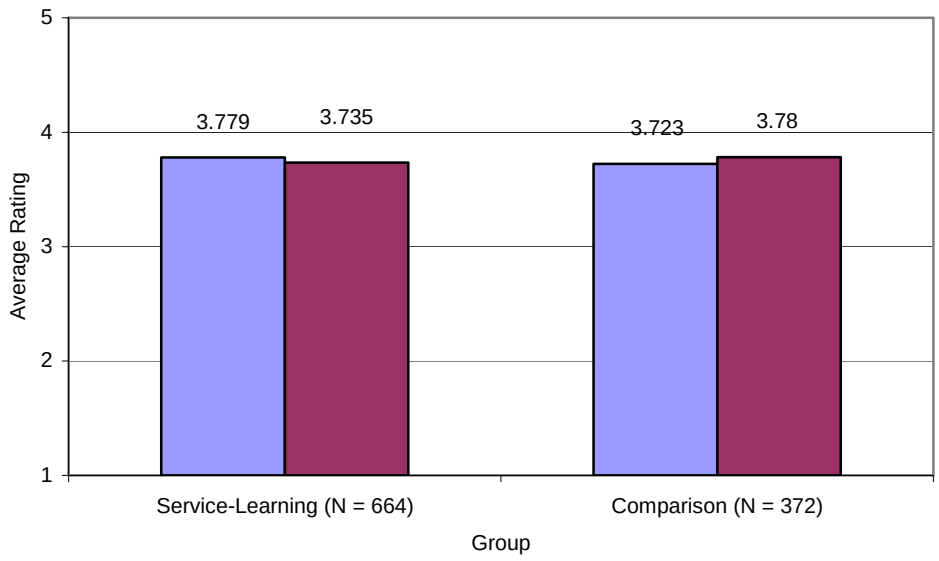
Exhibit 16. Students' Ratings of Participation in Civic Engagement Activities (*N* = 1,039)



Note: Items range from 1 to 5 with 1 = Never/Almost Never, 5 = Always/Almost Always.

A measure of student efficacy was created using how often students felt that they made a difference in someone's life and took on adult responsibilities. It was hypothesized that those students that engaged in service-learning would increase their ratings on this subscale while comparison students would not. The data, displayed in Exhibit 17, showed no differences between the service-learning and comparison groups on the efficacy subscale. Both groups felt that they sometimes made a lot of difference in people's lives, and both groups reported increases in having adult responsibilities. The latter result might be related to the large numbers of seniors in the sample that felt a need, with graduation, to assume more adult roles. The absence of any difference in students' sense that they were making a difference may be explained by service-learning students' having taken on issues that were so daunting that students felt they could not make a difference. Alternatively, the general wording of this item may have made it inadequate for assessing perceived impact on the specific recipients of service.

Exhibit 17. Service-Learning and Comparison Student Ratings of Efficacy (*N* = 1,036)



Note: Items range from 1 to 5 with 1 = Never/Almost Never, 5 = Always/Almost Always.

Differences Between Service-Learning and Comparison Group Outcomes For Matched School Pairs

The preceding section showed differences for the overall study sample and did not take into account exposure to specific subject matters or grade levels of the students. The design for this study called for matched classrooms to account for these differences. This section details the results of hierarchical tests of statistical significance of differences between matched groups of students at the same or similar schools in classrooms that covered the same content areas.

Aggregated results of these comparisons revealed statistically significant differences in the change scores between pre-test and post-tests for service-learning and comparison students on three subscales: Civic Knowledge, Civic Dispositions, and Valuing School. Several within-school pair differences accounted for the significant differences overall.

- Statistically significant within-school pair differences were found in scores of factual civic knowledge at four sites, all of which had high quality service-learning programs (discussed below). Service-learning students at three sites were found to have made greater gains in civic knowledge than comparison students; while comparison students at one site where the service-learning program was weak showed greater improvement.

- Significant group differences in gains in civic dispositions occurred at one site with a weak service-learning program, with comparison students showing greater increases.

- On the Valuing School subscale, significant between-group differences occurred at one site that had a very weak service-learning program. For this pair, comparison students made greater gains than service-learning students.

Repeated measures hierarchical analyses of variance were also conducted on the individual survey items and differences were found for seven specific items. For each of these statistically significant item level results, follow-up mixed analyses of variance (ANOVA) were conducted to determine which school pairs were associated with the significant results. The effect sizes were in the low to moderate range for all of the differences that were found.

Moderators of Impact

The literature and the analysis of paired groups of students suggests that the lack of differences between service-learning and comparison students may be due to several moderating factors, including the extent to which students were engaged in the service-learning experience; the duration, nature, type, and quality of the service-learning experience; and the extent to which the service experience was linked to content coverage. In addition, studies suggest that teacher experience, expectations, and use of active learning strategies may also serve as moderating factors. This section examines the extent to which each of these variables influenced the outcomes that were found. The effects of aspects of the service-learning experience are summarized first, followed by an examination of the degree to which teacher characteristics and practices served as moderators of impact. Differences between groups are shown to illuminate the strong variation in perceived quality and the impact of that variation on outcomes.

Students' Service-Learning Experiences

Data showed that there were wide variations in the ways in which service-learning was conducted at the various schools. At three schools, all students completed year-long projects that were closely linked to class goals and explicitly focused on skills needed for effective democratic engagement, such as problem analysis, collaborative problem solving, civic dialogue, and the ability to work within the political system to improve society. For example, at one school, service-learning was part of a year-long Senior Seminar in which students conducted inquiry into global problems and then identified a "social problem they (were) passionate about" based on the results of their research. Students worked in groups to develop sustainable action plans to address the problem they chose. Action plans were required to state the ways in which students would increase others' consciousness of the problem and include solutions with lasting impact. Students worked together to implement their plans and presented the results in a multimedia presentation and portfolio.

At another school, service-learning took the form of a year-long civic problem-solving project. Students generated a list of local, state, and national needs. Teams of students then selected a need and conducted research on it, including interviews with elected officials. They wrote proposals for solutions and organized presentations to the public where they presented their research and potential solutions. One team of students at this school sought to address the issue of traffic congestion in the city. After conducting research on solutions that had been developed in other metropolitan areas, students developed a proposal for a rapid transit system that they

presented to state officials. A second team studied the national problem of methamphetamine abuse. After investigating national incidence rates, causes, and consequences of this abuse, they sponsored a forum where students, civic leaders, and community members together developed a strategic plan for addressing the problem locally.

Social studies students at another site organized a public forum in preparation for their city's impending mayoral election. Students interviewed members of different segments of the community to learn about their concerns and wrote interview questions for mayoral candidates based on their research. They issued invitations to candidates, recruited a local news announcer as a moderator, made the necessary arrangements, and hosted the forum. In follow-up class discussions, students evaluated candidates' positions and the quality of their presentations.

Other projects observed in the study were extensive but not directly designed to build civic skills. For example, in one program, students in environmental studies, art, and video production classes worked much of the year to transform a debris-filled lot into a park complete with flower beds and a bench. Finally, some student projects observed in this study involved limited time and/or student participation. At one school, for example, students learned about Social Security law in preparation for an intergenerational forum sponsored by their district. However, participation in the project was voluntary and primarily involved research, rather than community activity. At another school that completed a Social Security project, the service experience only spanned a few-week period.

All students that participated in service-learning activities were asked to respond to questions on the spring post-test survey about their service-learning experiences. Exhibit 18 displays the results of the survey. The Exhibit shows that 83% of the students felt that they often or almost always had real responsibilities, 76% had challenging tasks, and 77% made important decisions. Most of the students also felt that they often or almost always had freedom to develop and use their own ideas (68%), did things themselves rather than observing (62%), and felt they made a contribution (58%). While about 43% often or almost always discussed experiences with their teachers, nearly one third felt often or almost always that adults criticized them or their work. The latter indicators showed the degree to which students felt valued and were treated respectfully by adults. These items are indicators of the quality of the service-learning experience, and these data reveal that about two thirds of the students had a relatively high quality service-learning experience using the definition of quality extant in the field.

Exhibit 18. Student Ratings of Their Service-Learning Experiences

		Average Rating		Percent Distribution of Responses				
	N	Mean	*SD*[a]	Never/ Almost Never	Seldom	Sometimes	Often	Always/ Almost Always
Had real responsibilities.	642	4.24	.892	1.4	3.4	12.0	36.4	46.7
Had challenging tasks.	640	4.07	.932	1.6	4.2	18.1	38.0	38.1
Made important decisions.	636	4.08	.952	2.0	3.9	17.5	37.1	39.5
Discussed my experience(s) with teacher(s).	639	3.23	1.291	11.3	19.6	25.5	22.5	21.1
Did things myself instead of observing.	638	3.81	.976	1.9	5.8	30.3	33.7	28.4
Had freedom to develop and use my own ideas.	641	3.93	.981	1.9	5.5	24.2	34.8	33.2
Adults criticized me or my work.	637	2.93	1.291	16.0	22.8	29.7	15.4	16.2
Felt I made a contribution.	639	3.69	1.073	3.4	9.5	28.3	31.8	26.9

[a] Standard deviation.

Exhibit 19 shows students' perceptions of the academic and work-related skills they obtained from their service-learning experiences. About two thirds of the service-learning students felt they gained job skills and work experience and over half said they became more aware of careers. Over 40% believed they gained reading skills, and over a third said they gained writing skills and computer skills. About a fourth said they learned math skills and tutoring skills. Finally, slightly fewer than 20% of students said they learned science skills. These figures are consistent with their ratings of enjoyment and skill acquisition in particular content areas from the first half of the survey.

Exhibit 19. Student Perception of Skills Acquired From Service-Learning (*N* = 645)

Skill Area	Percent Reporting Gain
Reading skills	41
Writing skills	38
Math skills	26
Science skills	19
Computer skills	35
Tutoring skills	26
Career awareness	51
Job skills	66
Work experience	64

As discussed previously, students' ratings on this measure clustered into three areas: reading, writing and computer skills; math and science skills; and work-related skills. Perceived learning about tutoring emerged as a single item that was unrelated to their responses to other items. A one-way MANOVA of the three subscales and the tutoring item showed significant overall between-program differences in perceived skill learning $F(32, 2{,}544) = 4.693$, $p < .001$, Eta-squared = .056. Univariate ANOVAs were then conducted using each skill cluster as a dependent measure. Results of these ANOVAs, which are displayed in Exhibit 20, were highly statistically significant.

Exhibit 20. Differences Between Schools in Perceived Skill Learning Spring 2004

Skill	Sum of Squares	*df*	Mean Square	*F*	*p*	Partial Eta-squared
Reading, Writing, and Computer Skills	45.725	8	5.716	4.174	.000	.050
Mathematics and Science Skills	15.438	8	1.930	3.787	.000	.045
Tutoring Skills	11.513	8	1.439	8.085	.000	.092
Career, Job, and Work Skills	45.569	8	5.696	4.648	.000	.055

Student Engagement in Service-Learning

Students also responded to a series of items designed to measure their engagement in service-learning activities. A majority of students said that they often or almost always worked very hard on their service-learning projects, paid attention when planning or working on service-learning activities, and tried to learn as much as they could about the service-learning project. Just over half said that it was often important or almost always important to them to do the best they could when working on their service-learning project. Over 40% said they show up to school often or almost always when working on their service-learning projects, and nearly the

same percentage said they often or almost always do their homework more often and enjoy school more. Results are presented in Exhibit 21.

Exhibit 21. Student Engagement in Service-Learning

		Average Rating		Percent Distribution of Responses				
	N	Mean	*SD*[a]	Never/ Almost Never	Seldom	Sometimes	Often	Always/ Almost Always
I work very hard on my service-learning project.	634	3.71	1.101	4.4	10.6	20.8	37.7	26.5
I try to learn as much as I can about my service-learning project.	633	3.65	1.113	4.3	12.2	23.7	34.4	25.4
When I am doing service-learning, I try very hard.	630	3.81	1.092	3.7	9.5	20.6	34.9	31.3
When I am doing service-learning, I just act as if I am working.	624	2.83	1.338	15.5	16.7	21.5	27.4	18.9
I pay attention when planning or working on my service-learning activities.	630	3.92	1.160	3.3	7.3	19.9	34.6	34.9
I don't work very hard at service-learning.	629	3.91	1.085	39.8	31.4	15.1	8.6	5.1
It is very important to me to do the best I can when working on my service-learning project.	626	3.49	1.284	9.7	13.1	23.3	26.4	27.5
When I participate in service-learning, I show up to school on time more often.	623	3.22	1.243	11.2	16.7	29.1	24.9	17.8
When I participate in service-learning, I enjoy school more.	628	2.93	1.436	25.3	13.1	23.1	20.7	17.8
When I participate in service-learning, I do my homework more often.	627	3.08	1.288	15.6	16.3	28.4	23.8	15.9

[a] Standard deviation

Student Engagement in Service-Learning as a Moderator of Student Outcomes

The study hypothesized that service-learning would lead to greater student engagement which in turn would generate increased student outcomes. To test this hypothesis, a canonical correlation analysis was used. The overall engagement scale score was significantly related to the student outcome measures $F(12, 593) = 37.598$, $p < .001$, Eta-squared = .432. Univariate analyses indicated that student engagement was significantly associated with every outcome measure except one (civic knowledge). Exhibit 22 displays the results for the overall service-learning engagement score and its relationships to each of the student outcome measures.

Exhibit 22. Service-Learning Engagement as a Moderator of Student Outcomes

Dependent Variable	*F*	*p*	Partial Eta-squared
Academic Engagement	200.901	.000	.250
Valuing School	175.162	.000	.225
School Attachment	130.944	.000	.178
Enjoyment of Math and Science	25.391	.000	.040
Enjoyment of Reading/Language Arts and Social Studies	59.232	.000	.089
Civic Knowledge	.070	.792	.000
Self-Reported Civic Knowledge	23.592	.000	.038
Civic Skills	109.269	.000	.153
Community Attachment	108.774	.000	.153
Civic Dispositions	80.811	.000	.118
Efficacy	175.764	.000	.225
Civic Engagement	103.500	.000	.146

Principal component factor analysis with varimax rotation yielded three subscales within the student engagement scale: engagement in service-learning activities, engagement in school due to service-learning, and work ethic while engaged in service-learning. Differences between service-learning schools on these factors were analyzed using a multivariate analysis of variance (MANOVA) with school as the independent measure. Results of the MANOVA were highly significant $F(24, 1{,}863) = 4.972$, $p < .001$, Eta-squared = .060. Univariate tests of between-school differences on each factor were highly significant for service-learning engagement $F(8, 621) = 3.929$, $p < .001$, Eta-squared = .048 and for engagement in school due to service-learning $F(8, 621) = 5.278$, $p < .001$, Eta-squared = .064. A MANOVA was conducted to find between-school differences in each item on the engagement scale. Results of the MANOVA were highly significant $F(88, 4{,}672) = 2.672$, $p < .001$, Eta-squared = .048. Univariate analyses revealed significant differences across programs on all engagement items except one. Exhibit 23 displays the results of these analyses.

Exhibit 23. Differences Between Program for Service-Learning Student Engagement Ratings, Spring 2004

Finally, please tell us how often you feel the following statements are true for you.	*df*	*F*	*p*	Partial Eta-squared
I work very hard on my service-learning project.	8	3.974	.000***	.051
I try to learn as much as I can about my service-learning project.	8	3.624	.000***	.047
When I am doing service-learning, I try very hard.	8	4.785	.000***	.061
When I am doing service-learning, I just act as if I am working. (reversed item)	8	1.032	.410	.014
I pay attention when planning or working on my service-learning project.	8	3.165	.002**	.041
I don't work very hard at service-learning (reversed item)	8	2.856	.004**	.037
It is very important to me to do the best I can when working on my service-learning project.	8	2.448	.013*	.032
When I participate in service-learning, I show up to school on time more often.	8	3.230	.001**	.042
When I participate in service-learning, I enjoy school more.	8	6.311	.000***	.079
When I participate in service-learning, I disrupt class less.	8	2.173	.028*	.029
When I participate in service-learning, I do my homework more often.	8	3.489	.001**	.045

Nature and Type of Service as Moderators of Student Outcomes

This study also explored whether the nature and type of service-learning activities impacted the outcomes. Service-learning experiences were classified according to two dimensions: (1) the nature of the issue addressed by the service project (e.g., environmental, civic, or varied based on student choice) and (2) the type of service performed by students (direct, indirect, or civic and political action). Exhibit 24 displays the classification scheme used to analyze the nature of the service-learning issue.

Exhibit 24. Nature of Student Service Issue

Nature of Service	Examples
Environment	Fixing a nature trail Testing water quality and reporting results Petitioning a city commission to start a recycling center
Civic issue	Working on the election Researching a public policy issue
Varied (student selected)	Tutoring Assisting an ill person Creating health-related educational materials Conducting oral history project with seniors Writing educational materials about senior abuse Serving at a soup kitchen

The hypothesis tested was that students had more control over their own learning, that is, those that had a voice in selecting the community problem to be addressed, designed the service, and possibly developed an assessment of the impact of the service, would experience higher degrees of impact than those that were directed by their teachers. Further, those that provided service in an area directly related to civics were expected to show greater gains than those that engaged in service in a field not directly related to civics, such as the environment.

A one-way MANOVA was conducted to determine the effects of the nature of the service issue on participants' overall post-test scores. Results were statistically significant $F(24, 1{,}244) = 5.593$, $p < .001$, Eta-squared = .097. Descriptive statistics are displayed in Exhibit 25.

Exhibit 25. Effect of Nature of Service Issue on Students' Civic Knowledge and Community Attachment

Outcome	Nature of Service	*N*	Mean	*SD*
Civic Knowledge	Environmental	14	1.86	1.167
	Civic issue	522	2.83	1.596
	Varied (student selected)	99	3.05	1.886
Self-Reported Civic Knowledge	Environmental	14	2.03	.643
	Civic issue	522	2.70	.667
	Varied (student selected)	99	2.78	.645
Community Attachment	Environmental	14	2.67	.795
	Civic issue	522	2.39	.787
	Varied (student selected)	99	2.67	.855

Post hoc tests indicated statistically significant differences for three outcomes: civic knowledge, self-reported civic knowledge, and community attachment. Students that chose their service activity made significantly greater gains in civic knowledge than those that focused on a teacher-selected civic problem ($p < .020$) or an environmental issue ($p < .000$). Students that addressed a teacher-selected civic issue made greater gains than those whose projects focused on an environmental problem ($p < .025$). For self-reported civic knowledge, students whose teachers selected civic issues performed better than students that selected topics themselves ($p < .004$).

Both of these groups exceeded those students that worked on the environment. Finally, students that chose their service projects rated themselves as more attached to the community than students that worked on the environment. Both of these groups had higher community attachment scores than those that worked on civic issues.

The study also investigated the hypothesis that the type of service activity performed by students would serve as a moderating variable. To test this hypothesis, categories of service were established for projects that involved direct contact with service recipients, indirect service, and service involving civic or political action. Exhibit 26 displays the categorization scheme for type of service activity. Direct contact with service recipients was expected to result in higher outcomes, and service involving civic or political action was hypothesized to produce stronger civic outcomes. The MANOVA analysis of effects on the post-test outcomes was significant $F(24, 1{,}028) = 5.326$, $p < .001$, Eta-squared = .111. In follow-up univariate tests, service type was significantly related to scores on nearly the entire set of subscales, as shown in the effect sizes in Exhibit 27.

Exhibit 26. Type of Service Activity

Type	Activity
Direct	Activities involving direct contact with recipients of service, e.g., tutoring, visits with seniors.
Indirect	Activities intended to benefit recipients with no direct contact, e.g., fundraising, research.
Political or civic action	Activities intended to influence political institutions or processes, e.g., circulating a petition, organizing a community forum.

Exhibit 27. Relationship Between Types of Service Activity (Direct, Indirect, Civic, or Political Action) and Student Outcomes

Post-Test Student Outcomes	*df*	*F*	*p*	Partial Eta-squared
Academic Engagement	2	4.761	.009	.018**
Valuing School	2	4.082	.017	.015*
School Attachment	2	1.825	.162	.007
Enjoying Math and Science	2	5.810	.003	.022**
Enjoying Reading/Language Arts and Social Studies	2	13.000	.000	.048***
Civic Knowledge	2	13.612	.000	.049***
Self-Reported Civic Knowledge	2	9.577	.000	.035***
Civic Skills	2	0.549	.578	.002
Civic Dispositions	2	5.921	.003	.022**
Community Attachment	2	3.705	.025	.014*
Efficacy	2	1.994	.137	.008
Civic Engagement	2	0.310	.734	.001

* $p < .05$, two-tailed test; ** $p < .01$, two-tailed test, *** $p < .001$, two-tailed test.

Exhibit 28 provides descriptive data for significant differences, showing that:

- Indirect service was associated with higher levels of academic engagement, valuing school, and enjoyment of specific subject matters than direct service or civic or political action.
- Students that participated in civic or political action had higher post-test civic knowledge and self-reported civic knowledge scores than those involved in indirect or direct service.
- Students that engaged in civic or political action scored higher than others on civic dispositions.
- Students that performed direct service had higher scores on community attachment.

Exhibit 28. Types of Service and Student Outcomes

Outcome	Type of Service	*N*	Mean	Standard Deviation
Academic Engagement	Direct	12	3.94	.820
	Indirect	96	4.11	.611
	Civic or political action	419	3.86	.722
Valuing School	Direct	12	3.76	.735
	Indirect	96	3.84	.643
	Civic or political action	419	3.62	.685
Enjoyment of Math and Science	Direct	12	3.04	.925
	Indirect	96	3.34	.859
	Civic or political action	419	2.94	1.082
Enjoyment of Reading/Language Arts and Social Studies	Direct	12	3.21	1.033
	Indirect	96	3.96	.850
	Civic or political action	419	3.45	.927
Civic Knowledge	Direct	12	1.67	1.155
	Indirect	96	2.21	1.353
	Civic or political action	419	3.01	1.626
Self-Reported Civic Knowledge	Direct	12	2.13	.630
	Indirect	96	2.48	.739
	Civic or political action	419	2.73	.653
Civic Dispositions	Direct	12	3.00	.553
	Indirect	96	3.31	.556
	Civic or political action	419	3.43	.504
Community Attachment	Direct	12	2.71	.838
	Indirect	96	2.55	.740
	Civic or political action	419	2.37	.793

Duration of Service-Learning as a Moderator of Student Outcomes

The study investigated the hypothesis that duration of service-learning was associated with student outcomes. Teachers estimated the length of time their classes spent on all activities associated with the service-learning project, including the service activity itself and the steps of

preparation, reflection, and celebration/demonstration. Estimates ranged from less than one month to one academic year.

A one-way MANOVA revealed statistically significant effects for the duration of the service-learning experience on students' overall post-test scores $F(36, 1{,}866) = 6.326$, $p < .001$, Eta-squared = .109. Univariate tests showed that duration significantly influenced changes in ratings on: academic engagement, valuing school, school attachment, enjoyment of math and science, enjoyment of reading/language arts and social studies, civic knowledge, self-reported civic knowledge, and community attachment. Exhibit 29 shows the relationship between duration and each post-test outcome. Details of the statistically significant relationships between duration of the service-learning experience and student outcomes may be found in Exhibit 30 for all areas in which statistically significant relationships were found. The Exhibit shows that academic engagement, valuing school, and enjoyment of subject matter scores were highest when projects were one or two months in duration. School attachment, civic skills, and community attachment were rated highest by students in programs of 1 semester in duration. Civic knowledge was highest when projects were a year in duration.

Exhibit 29. Effect Sizes for Service-Learning Duration and Student Outcomes

Post-Test Student Outcomes	*df*	*F*	*p*	Partial Eta-Squared
Academic Engagement	3	4.283	.005	.020**
Valuing School	3	5.058	.002	.023**
School Attachment	3	15.041	.000	.067***
Enjoying Math and Science	3	6.511	.000	.030***
Enjoying Reading/Language Arts and Social Studies	3	15.018	.000	.067***
Civic Knowledge	3	13.062	.000	.058***
Civic Knowledge Self-Ratings	3	6.379	.000	.029***
Civic Skills	3	2.666	.047	.013*
Civic Dispositions	3	1.027	.380	.005
Community Attachment	3	9.620	.000	.044***
Efficacy	3	0.800	.494	.004
Civic Engagement	3	2.193	.088	.010

* $p < .05$, two-tailed test; ** $p < .01$, two-tailed test, *** $p < .001$, two-tailed test.

Exhibit 30. Duration of Project and Student Outcomes

Outcome	Type of Service	*N*	Mean	Standard Deviation
Academic Engagement	Less than 1 month	127	3.85	.772
	1 to 2 months	112	4.08	.613
	1 semester	59	3.92	.710
	1 year	337	3.80	.776
Valuing School	Less than 1 month	127	3.58	.691
	1 to 2 months	112	3.83	.627
	1 semester	59	3.62	.667
	1 year	337	3.53	.743
School Attachment	Less than 1 month	127	2.37	.839
	1 to 2 months	112	2.67	.687
	1 semester	59	3.12	.491
	1 year	337	2.73	.734
Enjoying Math and Science	Less than 1 month	127	2.97	1.133
	1 to 2 months	112	3.30	.919
	1 semester	59	3.06	1.103
	1 year	337	2.80	1.058
Enjoying Reading/Language Arts and Social Studies	Less than 1 month	127	3.16	.984
	1 to 2 months	112	3.95	.831
	1 semester	59	3.28	.939
	1 year	337	3.53	.962
Civic Knowledge	Less than 1 month	127	2.62	1.587
	1 to 2 months	112	2.54	1.409
	1 semester	59	2.57	1.367
	1 year	337	2.81	1.696
Civic Knowledge Self-Ratings	Less than 1 month	127	2.62	.738
	1 to 2 months	112	2.54	.710
	1 semester	59	2.57	.625
	1 year	337	2.81	.621
Civic Skills	Less than 1 month	127	2.76	.684
	1 to 2 months	112	2.85	.694
	1 semester	59	3.04	.480
	1 year	337	2.87	.614
Community Attachment	Less than 1 month	127	2.19	.816
	1 to 2 months	112	2.50	.763
	1 semester	59	2.85	.579
	1 year	337	2.44	.817

Quality of the Service-Learning Experience as a Moderator of Student Outcomes

In concert with the research, this study hypothesized that service-learning classrooms that were rated highly on various quality indicators were much more likely to yield positive outcomes. Teachers that implemented service-learning were asked to complete questions about various components of their service-learning projects that the literature in the field of service-learning indicates are associated with quality. Results showed that teachers perceived that their practices

were generally consistent with these indicators. The highest ratings were for having students communicate information, requiring students to apply academic concepts and/or content that they learned, implementing cognitively challenging service-learning tasks, meeting genuine community needs, and promoting higher order thinking skills. In addition, teachers felt that service-learning tasks helped students develop self-confidence, that there were clear educational goals for the service-learning projects, and that service-learning helped students develop personal efficacy. Students were perceived as playing a large role in implementing service-learning projects, but less of a role in designing, selecting, or evaluating service-learning. Scores were lowest for students' having knowledge of community resources, receiving recognition for their service work from the community, establishing clear roles among partners in the service-learning project, and having an impact on the school.

A composite score of service-learning quality was created by averaging all 38 responses from the teacher survey. A multiple linear regression using this total service-learning quality score to predict student outcomes was statistically significant $F(12, 622) = 5.045$, $p < .001$, $R^2 = .089$, so further analyses were undertaken. Exhibit 31 demonstrates that teacher-reported quality of the service-learning project was correlated with multiple outcomes, including school attachment, civic knowledge, self-reported civic knowledge, civic skills, civic dispositions and civic engagement. These results confirm the results of prior research on the importance of service-learning quality, and help to explain the absence of significant overall effects for service-learning in this study on several outcome measures.

Exhibit 31. Correlations Between Total Teacher Ratings of Service-Learning Quality and Student Post-Test Outcomes

Student Outcome	*N*	*r*	*p*
Academic Engagement	667	-.020	.612
Valuing School	666	-.077*	.046
School Attachment	666	.153***	.000
Enjoyment of Math and Science	646	-.042	.287
Enjoyment of Reading/Language Arts and Social Studies	659	-.007	.848
Civic Knowledge	667	.155***	.000
Self-Reported Civic knowledge	666	.130**	.001
Civic Skills	665	.119**	.002
Community Attachment	666	.053	.169
Civic Dispositions	665	.101**	.009
Efficacy	662	.064	.099
Civic Engagement	664	.122**	.002

* $p < .05$, two-tailed test; ** $p < .01$, two-tailed test, *** $p < .001$, two-tailed test.

The 38 items that measured quality in the teacher survey were derived in large part from the Essential Elements of Service-Learning, a document generated by a coalition of practitioners in the field based on professional wisdom. The Essential Elements are:

1. Clear educational goals that require the application of concepts, content, and skills from the academic disciplines and involve students in the construction of their own knowledge.

2. Student engagement in tasks that challenge and stretch them cognitively and developmentally.

3. Assessment used as a way to enhance student learning as well as to document and evaluate how well students have met content and skill standards.

4. Student participation in service tasks that have clear goals, meet genuine needs in the school or community and have significant consequences for themselves and others.

5. Formative and summative evaluations employed in a systematic evaluation of the service effort and its outcome.

6. Student voice in selecting, designing, implementing and evaluating the service project.

7. Value of diversity as demonstrated by its participants, its practice and its outcomes.

8. Direct communication and interaction with the community.

9. Students prepared for all aspects of their service work including a clear understanding of task and role, the skills and information required by the task, awareness of safety precautions, and knowledge about and sensitivity to the people with whom they will work.

10. Student reflection before, during, and after service, using multiple methods that encourage critical thinking, and serving as a central force in the design and fulfillment of curricular objectives.

11. Multiple methods designed to acknowledge, celebrate, and validate students' service work.

To determine the relationships between specific Essential Elements and student outcomes, a correlation analysis was performed. Results, displayed in Exhibit 32, showed that the Elements varied greatly in their relationship to outcomes. Those Elements with the greatest positive correlations with outcomes were student engagement in challenging tasks; activities that meet genuine needs of the community; valuing diversity; direct contact with the community; and student preparation. Only 2 of the 11 Essential Elements, 3 and 9, were positively associated with several outcomes (specifically, academic engagement, valuing school, enjoyment of math and science, enjoyment of reading, language and social studies, and community attachment). Elements 5 and 11 were unrelated to any of the outcomes measured in this study, and several Elements had negative relationships to outcomes.

Exhibit 32. Correlations Between the Essential Elements and Student Outcome Measures (*N* = 635)

Student Outcome	Service-Learning Element										
	1	2	3	4	5	6	7	8	9	10	11
Academic Engagement	-.020	.009	.053	.029	-.034	-.109*	.125**	-.054	.142**	-.069	-.041
Valuing School	.057	.050	-.051	-.008	-.157**	-.188**	.176**	-.109**	.106**	-.136**	-.020
School Attachment	-.041	.175**	.130**	.163**	-.012	.032	-.026	.167**	-.011	.142**	-.040
Enjoy Math/ Science	-.032	.001	.043	.017	-.042	-.130**	.146**	-.084*	.153**	-.103**	-.021
Enjoy Reading/ Language/Social Studies	-.007	.016	.114**	-.003	-.033	-.168**	.111**	.057	.150**	-.045	-.200**
Civic Knowledge	.107**	.202**	-.033	.125**	-.037	.124**	-.067	.193**	-.112**	.171**	-.011
Self Reported Civic Knowledge	.089*	.066	-.009	.058	.047	.145**	-.088*	.153**	-.038	.162**	-.047
Civic Skills	.074	.162**	.015	.139**	-.044	.021	.065	.073	.063	.086*	.005
Community Attachment	-.176**	.005	.175**	.038	.057	.007	-.118**	.121**	-.077	.073	-.049
Civic Dispositions	.179**	.181**	-.078*	.134**	-.111**	.023	.103**	.062	.081*	.067	-.006
Efficacy	.107**	.123**	-.070	.090*	-.089*	.019	.068	-.013	.026	.039	.064
Civic Engagement	.108**	.154**	.015	.123**	-.035	.033	.078*	.098*	.084*	.089*	-.027

* $p < .05$; ** $p < .01$, two-tailed test.

These findings suggest the need to reconsider recommendations regarding the inclusion of all the Essential Elements in service-learning practice and to provide additional study to determine those Elements that are most critical in producing positive results for specific areas of desired outcomes.

The service-learning student post-survey included several measures of students' perceptions of aspects of their service-learning experience including the degree to which it had offered elements of quality, such as challenge, frequent reflection, and the sense of having made a contribution through service-learning. The relationships between these ratings of quality and outcomes were tested using multivariate analyses.

Results showed a statistically significant overall difference between service-learning sites in students' quality ratings $F(64, 4{,}912) = 2.219$, $p < .001$, Eta-squared = .028). Subsequent univariate tests revealed statistically significant differences in several specific quality elements including exposure to challenging tasks, making important decisions, discussing experiences with teachers, feeling criticized by adults, and feeling efficacious. Exhibit 33 displays the results of univariate tests for the Quality of the Service-Learning Experience scale, showing the areas of quality that had the greatest variation among schools.

Exhibit 33. School Differences in Student Ratings of Quality of the Service-Learning Experience

	df	*F*	*p*	Partial Eta-Squared
Had real responsibilities.	8	1.120	.348	.014
Had challenging tasks.	8	2.271	.021	.029*
Made important decisions.	8	2.366	.016	.030*
Discussed my experience(s) with my teacher(s).	8	3.264	.001	.041**
Did things myself instead of observing.	8	1.611	.118	.021
Had freedom to develop and use my own ideas.	8	1.695	.096	.022
Adults criticized me or my work.	8	2.930	.003	.037**
Felt I made a contribution.	8	3.195	.001	.040**

* $p < .05$, two-tailed test; ** $p < .01$, two-tailed test.

A multiple regression analysis was conducted to determine whether there was a relationship between overall service-learning quality and students' post-test scores. Results of this analysis were highly significant $F(12, 600) = 28.041$, $p < .001$, $R^2 = .359$. As seen in Exhibit 34, perceived quality of the service-learning experience was a strong, positive predictor of civic skills and efficacy.

School Differences in Quality and Relationship to Student Outcomes

The finding of positive effects for service-learning quality led to the hypothesis that quality differences between programs might have accounted for the lack of significant differences on some outcomes in the overall sample. Post hoc tests were conducted to examine program differences on elements of quality. Results showed significant between-program differences on the following dimensions of quality:

- Perceived challenge of the service-learning tasks;
- Students' opportunities to make important decisions;
- Discussion of service-learning experiences with teachers;
- Perceived criticism by adults; and
- Perceived efficacy.

These findings may help explain why comparison students at several sites made greater or similar gains than service-learning students on the outcome measures.

Exhibit 34. Relationships Between Service-Learning Quality and Student Outcomes

Outcome Area	Standardized Beta Coefficients	*t*	*p*
Academic Engagement	.063	1.453	.147
Valuing School	.025	.538	.591
School Attachment	.064	1.392	.164
Enjoyment of Math and Science	-.060	-1.529	.127
Enjoyment of Reading/Language Arts and Social Studies	.030	.754	.451
Civic Knowledge	.003	.101	.920
Self-Reported Civic Knowledge	-.067	-1.812	.070
Civic Skills	.153	3.508***	.000
Community Attachment	-.045	-1.064	.288
Civic Dispositions	.024	.608	.543
Efficacy	.423	10.104***	.000
Civic Engagement	.075	1.793	.073

*** $p < .001$, two-tailed test.

Effects of Content Coverage

Embedded within this study was the hypothesis that teachers that explicitly addressed civic knowledge and skills and intentionally tried to influence civic dispositions would have more positive outcomes than those that were less explicit or intentional about their coverage. In the teacher survey, specific inquiries were made about content coverage of knowledge and skill areas measured in the student surveys, including concepts associated with government and political system, skills for participating within the formal political system, communities, and citizens' responsibilities for active participation within their communities.

Teachers in both groups covered various civics topics several times a week on average, as shown in Exhibit 35. However, teachers that implemented service-learning tended to cover civic content much less frequently than other teachers. Differences in frequency of coverage were most pronounced in the areas of how to debate an issue, citizens' rights and responsibilities in a democracy, the branches of the government, respect for diversity, and current events. Given these large differences in content coverage, it is surprising that comparison students did not outscore their service-learning peers on most measures of civic knowledge and skills. Exhibit 36 demonstrates that only enjoyment of reading and social studies and self-reported civic knowledge were significantly positively correlated with civics coverage scores. The results suggest that, by actively engaging students in community affairs and civic issues, service-learning may be as effective as content coverage in strengthening civic knowledge, skills, and/or dispositions.

Exhibit 35. Teachers' Coverage of Civic-Related Subject Matter

	Service-Learning			Comparison			*t* Tests		
	N	Mean	*SD*[a]	*N*	Mean	*SD*	*df*	*t*	*p*
a. The U. S. Constitution	14	2.93	1.685	10	3.00	1.826	22	.098	.922
b. American history	13	3.15	1.519	11	3.09	1.758	22	.094	.926
c. World history	14	2.79	1.626	11	3.09	1.578	23	.472	.641
d. Current national events	14	4.07	1.269	11	4.09	1.375	23	.037	.971
e. Federal government	14	3.29	1.637	11	3.55	1.572	23	.401	.692
f. State government	14	2.43	1.016	11	2.91	1.375	23	1.006	.325
g. Local government	14	2.50	.941	11	3.00	1.265	23	1.135	.268
h. Rights of citizens in a democracy	14	3.36	1.336	11	4.36	.924	23	2.126	.044
i. Responsibilities of citizens in a democracy	14	3.36	1.336	11	4.27	.905	23	1.945	.064
j. Executive branch of the U.S. government	14	2.57	1.399	11	3.36	1.433	23	1.391	.178
k. Legislative branch of the U.S. government (Congress)	14	2.50	1.286	11	3.18	1.779	23	1.113	.277
l. Cabinet roles	13	1.77	.832	11	2.45	1.572	22	1.365	.186
m. Judicial branch of the U.S. government (Supreme Court)	14	2.57	1.342	11	3.27	1.679	23	1.162	.257
n. Elections and the voting process	14	2.93	1.328	11	3.36	1.362	23	.804	.430
o. Analysis of political issues	14	3.79	1.369	11	3.82	1.401	23	.058	.954
p. Controversial political issues and the fact that there are multiple points of view	14	3.93	1.439	11	3.91	1.221	23	.036	.972
q. Role of community organizations	14	3.00	1.038	11	3.27	1.421	23	.555	.584
r. Assessment of community needs	14	2.71	.994	11	2.91	1.446	23	.399	.694
s. How to debate an issue	13	2.31	.855	11	3.45	1.368	22	2.504	.020
t. How social change can come about	13	3.31	.947	10	3.10	1.663	21	.379	.709
u. Current state events	14	2.86	1.167	10	3.70	.823	22	1.957	.063
v. Current local events	14	2.86	.864	11	3.82	.982	23	2.600	.016
w. Volunteerism	14	2.86	.949	11	2.91	1.514	23	.105	.917
x. Respect for diversity	14	3.29	1.267	11	4.18	1.168	23	1.816	.082
y. Social problems (e.g., homelessness, drunk drivers)	14	3.29	1.326	11	3.91	1.044	23	1.277	.214
Total Summary Score	**14**	**2.99**	**.878**	**11**	**3.44**	**.786**	**23**	**1.332**	**.196**

Correlation coefficients were calculated between teacher responses to these questions. [a]Standard deviation.

Exhibit 36. Correlations Between Civics Content Coverage and Student Civic Outcomes

Student Outcome	*N*	*r*	*p*
Academic Engagement	1013	.014	.666
Valuing School	1011	-.020	.521
School Attachment	1012	.013	.688
Enjoyment of Math and Science	979	-.011	.734
Enjoyment of Reading/Language Arts and Social Studies	1004	.126***	.000
Civic Knowledge	1013	.028	.375
Self-Reported Civic Knowledge	1012	.093**	.003
Civic Skills	1008	-.016	.612
Community Attachment	1012	.034	.282
Civic Dispositions	1008	.006	.843
Efficacy	1005	-.034	.284
Civic Engagement	1007	.057	.070

** $p < .01$, two-tailed test, *** $p < .001$, two-tailed test.

Teacher Characteristics as Moderators of Student Outcomes

The study also tested the relationship between student outcomes and a variety of teacher characteristics and practices. A description of the pool of respondents to the teacher survey is presented in Exhibit 37. Most teachers in the sample taught multiple grade levels and nearly 40% had been teaching for more than 20 years. The group was bimodal with regard to years teaching at the same school, with 43% at the school less than 5 years and 22% at the same school for over 21 years. Those that implemented service-learning had been doing so for an average of nearly 8 years.

Years of Teaching and Student Outcomes

One hypothesis tested within this study was that more experience in teaching would lead to stronger outcomes. Canonical correlation analysis indicated a highly significant relationship between teaching experience and student outcomes $F(12,949 = 4.050$, p < .001, Eta-squared =.049. Using correlational analysis, the data showed that more years of teaching experience were significantly related to four student outcome measures: valuing school, $r(1,110) = .103$, $p < .01$; enjoying math and science, $r(979) = .082$, $p < .05$; civic skills, $r(1,008) = .085$, $p < .01$; and civic dispositions, $r(1,008) = .115$, $p < .001$. In addition to teaching experience more generally, the study addressed whether teaching experience in service-learning was associated with stronger outcomes. Teachers' experience with service-learning ranged from 2 to 24 years, with an average of about 8 years. Canonical correlation analysis revealed a highly significant relationship between teacher experience and student outcomes $F(12,244 = 5.320)$, $p < .001$, Eta-squared = .113. Experience using service-learning was significantly positively associated with students' post-test scores on three subscales: civic knowledge $r(540) = .174$, $p < .001$, civic

dispositions $r(538) = .139$, $p < .01$, and efficacy $r(535) = .098$, $p < .05$. Years of using service-learning had a statistically significant negative association with community attachment $r(539) = -.119$, $p < .01$.

Exhibit 37. Description of Teacher Survey Respondents (*N* = 24)

	Service-Learning		Comparison		Aggregate	
	N	Percent	*N*	Percent	*N*	Percent
Teacher Respondents by Grade						
Grade 9	6	43	4	36	10	40
Grade 10	5	36	2	18	7	28
Grade 11	9	64	8	73	17	68
Grade 12	13	93	9	82	22	85
Years Teaching						
0 to 5	1	7	3	27	4	16
6 to 10	2	14	2	18	4	16
11 to 15	4	29	0	0	4	16
16 to 20	1	7	3	27	4	16
21 or more	6	43	3	27	9	36
Years at the Same School						
0 to 5	6	43	6	55	12	98
6 to 10	2	14	1	9	3	12
11 to 15	2	14	0	0	2	8
16 to 20	0	0	2	18	2	8
21 or more	4	29	2	18	6	24

Note: Teachers could choose more than one response. Percentages refer to proportion of teachers that answered the questions.

Effects of the Frequency of Use of Active and Passive Instructional Strategies

Two additional hypotheses of this study were that service-learning teachers were more likely to use active teaching techniques than comparison teachers, and that service-learning would have an effect separate from and in addition to the effects of active learning. To test these hypotheses, teachers were asked to indicate how frequently they used various types of instructional strategies and materials, such as lecture, cooperative learning, supplemental reading materials, and so forth. Teaching techniques were classified as either active or passive.

A MANOVA comparing service-learning teachers to comparison group teachers was not statistically significant $F(4, 16)$, $p = .426$, Eta-Squared = .204 for the four passive instruction techniques, even though the effect size was moderate. As shown in Exhibit 38, which displays descriptive statistics, service-learning teachers tended to use passive and active instructional techniques at about an equal rate while comparison teachers more frequently employed passive techniques although these differences are not statistically significant. A MANOVA comparing service-learning teachers to comparison teachers regarding use of active techniques was not significant $F(7, 15) = .753$, $p = .633$, Eta-squared = .260 although the effect size was moderate. Among the passive techniques, the largest differences in frequency of use were for textbook reading and use of video, with both implemented more often by comparison teachers. Among

the active techniques, the greatest differences were found in the use of cooperative learning, visits to government or community institutions, debates or discussion, and research reports. Of all of the techniques listed, service-learning teachers used cooperative learning, debates or discussions, and lectures most often while comparison teachers implemented debates or discussions, lectures, textbook reading, and cooperative learning most often, although differences were not statistically significant.

Canonical correlations between the use of active versus passive instruction and student outcomes were determined for all teachers. Exhibit 39 shows bivariate correlations. Active learning strategies were statistically significantly associated with multiple student outcomes, including very strong relationships with valuing school, enjoying reading/language arts/social studies, self-reported civic knowledge, civic skills, and civic dispositions. Academic engagement and efficacy were also impacted by active teaching. Passive strategies had statistically significant negative relationships with civic engagement and civic dispositions.

Exhibit 38. Types of Instructional Strategies Used in the Classroom

	Service-Learning			Comparison			*t* Tests		
	N	Mean	*SD*	*N*	Mean	*SD*	*df*	*t*	*p*
Passive									
Lectures	14	3.50	1.345	10	3.80	1.229	22	.558	.583
Textbook reading	13	2.69	1.182	10	3.60	1.265	21	1.771	.091
Videos, DVDs, or television	13	2.38	.650	10	2.70	1.337	21	.747	.464
Multiple choice tests	13	2.46	1.050	10	2.40	1.075	21	.138	.892
Passive Subscale	**14**	**2.79**	**.774**	**10**	**3.13**	**.648**	**22**	**1.130**	**.271**
Active									
Visits to government or community institutions	14	1.64	.633	10	1.20	.422	22	1.922	.068
Debates or discussions	14	3.64	1.336	10	3.90	1.197	22	.485	.633
Mock trials, role plays, or other simulations	14	2.43	1.089	10	2.50	1.509	22	.135	.894
Assignments in which students analyze media presentations of information	14	2.64	1.082	10	2.70	1.636	22	.103	.919
Research reports	14	2.42	.852	10	2.20	1.135	22	.565	.578
Student generated projects	14	2.86	1.099	10	2.70	1.337	22	.316	.755
Cooperative learning	13	4.08	1.188	10	3.60	1.265	21	.928	.564
Active Subscale	14	**2.79**	**.646**	**10**	**2.69**	**.824**	22	**.350**	**.729**

Note: Subscales are the averages of the items listed in each subsection. Two-tailed *t* tests were conducted between service-learning teacher responses and comparison group teacher responses to items and subscales. None of the results were statistically significant.

Exhibit 40. Correlations Between Active and Passive Teacher Pedagogy and Student Post-Test Outcomes

Teacher Pedagogy	Post-Test Student Perceptions					
Total Number in Sample	Academic Engagement	Valuing School	School Attachment	Enjoyment of Math and Science	Enjoyment of Reading/Language Arts and Social Studies	Civic Knowledge
Active Instruction	.079*	.135***	.181***	.102**	.139***	.093**
N	(910)	(910)	(909)	(882)	(902)	(910)
Passive Instruction	.051	-.003	-.057	.047	-.099**	1.010**
N	(910)	(908)	(909)	(882)	(902)	(910)

* $p < .05$, two-tailed test; ** $p < .01$, two-tailed test; *** $p < .001$, two-tailed test. *N* of cases in parentheses below each correlation.

Teacher Pedagogy	Post-Test Student Perceptions					
Total Number in Sample	Self-Reported Civic Knowledge	Civic Skills	Community Attachment	Civic Dispositions	Efficacy	Civic Engagement
Active Instruction	-.031	.137***	.057	.151***	.080*	.166***
N	(909)	(905)	(909)	(905)	(903)	(905)
Passive Instruction	-.146***	-.052	.020	-.070*	-.025	-.072*
N	(909)	(905)	(909)	(905)	(903)	(905)

* $p < .05$, two-tailed test; ** $p < .01$, two-tailed test; *** $p < .001$, two-tailed test. *N* of cases in parentheses below each correlation.

To determine whether the active or passive nature of instruction explained the effects of service-learning (rather than the pedagogy of service-learning itself), a MANCOVA was conducted with teacher active and passive scores used as covariates and student group used as a categorical variable. Results are presented in Exhibit 40. The use of active strategies explained about 9% of the variance in overall student outcomes, and passive instruction accounted for approximately 7%. Participation in service-learning explained an additional 3% of the variance in student outcomes when type of pedagogy was statistically controlled. This indicates a small positive influence for service-learning beyond active pedagogy alone.

Exhibit 40. Influence of Type of Instruction (Active vs. Passive) on Student Outcomes

Effect	*df*	*F*	*p*	Partial Eta-squared
Intercept	12	80.413	.000***	.531
Active Instruction	12	6.847	.000***	.088
Passive Instruction	12	4.903	.000***	.065
Student group	12	2.025	.020*	.028

* $p < .05$, two-tailed test; *** $p < .001$, two-tailed test.

Univariate analyses of the effects of active vs. passive teaching and of service-learning participation controlling for type of pedagogy revealed that active teaching explained significant amounts of the variance on all outcome measures, except civic knowledge. When active and passive instruction were controlled, service-learning students scored significantly higher on the valuing school measure ($M = 3.612$) than comparison students ($M = 3.496$), while, in contrast comparison students reported greater enjoyment of reading and social studies ($M = 3.671$) versus service-learning reading and social studies ($M = 3.499$). Exhibit 41 displays univariate results.

Exhibit 41. Effects of Service-Learning Independent of Type of Instruction (Active v. Passive) Generally Used by the Teacher

	Active Instruction		Passive Instruction		Group (Service-Learning vs. Comparison)	
Dependent Variable	*p*	Partial Eta-squared	*p*	Partial Eta-squared	*p*	Partial Eta-squared
Academic Engagement	.002	.011**	.023	.006*	.623	.000
Valuing School	.000	.022***	.104	.003	.040	.005*
School Attachment	.000	.031***	.634	.000	.250	.002
Enjoyment of Math and Science	.000	.016***	.008	.008**	.565	.000
Enjoyment of Reading/Language Arts and Social Studies	.008	.008**	.014	.007*	.027	.006*
Civic Knowledge	.065	.004	.041	.005*	.662	.000
Self-Reported Civic Knowledge	.011	.008*	.000	.028***	.937	.000
Civic Skills	.000	.017***	.880	.000	.177	.002
Community Attachment	.021	.006*	.092	.003	.093	.003
Civic Dispositions	.000	.020***	.595	.000	.232	.002
Efficacy	.023	.006*	.860	.000	.875	.000
Civic Engagement	.000	.021***	.502	.001	.876	.000

* $p < .05$, two-tailed test; ** $p < .01$, two-tailed test, *** $p < .001$, two-tailed test.

Conclusions

This study examined the impact of participation in service-learning on high school students' attitudes toward school and civic development. Using a national sample of classrooms of students that participated in service-learning matched with classrooms of students of similar demographic and achievement background that did not participate in service-learning, the study investigated the effect of service-learning participation on students' academic engagement, valuing school, attachment to school, and civic knowledge, skills, dispositions, and activities. Additionally, the study examined the degree to which many of the variables related to the service-learning experience served as moderators of outcomes.

A variety of methodologies was used to collect data. Students in service-learning classes and students at the same or a demographically matched school at the same grade level taking classes in the same content area responded to surveys in the fall and spring. Teachers completed surveys in the spring. Students and teachers also participated in focus groups, classrooms were observed, and administrators were interviewed. Subscales were created from survey items and differences between students that participated in service-learning relative to those that did not participate were analyzed, both in terms of the overall sample and using the matched classroom design.

Results showed:

- **Although service-learning students scored higher than comparison students on several outcomes, most differences were not statistically significant.**

- **Service-learning students had significantly higher scores on enjoyment of school overall than comparison group peers. No differences were found in enjoyment of specific content areas.**

- **Service-learning students were significantly more likely than comparison group members to report that they intended to vote.**

The students in this study that participated in service-learning had very different experiences which led to wide variations in student perceptions of service-learning and the impact that it had. Analysis of matched pairs of students showed that just a few of the classrooms in the sample accounted for many of the differences.

- A variety of hypotheses related to the service-learning experiences and outcomes were tested. **The hypothesis that service-learning was inherently engaging was supported in some schools and in some ways.** Over half of the participants in service-learning said that they often or always work hard on their service-learning projects, pay attention, and try to learn from them.

- **Engagement in service-learning was a strong predictor of all student outcomes, except for the civic knowledge measure.** Students who reported stronger engagement in service-learning were statistically significantly more likely to be academically engaged, value

schooling, become attached to school and community, enjoyed content courses, perceive a gain in civic knowledge, skills, and dispositions, become more civically engaged in general, and felt greater efficacy.

- **Students that chose the issue for their service-learning project made greater gains on the objective questions of civic knowledge than others, while those that worked on a teacher-selected civic issue made greater gains than those that worked on an environmental service project.** Students who worked on the teacher selected civic activities perceived that they made greater gains in civic knowledge than others.

- **The type of service activity (direct, indirect, or civic or political action) performed was related to nearly all outcomes measures.** Participating in civic or political action was positively related to civic knowledge and civic dispositions. Direct service activities were associated with community attachment, while indirect activities were associated with higher post-test scores on academic engagement, valuing school, and enjoyment of specific subject matters.

- **Duration of the service-learning experience was also significantly related to most of the outcome areas.** Generally, those service-learning activities that were one to two months in duration had the highest academic impacts while those that were a semester long had the greatest civic impacts.

- **All of the civic outcome areas except community attachment were strongly related to teacher-reported service-learning program quality.** School attachment was also strongly related to program quality. However, the most commonly used indicators of quality: the Essential Elements of Service-Learning, did not predict outcomes evenly. Rather, specific Elements were much more highly related to outcomes and some Elements were not related to outcomes at all.

- **Teachers that implemented service-learning were less likely than other teachers to explicitly cover content areas related to civics**. However, civics content coverage was related to only two student outcomes: self-reported civic knowledge and enjoyment of reading/language arts and social studies.

- Teacher characteristics were also found to be related to outcomes. **Number of years of teaching experience was significantly related to students' valuing school, enjoying math and science, civic skills, and civic dispositions.** Longer experience using service-learning was associated with higher civic knowledge, civic dispositions, and efficacy scores.

- **Service-learning teachers were more likely to use a variety of active strategies more often than teachers that did not implement service-learning.** The use of active strategies, in turn, was highly related to student outcomes in the areas of valuing school, attachment to school, enjoyment of content areas, acquisition of civic knowledge, skills, and dispositions, and civic engagement.

- **The use of active instructional strategies in general explained about 9% of the variation in overall outcomes. The use of service-learning accounted for an additional 3% of the positive outcomes.**

These data show that students had vastly different experiences with service-learning during the year, and these differences illuminate potential reasons for the results. As repeatedly shown in service-learning research, there is a strong need for high quality service-learning practice, whether quality is measured directly through quality indicators, or less directly, through assessments of student engagement in service-learning.

Limitations of the Study

As is often the case, the results of this study call for more investigation in order to yield greater understanding. The study has multiple limitations. First, the study relies heavily on self-report. While it has a strong matched comparison group design, the design was undermined by the fact that there was very uneven quality within the sites so that the main hypotheses could not be tested well. There were too few controls on the parameters and content of service-learning to provide definitive conclusions, though the data were suggestive of many of the variables that served as moderators of outcomes. No longitudinal data have yet been collected.

The qualitative data acquired as part of the study may serve to illuminate more of the differences between schools in the quality and content of service-learning and will be used to conduct finer grained analyses in the second year of the project. In addition, more data will be collected on various aspects of quality, particularly those found to moderate outcomes, so that greater understanding of the ways in which they serve to influence impact can be understood. For example, next year, teachers will be asked to document specific teaching practices and ways in which they connect service-learning to those practices. The degree to which service-learning plays an additive role beyond the use of active instructional strategies will be further investigated. The study will also look at the role of student characteristics in order to determine which students benefit most under what conditions.

The results of this study can best be described as suggestive and worthy of consideration by service-learning practitioners in the field. When service-learning is of high quality, at best it appears to be as good as other instructional strategies in producing civic engagement outcomes. However, more data are needed to understand how impact can be maximized.

CIRCLE (The Center for Information and Research on Civic Learning and Engagement) promotes research on the civic and political engagement of Americans between the ages of 15 and 25. Although CIRCLE conducts and funds research, not practice, the projects that we support have practical implications for those who work to increase young people's engagement in politics and civic life. CIRCLE is also a clearinghouse for relevant information and scholarship. CIRCLE was founded in 2001 with a generous grant from The Pew Charitable Trusts and is now also funded by Carnegie Corporation of New York. It is based in the University of Maryland's School of Public Policy.

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