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## **The Estimated Effects of Participation in Service-Learning on Liberal Arts Outcomes**

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This study used data from a longitudinal, national study of recent college students to examine the estimated effects of students' participation in service-learning on six liberal arts outcomes. Findings indicate that service-learning was a positive, significant predictor for students' political and social involvement. Service-learning did not have a significant effect on students' growth regarding critical thinking, moral reasoning, inclination to inquire and lifelong learn, intercultural effectiveness, or psychological well-being.

**Keywords:** *service-learning; liberal arts education*

The higher education community has expressed mounting concern about students' overall attitudes toward community-mindedness, preparation for engaged citizenship, and levels of participation in civic life both during and after college (National Task Force on Civic Learning and Democratic Engagement, 2012). In response to this growing sense of misgiving, institutions of higher education have sought numerous ways to educate students for global citizenship. In addition to a variety of intra-institutional efforts, multiple coalitions have formed for the united purpose of committing—or recommittng—institutions of higher education to serving the public good. Campus Compact, the largest of these alliances, currently boasts nearly 1,200 institutional members, attesting to the widespread nature of the civic engagement movement (Campus Compact, 2013). Within this larger context, service-learning has garnered attention as a high-impact educational practice. With its connections to deep learning as well as civic outcomes, service-learning has been named a practice that promotes liberal arts educational outcomes among undergraduate students and promotes learning, engagement, and persistence (Brownell & Swaner, 2010; Kuh, 2008). The Association of American Colleges and Universities (AAC&U) has also recently named service-learning as a promising practice in educating students for personal and social responsibility (O'Neill, 2012).

Definitions of service-learning vary, but typically they all emphasize service-learning as a means for bridging classroom learning with participation in a community-based project (Bringle & Clayton, 2012). Service-learning therefore differs from community service in that it integrates service with content knowledge attained in the classroom (see Astin, Oseguera, Sax, & Korn, 2002; Kuh, 2008; Zlotkowski, 2002). While there is no consensus on a single definition of the term "service-learning," the current study operationally defines service-learning as participation in a community-based service project connected to a course.

## Review of Literature

Studies of community service and service-learning have explored the impact of the practices on students in relation to multiple liberal arts outcomes, including critical thinking, moral development, intercultural effectiveness, leadership skills, and civic responsibility and participation. While service participation has been linked to an increase in critical thinking skills (Astin & Sax, 1998), service-learning has been linked to growth in critical thinking above and beyond that suggested by service participation alone (Vogelgesang & Astin, 2000).

In spite of service-learning's strong connection to civic learning, the results for the effects of service-learning on moral character have been mixed. Whereas Boss (1994) and Gorman, Duffy, and Heffernan (1994) found that students who participated in community service as part of their course requirements made greater gains in moral reasoning than those who did not, Bernacki and Jaeger (2008) did not find significant differences in moral reasoning among students taking service-learning courses versus students taking analogous courses without a service component.

Service participation has been found to increase students' understanding of other cultures and their ability to get along with individuals from other cultures (Astin & Sax, 1998), and numerous studies have found that participation in a service-learning course increases or enhances intercultural and diversity-related outcomes, including students' awareness of diversity (Simons & Cleary, 2006), openness to new ideas, experiences, and people (Jones & Abes, 2004), multicultural competence (Einfeld & Collins, 2008), and global perspective-taking (Engberg & Fox, 2011). On the other hand, Keen and Hall (2009) did not find that skills in dialogue across difference were enriched as a result of service-learning, and Kilgo (in press) found the effects of service-learning on intercultural effectiveness were mediated through good practices, such as academic challenge and positive interactions with diverse peers.

Some studies have also found that both service participation (Astin & Sax, 1998) and service-learning enhance leadership ability at comparable levels (Vogelgesang & Astin, 2000). Finally, several studies have explored the linkages among service participation, service-learning, and students' sense of personal and social responsibility and civic involvement. These studies have found that service participation enhanced students' sense of civic responsibility (Astin & Sax, 1998; Engberg & Fox, 2011; Eyler & Giles, 1999), led to students' emerging commitments to socially responsible work (Eyler & Giles, 1999; Jones & Abes, 2004), increased students' political awareness (Simons & Cleary, 2006) and civic and community engagement (Keen & Hall, 2009; Simons & Cleary, 2006), and led to growth in students' feelings of civic and social responsibility (Brownell & Swaner, 2010; Einfeld & Collins, 2008; Pascarella & Terenzini, 2005). Together, these studies provide initial evidence that participation in service-learning is positively associated with a variety of critical liberal arts learning outcomes among undergraduate students.

While the literature offers critical insight into a variety of outcomes related to service-learning, the studies conducted to date are limited in that they have generally included small sample sizes (e.g., Bernacki & Jaeger, 2008; Boss, 1994; Gorman et al., 1994; Simons & Cleary, 2006), lack generalizability (e.g., Einfeld & Collins, 2008; Jones & Abes, 2004; Keen & Hall, 2009), relied on self-reported data (e.g., Vogelgesang & Astin, 2000), did not include a pre- and post-test research design (Engberg & Fox, 2011), and/or have focused on community service rather than service-learning outcomes (e.g., Astin & Sax, 1998). Further, few studies have examined the effects of service-learning on a wide range of educational outcomes. Given these limitations, there is a demonstrable need for a large-scale quantitative study on service-learning that explores a broad spectrum of liberal arts outcomes.

## Liberal Arts Conceptual Framework

As indicated above, previous studies have linked service-learning to a breadth of significant educational outcomes across numerous dimensions. The current study seeks to build upon this line

of inquiry, considering the liberal arts outcomes of service-learning through the lens of the comprehensive model of liberal arts educational outcomes developed by King, Kendall Brown, Lindsay, and VanHecke (2007). This model consists of seven liberal arts learning outcomes that together are argued to constitute a liberal arts education: (1) integration of learning, (2) inclination to inquire and lifelong learn, (3) effective reasoning and problem solving, (4) moral character, (5) intercultural effectiveness, (6) leadership, and (7) well-being. Together, the model suggests, these outcomes prepare “wise citizens” for an ever-changing world (King et al., 2007).

The purpose of this study is to examine the effects of students’ participation in service-learning upon a variety of liberal arts outcomes. The current study explores the effects of service-learning on some of King et al.’s (2007) liberal arts learning outcomes plus another outcome—political and social involvement—that we feel directly links to the previous literature on service-learning. This study is significant because it employs a rigorous longitudinal research design to test the effects of service-learning on multiple liberal arts outcomes in a model that controls for numerous covariates; thus, it addresses a gap in the existing service-learning literature surrounding liberal arts outcomes. The study is guided by the following research question: What are the estimated effects of participation in service-learning on students’ (1) critical thinking, (2) moral reasoning, (3) inclination to inquire and lifelong learn, (4) intercultural effectiveness, (5) psychological well-being, and (6) political and social involvement?

## **Dependent Measures**

Dependent measures for the current study included six measures encompassing a variety of liberal arts educational outcomes: critical thinking, moral reasoning, inclination to inquire and lifelong learn, intercultural effectiveness, psychological well-being, and political and social involvement. The study included five of the seven outcome measures illustrated in the liberal arts theoretical framework of King et al. (2007). Further, given the recent emphasis on civic education by researchers, practitioners, and advocates of the liberal arts curriculum such as the AAC&U, the study also included political and social involvement (PSI) as a measure of the civic outcomes emphasized in a liberal arts education (National Task Force, 2012).

### **Critical Thinking**

Critical thinking was measured by the Collegiate Assessment of Academic Proficiency (CAAP), a 32-item scale measuring the ability of students to analyze, assess, and extend arguments. The CAAP was developed by the American College Testing Program. The CAAP has internal reliability consistencies ranging from 0.81 to 0.82 (ACT, 1991).

### **Moral Reasoning**

Moral reasoning was measured by the N2 score of the Defining Issues Test-2 (DIT2), a 12-item scale measuring moral reasoning by evaluating students’ responses to multiple social dilemmas. The DIT2 has internal consistency reliabilities ranging from 0.74 to 0.77 (Rest, Narvaez, Thoma, & Bebeau, 1999).

### **Inclination to Inquire and Lifelong Learn**

Inclination to inquire and lifelong learn was measured by the Need for Cognition Scale (NCS), a 19-item scale measuring students’ “tendency to engage in and enjoy effortful cognitive activity” (Cacioppo, Petty, Feinstein, & Jarvis, 1996, p. 197). The NCS has internal consistency reliabilities ranging from 0.83 to 0.91 (Cacioppo et al., 1996).

### **Intercultural Effectiveness**

While the WNS includes two measures for intercultural effectiveness, the current study chose to examine only the Openness to Diversity/Challenge Scale (ODC) due to prior studies examining the effects of service-learning on the Miville-Guzman Universality-Diversity Scale (M-GUDS) (see Kilgo, in press). The ODC is a seven-item scale measuring students' enjoyment in interacting with diverse people and in considering diverse values and perspectives (Pascarella, Edison, Nora, Hagedorn, & Terenzini, 1996). The ODC has internal consistency reliabilities ranging from 0.83 to 0.87.

### **Psychological Well-being**

Psychological well-being was measured by the total mean score of the Ryff Scales of Psychological Well-Being (RYFF), a 54-item scale measuring six areas: self-acceptance, personal growth, purpose in life, positive relations with others, environmental mastery, and autonomy (Keyes, Shmotkin, & Ryff, 2002; Ryff, 1989; Ryff & Keyes, 1995). The RYFF total mean scale has an internal consistency reliability of 0.92.

### **Political and Social Involvement**

The political and social involvement (PSI) scale is an 11-item scale measuring students' assigned level of importance for political and community involvement, such as volunteering, becoming a community leader, and affecting political structures. The PSI scale stems from items from the Cooperative Institutional Research Program (CIRP) Survey created by the Higher Education Research Institute (HERI) at the University of California at Los Angeles. The PSI has internal consistency reliabilities ranging from 0.80 to 0.83.

### **Independent Measures**

The study included several covariates based on the literature on service-learning. (All of the independent measures are described in more detail in the Appendix.) The study included a host of precollege control variables, including dichotomous variables for gender (male versus female), average parent education (parent education averaged a bachelor's degree or higher versus parent education did not average a bachelor's degree or higher), high school political views (far left/liberal versus middle of the road/conservative/far right), high school volunteer involvement (occasionally/often/very often versus never/rarely), and paid employment during high school (occasionally/often/very often versus never/rarely). Due to small sample sizes within individual race categories, the current study was not able to disaggregate individual race categories. Therefore, one dichotomous variable controlling for race was included (students of color versus white). Continuous measures were included for precollege academic motivation and precollege academic ability (ACT composite score). Further, the pretest measures for all six dependent variables of the study were included to control for students' precollege levels.

Two dichotomous variables were included to control for institutional characteristics (regional university and research university, with liberal arts colleges serving as the omitted category for both). Several college experience control variables were included, such as dichotomous variables for fraternity or sorority affiliation (member of a fraternity/sorority versus not a member) and academic major (social sciences/humanities major versus other majors), and a continuous measure for working on and off campus for pay. The current study also incorporated six vetted good practices variables—suggested to provide positive benefits for students' personal growth and development (see Chickering & Gamson, 1987; Chickering & Reisser, 1993; Pascarella & Terenzini, 2005)—including: faculty interest in teaching/student development ( $\alpha = 0.87$ ), diversity experiences ( $\alpha = 0.69$ ), integrative learning ( $\alpha = 0.77$ ), positive interactions with diverse peers ( $\alpha = 0.83$ ), academic challenge ( $\alpha = 0.66$ ), and cooperative learning ( $\alpha = 0.68$ ). Finally, the independent variable of

interest in the current study was a dichotomous variable for service-learning participation at the end of the fourth year (did participate versus did not participate).

## Analyses

All continuous dependent and independent measures were standardized. After listwise deletion was conducted, the following sample sizes remained: CAAP ( $n = 886$ ), DIT2 ( $n = 910$ ), NCS ( $n = 1,852$ ), ODC ( $n = 1,856$ ), RYFF ( $n = 1,841$ ), and PSI ( $n = 1,857$ ). For each dependent measure within the current study, series of ordinary least squares regressions (OLS) were conducted separately. Due to the inability to account for the nested nature of the study ( $N - 1$ ), conservative  $p$ -values ( $p < 0.025$ ,  $p < 0.01$ , and  $p < 0.001$ ) were used. A correlation matrix to check for multicollinearity was computed for all independent variables and is represented in Table 1.

As illustrated in Table 1, most of the correlations are small. The three largest correlations among independent variables all occurred within the good practices variables, with: faculty interest in student development/teaching and integrative learning ( $r = 0.38$ ), integrative learning and academic challenge ( $r = 0.48$ ), and diversity experiences and positive interactions with diverse peers ( $r = 0.65$ ). Further, variance inflation factors (VIF) were also calculated for each regression model to check for multicollinearity. Five of the six models (DIT2, NCS, ODC, RYFF, and PSI) had VIFs below the conservative level of 2.5 (see Allison, 1999). The VIFs for the CAAP model was 2.59 but was well below the less conservative threshold of 10.0 (see Stevens, 2002).

Descriptive analyses were conducted to examine the sample. Table 2 displays the descriptives for the current study. The overall sample was largely White and female; 18 percent reported identifying as students of color, and 36 percent reported identifying as male. The mean ACT Composite Score for the sample was 27.29. Of the six dependent measures in the study, the mean score for the sample was higher at time three (as opposed to time one which was the precollege control within the study) for four measures: critical thinking, moral reasoning, need for cognition, and psychological well-being. For two of the six dependent measures—intercultural effectiveness and political and social involvement—the precollege mean was higher than the post-test (time three) mean for the overall sample. Finally, over half the sample (53%) reported participating in service-learning at some point over the four years of college.

## Results

The direct effects from the current study's models are presented in Table 3. The findings suggest that, while controlling for a host of precollege and college experience variables, service-learning was a significant, positive predictor for students' political and social involvement ( $B = 0.1002$ ,  $p < 0.01$ ). Essentially, students who participated in service-learning scored higher on the PSI scale, which measures students' self-ratings of the importance of activities such as volunteering, political involvement, and voting, among others.

Service-learning was not a significant predictor for any of the other outcome measures, including critical thinking, moral reasoning, inclination to inquire and lifelong learn, intercultural effectiveness, or psychological well-being. An important limitation of the current study, however, is the coding of the independent variable of interest—service-learning. The item included in our analysis from WNS asked students how often they “participated in a community-based project (e.g., service-learning) as part of a regular course,” and the variable was dichotomized (participation versus not). Due to the nature of the item, we are unable to make distinctions between the various types of service-learning experiences and what, if any, differing effects they might have on students' growth in relation to liberal arts outcomes. If the study had controlled for the type of service-learning experience, the findings might have been more consistent with the literature, suggesting positive benefits to students.

**Table 1.** Correlation Matrix among Independent Variables

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1. Race: Students of Color	1.00																			
2. Gender: Male	-0.03	1.00																		
3. Parent Education: Bachelor's Degree or Higher	-0.24	0.03	1.00																	
4. Precollege Academic Motivation	0.08	-0.09	-0.05	1.00																
5. High School Political Views	0.06	-0.04	0.08	-0.02	1.00															
6. High School Volunteer	0.02	-0.12	0.01	0.13	-0.09	1.00														
7. High School Work for Pay	-0.11	-0.08	-0.08	-0.02	0.00	0.06	1.00													
8. Precollege Academic Ability (ACT)	-0.28	0.05	0.36	0.03	0.02	0.07	-0.03	1.00												
9. Regional University	0.07	-0.06	-0.14	-0.02	-0.04	-0.03	0.05	-0.24	1.00											
10. Research University	0.02	0.00	0.17	-0.04	-0.09	0.09	-0.03	0.37	-0.27	1.00										
11. Service-Learning	0.06	-0.14	-0.09	0.04	-0.04	0.11	0.08	-0.18	0.03	-0.11	1.00									
12. Work in College	0.11	-0.06	-0.26	0.01	-0.02	0.02	0.12	-0.21	0.11	-0.08	0.10	1.00								
13. Fraternity/ Sorority Membership	-0.03	0.04	-0.07	-0.01	-0.06	-0.01	0.08	-0.14	0.12	-0.14	0.07	0.05	1.00							
14. Academic Major: Social Sciences/ Humanities	0.05	-0.02	0.07	0.02	0.20	-0.02	-0.05	0.03	-0.18	-0.10	-0.06	-0.01	-0.05	1.00						
15. Faculty Interest Student Dev./ Teaching	-0.04	0.00	-0.01	0.10	-0.02	0.00	0.01	0.03	-0.08	-0.21	0.05	0.00	0.00	0.09	1.00					
16. Diversity Experiences	0.18	0.06	-0.02	0.19	0.11	0.09	0.00	-0.04	-0.11	-0.06	0.16	0.11	0.02	0.19	0.24	1.00				
17. Integrative Learning	0.03	-0.09	0.00	0.16	0.09	0.08	0.09	-0.03	-0.04	-0.13	0.20	0.07	0.01	0.17	0.38	0.48	1.00			
18. Positive Interactions Diverse Peers	0.20	-0.02	-0.01	0.14	0.13	0.07	0.02	-0.04	-0.10	0.00	0.10	0.11	-0.01	0.20	0.15	0.65	0.38	1.00		
19. Academic Challenge	0.01	-0.10	-0.06	0.26	-0.02	0.12	0.07	-0.16	-0.09	-0.17	0.17	0.06	0.04	0.03	0.30	0.31	0.48	0.20	1.00	
20. Cooperative Learning	0.02	0.01	-0.05	0.13	-0.11	0.06	0.05	-0.10	-0.01	-0.01	0.17	0.07	0.10	-0.18	0.25	0.27	0.34	0.21	0.35	1.00

**Table 2 .** Descriptive Statistics on Precollege and College Experience Variables by Participation in Service-Learning using the Wabash National Study of Liberal Arts Education

Variables	Participation in Service-Learning						No Participation in Service-Learning					
	Mean	SD	Freq.	%	Min.	Max.	Mean	SD	Freq.	%	Min.	Max.
Senior-Year Level of Critical Thinking	64.61	6.37			49	73	66.82	4.84			49	73
Precollege Level of Critical Thinking	62.38	5.32			47	73	64.72	5.24			48	73
Senior-Year Level of Moral Reasoning	43.69	14.63			-1.09	77.98	46.57	14.87			-2.19	83.83
Precollege Level of Moral Reasoning	35.66	15.04			-8.84	74.71	38.64	15.37			-8.84	81.22
Senior-Year Level of Need for Cognition	3.68	0.59			1.17	5	3.71	0.59			1.17	5
Precollege Level of Need for Cognition	3.48	0.59			1.22	5	3.68	0.59			1.17	5
Senior-Year Level of Openness to Diversity/Challenge	3.92	0.67			1.29	5	3.79	0.58			1	5
Precollege Level of Openness to Diversity/Challenge	3.96	0.59			1	5	3.91	0.63			1	5
Senior-Year Level of RYFF	4.77	0.57			2.46	6	4.66	0.59			1.94	5.98
Precollege Level of RYFF	4.59	0.57			2.29	5.92	4.52	0.56			2.38	5.94
Senior-Year Level of Political and Social Involvement	2.74	0.57			1	4	2.46	0.57			1	4
Precollege Level of Political and Social Involvement	2.75	0.49			1.18	4	2.61	0.51			1	4
<i>Covariates</i>												
Students of Color			449	24.14	0	1			262	18.11	0	1
Male			602	31.89	0	1			646	44.16	0	1
Average Parent Education	15.44	2.20			11	20	15.85	2.12			11	20
Precollege Academic Motivation	3.64	0.53			1.5	5	3.59	0.56			1.75	5
Precollege Political Views (Liberal)			713	38.27	0	1			623	43.05	0	1
High School Volunteer Work			1482	81.92	0	1			1023	71.14	0	1
High School Work for Pay			1212	66.92	0	1			836	58.1	0	1
ACT Composite Score	25.88	4.58			10	36	27.85	4.26			13	36
Research University			379	20.07	0	1			363	24.81	0	1
Regional University			414	21.93	0	1			254	17.36	0	1
Work Per Week in College	9.64	8.98			0	65	7.88	8.15			0	50
Fraternity/Sorority Affiliation			406	21.53	0	1			249	17.04	0	1
Social Sciences/Humanities Major			795	44.59	0	1			688	50.22	0	1
Faculty Interest in Student Development	0.03	0.82			-4.04	1.09	-0.04	0.79			-4.04	1.09
Diversity Experiences	0.09	0.63			-1.50	2.04	-0.14	0.58			-1.50	1.92
Integrative Learning	0.10	0.54			-2.07	1.10	-0.14	0.62			-2.22	1.10
Positive Interactions with Diverse Peers	0.07	0.85			-1.83	1.79	-0.13	0.85			-1.83	1.74
Academic Challenge and Effort	0.08	0.46			-1.62	1.63	-0.10	0.47			-1.78	1.32
Cooperative Learning	0.13	0.69			-1.97	1.52	-0.15	0.71			-1.97	1.52



**Table 3.** Estimated Effects of Participation in Service-Learning on Liberal Arts Outcomes

	Critical Thinking (CAAP)	Moral Reasoning (DIT2)	Need for Cognition (NCS)	Intercultural Effectiveness (ODC)	Psychological Well- Being (RYFF)	Political and Social Involvement (PSI)
	n = 886	n = 910	n = 1852	n = 1856	n = 1841	n = 1857
	$\beta$	$\beta$	$\beta$	$\beta$	$\beta$	$\beta$
<b>Precollege Variables</b>						
Race - Students of Color	0.0632	-0.2221**	-0.1601***	0.1441**	-0.0909	0.0755
Gender - Male	0.0603	-0.1356*	0.1846***	-0.0789	-0.0630	-0.0604
Parent Education Average	-0.0038	-0.0047	0.0041	-0.0593***	0.0097	0.0668***
Precollege Academic Motivation	-0.0447	-0.0237	-0.0258	-0.0625***	-0.1660***	-0.0739***
High School Political Views	0.0126	0.0103	0.0546	-0.0729	-0.0961*	-0.0693
High School Volunteer	0.0417	0.0487	-0.0835	-0.0532	0.0389	0.0207
High School Work for Pay	0.0979	0.0468	-0.0270	-0.0656	0.0024	0.0667
Precollege Academic Ability (ACT)	0.3025***	0.1213***	0.1692***	-0.0081	-0.0197	-0.0043
Pretest	0.5187***	0.5199***	0.4646***	0.3805***	0.5028***	0.4043***
<b>Institutional Type Variables</b>						
Institutional Type - Regional University	-0.0551	0.0162	0.0716	0.0474	-0.0002*	0.0158
Institutional Type - Research University	0.0769	0.0493	-0.0456	0.0794	0.1143	0.0389
<b>College Experience Variables</b>						
Service-Learning	-0.0347	0.0066	-0.0528	-0.0687	-0.0013	0.1002**
Work in College	0.0351	-0.0128	0.0145	-0.0417*	0.0255	0.0381
Fraternity/Sorority Affiliation	-0.1725**	0.1167	0.0763	-0.0031***	0.1133*	-0.0478
Major - Social Sciences/Humanities	-0.0673	0.0407	-0.0001	0.1469	-0.1031*	0.0141
Faculty Interest in Teaching/Student Development	0.0274	0.0316	0.0391	0.0332	0.1102***	0.0216
Diversity Experiences	0.0646	-0.0742	0.0917***	0.2155***	0.0675*	0.1869***
Integrative Learning	0.0179	0.1072**	0.1763***	0.1611***	0.1238***	0.2128***
Positive Interactions with Diverse Peers	-0.0215	0.0494	0.0036	0.2005***	0.0209	0.1163***
Academic Challenge	0.0099	-0.0023	0.1342	0.0317	0.1672***	0.0441
Cooperative Learning	0.0014	-0.0139	-0.0181	0.0114	0.0001	-0.0482*
R <sup>2</sup>	0.62	0.42	0.46	0.49	0.42	0.45

Note:  $p < 0.025^*$ ,  $p < 0.01^{**}$ ,  $p < 0.001^{***}$

## Discussion

The current study examined the effects of students' participation in service-learning on a variety of measures comprising six liberal arts outcomes. The study utilized a comprehensive model of liberal arts outcomes (King et al., 2007) to build upon a small body of research focusing on the integration of liberal arts outcomes on particular student experiences (see Martin et al., 2011). The analyses compared students who participated in a course-based service-learning experience to those who did not. Given the longitudinal nature of the WNS, the study applied statistical controls for potentially confounding variables, such as family background, high school experiences, and college experiences, as well as controlling for precollege levels for each outcome via pre-tests. The results indicated that service-learning was a positive, significant predictor for students' political and social involvement. Findings also indicated that service-learning did not have a significant effect on students' growth along other key liberal arts outcomes, including critical thinking, moral reasoning, inclination to inquire and lifelong learn, intercultural effectiveness, and psychological well-being.

This study's finding that service-learning was a significant, positive predictor of students' political and social involvement supports a long line of research on the positive effects of service-learning for civic responsibility and participation (e.g., Brownell & Swaner, 2010; Einfeld & Collins, 2008; Engberg & Fox, 2011; Eyler & Giles, 1999; Jones & Abes, 2004; Simons & Cleary, 2006). As noted by the National Task Force on Civic Learning and Democratic Engagement (2012), service-learning is a "dominant curricular vehicle for promoting different dimensions of civic learning and engaging with larger communities" (p. 58). Institutions of higher education continue to expand service-learning course offerings (National Task Force, 2012) and have begun to construct academic programs, such as certificates, minors, and majors, focusing on community engagement (Butin & Seider, 2012). The study's findings provide additional evidence that these types of service-learning initiatives could potentially increase students' political and social involvement.

It is important to note that the results indicate that service-learning predicts less of a decrease in students' political and social involvement than students who did not participate in service-learning. In other words, all students were slightly less politically and socially involved after four years of college, but students participating in service-learning had smaller decreases in involvement than those who did not participate in service-learning. This suggests that service-learning may buffer the decrease over four years of college. The finding warrants further study in order to assess why students experience an overall decrease in political and social involvement during college and what practices may attenuate this concerning finding.

The study's surprising findings that participation in service-learning did not significantly affect students' levels of critical thinking, moral reasoning, inclination to inquire and lifelong learn, intercultural effectiveness, and psychological well-being raises questions about service-learning as an approach to further liberal arts outcomes. Service-learning has been promoted as a promising educational practice to enhance students' liberal learning (Kuh, Kinzie, Schuh, Whitt, & Associates, 2010). As such, colleges and universities across the country are allocating substantial financial resources and staff time to supporting service-learning efforts on their campuses. Institutions hire staff devoted to service-learning course development, faculty training in engaged teaching strategies, and building and maintaining community partnerships coordinated out of centers or institutions designed to encourage democratic engagement. The findings from this study emphasize the need for empirical evidence of the effects of service-learning as colleges and universities continue to look to service-learning as a promising educational practice that promotes gains in liberal arts learning outcomes.

Given both the findings and limitations of this study, future research should control for the types of service-learning experiences and the ways in which the experiences are facilitated. Educators make pedagogical choices in service-learning experiences surrounding course content, decision-making, and relationships with community partners that have implications for student growth across

liberal arts outcomes. As the National Task Force on Civic Learning and Democratic Engagement (2012) asserts, it is imperative for practitioners to consider the “nuances between kinds of service experience, levels of student responsibility, scale of issues addressed, learning outcomes sought, and the impact of engagement on community partners” (p. 60). Future research could also be conducted on an institutional level to explore the degree of alignment between institutional priorities and educational outcomes stemming from participation in service-learning experiences.

This longitudinal study employed rigorous statistical controls and a pre-test to examine the effects of participation in service-learning on an array of liberal arts outcomes. It is important for future research on the effects of service-learning to take into account potentially confounding variables and account for institutional and college experience controls when exploring various facets of service-learning participation. For example, future studies could examine whether good practices—such as academic challenge, integrative learning, diversity experiences, etc.—mediate the effects of participation in service-learning on students’ growth across various measures of liberal arts outcomes. Future researchers could also consider the conditional effects of participation in service-learning for various subpopulations according to race, gender, and academic ability.

As institutions of higher education continue to invest in civically-oriented practices, such as service-learning, it is increasingly important to examine the effects of such initiatives across a wide range of outcomes. This study provides additional evidence to support service-learning’s potential to educate students for responsible citizenship while also calling into question the effect of service-learning on other key liberal arts outcomes. Researchers should continue to conduct rigorous studies to empirically investigate liberal arts learning outcomes in relation to students’ service-learning experiences to better understand service-learning as a component of liberal arts education.

## Appendix

### Descriptions of Independent Variables/Measures Included in Study

Variable	Survey Question/(Options)	Coded Values
Race – Students of Color	“What is your race/ethnicity?” (Nonresident alien, Black, non-Hispanic, American Indian/Alaska Native, Asian/Pacific Islander, Hispanic, White, non-Hispanic, Race/ethnicity unknown, Multiple/invalid/indecipherable response)	[1=Students of Color] [0=White students] (Note: Nonresident alien, Race/ethnicity unknown, Multiple/invalid/indecipherable response dropped.)
Gender – Male	“What is your gender?” (Male, Female, Multiple/invalid/indecipherable response)	[1=Male] [0=Female] (Note: Multiple/invalid/indecipherable response dropped.)
Parent Education Average	“What is the highest level of education each of your parents/guardians completed?” (Did not finish high school, High school graduate/GED, Attended college but no degree, Vocational/technical certificate or diploma, Associate or other 2-year degree, Bachelors or other 4-year degree, Masters, Law, Doctorate)	Mean of education for both mother and father
Precollege Academic Motivation	Measure consisted of eight-items. Sample items include: “I am willing to work hard in a course to learn the material even if it won’t lead to a higher grade” and “In high school, I frequently did more reading in a class than was required simply because it interested me.”	Continuous measure, standardized
High School Political Views	How would you characterize your political views? (Far left, Liberal, Middle-of-the-road, Conservative, Far Right)	[1=Far Left/Liberal] [0=Middle of Road/Conservative/Far Right]
High School Volunteer	“During your last year in high school, how often did you engage in each of the following activities?” (Very Often, Often, Occasionally, Rarely, Never)	[1=Occasionally, Often, Very Often] [0=Never, Rarely]
High School Work for Pay	“During your last year in high school, how often did you engage in each of the following activities?” (Very Often, Often, Occasionally, Rarely, Never)	[1=Occasionally, Often, Very Often] [0=Never, Rarely]
Precollege Academic Ability (ACT)	ACT Composite Score or SAT equivalent	Continuous, standardized.
Institutional Type – Regional University		[1=Regional University] [0=Liberal Arts College]
Institutional Type – Research University		[1=Research University] [0=Liberal Arts College]
Service-Learning	“In your experience at your institution during the current school year, about how often have you participated in a community-based project (e.g., service learning) as part of a regular course” (Never, Sometimes, Often, Very often)	[1=Sometimes, Often, Very Often] [0=Never]
Work in College	“About how many hours in a typical week do you spend doing the following: Working for pay on campus, Working for pay off campus”	Combined mean of two variables, continuous, standardized.
Fraternity/Sorority Affiliation	“Are you a member of a social fraternity or sorority?” (Yes, No)	[1=Yes] [0=No]

<b>Variable</b>	<b>Survey Question/(Options)</b>	<b>Coded Values</b>
Major – Social Sciences/Humanities	“Please print your primary major or your expected primary major.”	[1=Social Sciences/Humanities] [0=Else]
Faculty Interest in Teaching/Student Development	Measure consisted of five-items. Sample items include: “Most faculty with whom R had contact are genuinely interested in students” and “Most faculty with whom R had contact are genuinely interested in teaching.”	Continuous, standardized.
Diversity Experiences	Measure consisted of six-items. Sample items include: “How often R attended a debate or lecture on a current political/social issue during this academic year,” “Extent to which R's institution emphasizes encouraging contact among students from different economic, social, and racial or ethnic backgrounds,” and “How often R participated in a racial or cultural awareness workshop during this academic year.”	Continuous, standardized.
Integrative Learning	Measure consisted of nine-items. Sample items include: “The extent R agrees that courses have helped R see the connections between intended career and how it affects society” and “During current school year, how often has R worked on a paper or project that required integrating ideas or information from various sources.”	Continuous, standardized.
Positive Interactions with Diverse Peers	Measure consisted of eight-items. Sample items include: “Interpersonal relationships with other students have had a positive influence on Rs intellectual growth and interest in ideas,” and “Few of the students R knows would be willing to listen to and help R with a personal problem (reverse-coded).”	Continuous, standardized.
Academic Challenge	Measure consisted of 11-items. Sample items include: “Number of hours per week R spends preparing for class,” “In a typical week, the number of problem sets that takes R more than an hour to complete,” and “Extent to which R's institution emphasizes spending significant amounts of time studying and on academic work.”	Continuous, standardized.
Cooperative Learning	Measure consisted of four-items. Sample items include: “In Rs classes, students taught each other in addition to faculty teaching” and “R participated in one or more study group(s) outside of class.”	Continuous, standardized.

Note: Pre-test measures for all dependent variables detailed within text of article.

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