



Mandatory Academic service learning and Continual Civic Engagement: Which Learning Outcomes Matter?

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Abstract Using survey results from 805 alumni of a large public university in Hong Kong, this paper examines how alumni's self-reported learning outcomes from a mandatory academic service learning program relate to their continual civic engagement in a multiple logistic regression framework. The findings reveal that more than two years after graduation, alumni maintained positive views of their experiences from the service learning program. They also reported having learned a fair amount or more in various domains, including intellectual, social, civic, and cross-cultural competency. Importantly, alumni who reported higher gains in civic learning were more likely to engage in post-graduation charitable donations and volunteering, while other learning outcomes were insignificant predictors. These findings remain robust even after controlling for alumni's community service activities during college and views toward their service learning experience. This study underscores the importance of not assuming civic learning as an automatic outcome of service learning. Instead, civic learning should be explicitly and deliberately incorporated into students' experiences for service learning to be an effective vehicle to increase and sustain civic engagement among university graduates.

Keywords Mandatory academic service learning · Learning outcomes · Civic engagement

Introduction

There is a growing prevalence of service learning courses across disciplines, and higher education institutions (HEIs) are increasingly interested in using service learning to foster students' civic growth (Bringle & Wall, 2020; Bringle et al., 2019). The commonly cited definitions of service learning characterize it as an experiential pedagogy that emphasizes learning and service, reciprocity and reflection, with the objective of not only enhancing academic learning through service that benefits the community, but also developing students' sense of social responsibility and active citizenship (Furco, 1996; Hatcher & Bringle, 1996; Jacoby, 1996). However, even though various definitions of service learning consistently include civic learning as a key outcome, and the literature often associates community involvement with civic responsibility as its obvious benefits (Hébert & Hauf, 2015), the application of service learning as a “civic pedagogy” is underdeveloped in practice (Bringle & Clayton, 2021).

In practice, the conflation between service learning and community service could inadvertently promote charitable and uncritical approaches rather than fostering change-oriented perspectives (Chupp & Joseph, 2010; Kahne & Westheimer, 1996). Furthermore, since civic learning is often an assumed outcome of service learning, its framework, design, and implementation are more prone to oversight during the process (Bringle & Clayton, 2021). Lastly, most existing studies focus on voluntary service learning programs and short-term results. Mandatory service learning remains a contested phenomenon, and further research is warranted to explore whether it serves as a pathway to eventual civic engagement in the long run (Daynes & Wygant, 2003; Deeley, 2014).

This study provides a unique setting that lets us assess how graduates of a large public university in Hong Kong

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view their mandatory service learning experience two years after graduation and explore the longer-term impact of the service learning course on their learning outcomes and civic engagement post-graduation. Three research questions guide the study:

- RQ1. How did alumni view their mandatory credit-bearing service learning experience and rate the different learning outcomes attained two years after graduation?
- RQ2. How active were alumni in civic engagement after graduation?
- RQ3. What is the relationship between service learning outcomes reported by the alumni and their post-graduation civic engagement?

Literature Review

service learning and Continual Civic Engagement

Civic engagement is described as the active participation of a citizen in the life of a community, aimed at improving conditions for others or shaping the community's future (Adler & Goggin, 2005). It can take various forms and encompass a wide range of activities, including becoming a civic-minded professional in one's field, engaging in individual voluntarism, participating in organizational involvement, and engaging in electoral processes (Delli Carpini, 2000). As civic engagement is a complex and context-specific concept, it lacks a single measure or universal definition. As a result, the empirical literature on service learning and civic engagement commonly assesses several domains, including civic knowledge, civic skills, civic attitudes and values, civic behaviors and participation, and civic identity (Bringle et al., 2015; Hatcher et al., 2016). Which domains are relevant remain highly contextualized and depend on the institutional, political, and societal landscape in each study.

Among existing research papers that evaluate the impact of service learning (Celio et al., 2011; Conway et al., 2009; Warren, 2012; Yorio & Ye, 2012), most of the results are based on end-of-course evaluations (Richard et al., 2016). Therefore, these studies measure the short-term impact on civic outcomes, and focus on whether students developed an increased sense of social responsibility and *intention* to be civically engaged as a result of their service learning experiences rather than their eventual *actions* (Astin et al., 2000; Levesque-Bristol et al., 2010; Manning-Ouellette & Hemer, 2019; Markus et al., 1993). There are recent studies do that investigate the relationship between service learning and participants' longer-term civic engagement activities, but the evidence remains mixed. Both Keen and Hall (2008) and Richard et al. (2016) compared alumni from a national service learning program across institutions with

non-service learning alumni and found a positive program impact on the service learning alumni's civic attitudes and future involvement in community service. Wilder et al. (2013) critiqued that existing research that looked at large national samples could not control for differences in the conception and design of service learning programs. Instead, they compared 475 graduates who took the *same* service learning course at one institution with those who graduated with similar majors but without the service learning course experience. Their findings suggest that service learning alumni were significantly more likely to donate money to an educational organization and to continue with community engagement activities after graduation.

On the other hand, Fenzel and Peyrot (2005) found that service learning contributed positively to service-related outcomes only if the service learning courses taken by the alumni provided at least 10 hours of service, more forms of reflection activity, and/or more integration of service into the course. Misa et al. (2005) found that service learning ceased to play a significant role in predicting post-college community service activities when volunteering history during college entered the regression. Ma et al. (2016) found significant and positive civic learning outcomes among service learning alumni. However, service learning alumni in their study were not significantly more likely than non-service learning alumni to be still involved in community service post-graduation, but for those who were, they devoted significantly more hours of service.

Research Gaps and Motivation for the Study

In the existing literature on service learning and civic involvement post-graduation, we can identify at least three significant gaps that this study aims to bridge. Firstly, previous studies often evaluate the impact of service learning on civic outcomes as a whole, rather than identifying the specific characteristics of the service learning course that contribute to these outcomes (Richard et al., 2016). This lack of identification could explain why both positive and negative results often occur in the literature (Morgan & Streb, 2003), since service learning courses may have different objectives and their implementation may vary in quality depending on the context. In other words, when there is a mixed finding, it is not clear exactly whether it is service learning as a whole or certain specific dimensions of it that worked or did not work. The advantage of the present study is that it looks at a service learning program consisting of diverse courses with common intended learning outcomes, including that of civic learning. As a result, it can isolate the different aspects of a service learning program that are linked to civic engagement post-graduation. Furthermore, it has information on students' views of service learning and

therefore the findings are robust to variations in students' service learning experiences.

Secondly, most existing research examines the impact of *voluntary* service learning programs in HEIs. It is known that students who voluntarily choose service learning are different from those who do not in several social and citizenship scales (Eyler et al., 1997, 2001). Therefore, when studying the long-term effects of service learning, it becomes challenging to disentangle the students' inherent inclination to engage in service from the actual impact of the service learning program, since those who are more civic-minded are also more likely to self-select into service learning and remain active in service afterward. In our study, we address this issue by conducting research in a setting where service learning is a compulsory requirement for graduation. As a result, the concern of self-selection is mitigated. However, despite the mandatory nature of participation, it is still essential to take into account the variations in students' pre-experience attributes that are known to correlate with future civic engagement. Previous literature has consistently demonstrated that an individual's history of civic engagement serves as a robust predictor of their future sustained involvement (Astin et al., 1999; Brudney & Gazley, 2006; Perry & Katula, 2001). Therefore, this study utilizes the alumni's undergraduate community service experience as a proxy for their inclination to serve.

Lastly, there has long been a debate on the merit of mandatory service learning in the literature. Students may perceive service learning with appeal regardless of prior service learning experiences, but perhaps not so when it becomes compulsory (Bordelon & Phillips, 2006). Opponents of mandatory service learning fear that those with no initial inclinations for service would develop negative attitudes when required to take up such endeavors, or that these unwilling individuals would "pollute" the experience for other students in the process. However, some studies have shown that with quality structure and design, mandatory service learning programs can be effective and even students who were not initially inclined can benefit greatly, and those with negative initial views about service learning can have a positive shift (e.g., Chan et al., 2019, 2020). Even though there is increasing evidence on the positive impact of mandatory service learning programs, we still know very little of whether these effects persist and what mandatory service learning means for civic outcomes. This study aims to provide further evidence on what happens in the longer run when service learning is compulsory.

Method

Context of the Study

The study was conducted in a large public University in Hong Kong. Students from the undergraduate programs

who graduated in 2017 from the University were invited to fill out the online "Survey of Alumni on service learning and Community Service Engagement" in September 2019, about two years after graduation. The objective was to study the longer-term impact of the mandatory service learning program that has been implemented in the University since 2012, where it required all of its full-time undergraduates to complete a three-credit academic service learning course of their own choice as part of their degree requirement. To date, there are almost 83 such courses offered in 25 departments across 8 faculties in the University.

Typical service learning courses from the different faculties have service projects that fall under the following categories: STEM education, health and well-being, language enhancement, personal development and special needs, and community development and environment protection. We provide some examples to give further context. *Community Engagement through Expressive Textile Arts and Fashion* is a course offered by the School of Fashion and Textiles that enables students to apply knowledge and skills in fashion trends, design, and styling to co-design wearable textile art with ex-mentally ill patients to empower them to regain well-being. In *Living Environment for Low-income Communities* offered by the Department of Building Services Engineering, students learn about basic indoor living assessments and challenges faced by low-income communities. Then, students identify the specific needs of their service beneficiaries through surveys and site visits to address their needs and realize basic improvements of their living quality.

While the courses and the embedded service project types under the mandatory service learning program are diverse, they are common in that each must have rigorous academic content, a relevant service project that tangibly benefits the target community or NGO with at least 40 h of direct interactions with service beneficiaries, and structured reflections and evaluations to achieve a set of common and course-specific learning outcomes. Overall, it is expected that service learning at the University will not only enhance students' sense of civic responsibility and engagement but also benefit the community at large.

Survey Administration

The service learning Office at the University administered the survey in three rounds. The first round of invitation letters was sent by post to alumni's mailing addresses in September 2019. The letter explained the purpose of the study and provided each alumna/alumnus a unique token number to enter the survey online. The letter also ensured that the respondent's anonymity would be kept in strict confidence, and that their response would only be analyzed in an aggregate manner. A reminder was sent by post a month later, followed by a final reminder sent two weeks later via

Short Message Service. To incentivize participation, each survey respondent would receive a HKD20 (about USD2.50) e-coupon at a chain convenience store by email upon survey completion. At no point the online survey asked the respondent to enter any personal information, apart from an email address to which they would like to have the e-coupon. In the end, after removing entries with incomplete responses, we have a sample size of 805 for analysis, which corresponds to a 21.5% valid response rate. To check for the representativeness of the sample, we conducted a chi-square test to see whether the distribution of the respondents' characteristics (faculty and gender) is different from that in the population. The p -values are less than 0.05 in both cases, and we conclude that the sample is not statistically different from the population.

Survey Design and Measures

The survey questionnaire was designed by the researchers at the service learning Office at the University, who have in-depth knowledge of the history of service learning at the University in the Hong Kong context. It consisted of following questions that asked the alumni about their (1) evaluation of whether the service learning experience was a negative, neutral, or positive component of their undergraduate study; (2) self-assessment of service learning outcomes in four domains: intellectual, social, civic, and cross-cultural competency; and (3) civic engagement activities after graduation. Since service history is an important predictor of current civic behavior, the survey additionally asked the alumni to recall their involvement in community service-related activities during their undergraduate studies, apart from the compulsory service learning course.

Method of Analysis

We first compute descriptive statistics to examine alumni's views of their mandatory service learning experiences, their learning gains in the four domains from the service learning program, and their civic engagement during and after undergraduate studies. Then we perform multiple logistic regression to investigate which learning outcomes are significantly associated with future civic engagement using the following specification:

$$Engage_after_i = \alpha + \sum_j \gamma_j LO_i + \sum_j \beta_j controls_i + \varepsilon_i, \quad (1)$$

where i denotes an alumna/alumnus, α is the intercept, and ε_i is the idiosyncratic error. The dependent variable is an indicator variable $Engage_after_i$. It takes the value 1 if the alumni answered yes to had donated, volunteered, or engaged in other activities for the betterment of the society since graduation, and 0 otherwise. We do not have the

intensity of the alumni's involvement, but we experimented with various ways to define civic engagement (e.g., restricted to only volunteer activities) and the findings remain robust. LO_i consists of key variables of interest, i.e., the four learning outcomes measured on a 7-point scale (*intellect*, *social*, *civic*, and *cross-cultural competency*). And $controls_i$ refers to a series of control variables for the reasons explained below.

We acknowledge that how active an individual is in his/her civic life depends on a host of other factors, e.g., their socioeconomic backgrounds, religious affiliation, volunteer history, motivation, and ability (Barber et al., 2013; Clary et al., 1998; Cruce & Moore, 2007; Perks & Konecny, 2015). While this study is not concerned with how important each possible contributing factor is to civic engagement, we do need to control for confounding factors that are correlated with the alumni's assessments of their learning outcomes *and* at the same time associated with their inclination to engage civically, otherwise, our estimates will suffer from omitted variable bias and either over or underestimate the importance of the various aspects of the alumni's self-reported learning outcomes (for a discussion of omitted variable bias, see Wooldridge, 2009). Therefore, we include the following variables in *controls*:

- Alumni's degree of involvement in community or volunteering service (*Engage_during*; 0/1). It is an indicator variable for service status during undergraduate studies. Existing studies have found that when community service enters the equation, it is often the case that service learning ceases to play a significant role in explaining the outcome measure. We include alumni's community service engagement during undergraduate studies as a proxy to control for their predisposition to service.
- Alumni's evaluation of their overall service learning experiences (*Evaluation of SLP*; 0/1). This is an indicator variable that takes the value 1 if the alumna/alumnus viewed the SLP as a positive experience, and 0 otherwise. We include this variable since alumni who had favorable opinions of the SLP might also be those who were more initially inclined to service and as a result, these alumni may simultaneously rate learning outcomes higher and are more likely to be active in post-graduation civic life.
- Faculties where the alumni were from (HF_1, \dots, HF_8 ; 0/1). Mitic (2020) provides a summary of existing studies that find differences between academic majors and civic engagement, and we include alumni's faculty affiliation here to control for the differences in propensity to volunteer across academic majors. To control for home faculty, we create eight indicator variables with *Faculty of Engineering* as the reference group (number of faculty categories minus one).

Results

Alumni Characteristics

Before delving into the research questions, we first show in Table 1 the characteristics of the survey respondents, including their gender, the faculties they belonged to, and their self-reported community service involvements during college. We do not have data on respondents' age but they were generally between 17 and 19 years old when they entered the University.

Among the 805 alumni, 59% were women. The breakdown of the faculty they were affiliated with shows that about 27% of them had business-related majors, 25% in applied sciences, 15% in health and social sciences, 18% in engineering, and 15% in arts and humanities. Besides the compulsory service learning course during their undergraduate studies, we see that 35% of the surveyed alumni reported service activities in other capacities as well. About 13% indicated to have served in a service learning course as a student leader or helper, 7% took up self-initiated projects supported by the service learning Office, 8% of the alumni were active in community service in the University, and 18% volunteered off-campus. Unfortunately, we were unable to delineate exactly which additional service activities during

undergraduate education took place before and after the credit-bearing service learning course, thus we could not study further how service learning influenced students' additional service engagements while in college. However, we use this information to measure voluntary service participation while at the University later in the regression analysis.

RQ1: Alumni's Ratings of Their Mandatory service learning Experience

When alumni from the University in this study were asked to evaluate their credit-bearing service learning program experiences, the majority of them shared positive views. Specifically, Table 2 shows that 67% of them thought of the program as a positive component of their undergraduate education, 29% as neutral, and 4% as negative. The survey also asked the alumni to rate how well the service learning program prepared them in the following four domains of learning outcomes: intellectual, social, and civic as well as cross-cultural competency. As shown in Table 3, each category consists of 2–4 items and each item is rated on a 7-point scale. The Cronbach's alphas are between 0.83 and 0.91, suggesting the instrument is internally consistent within each category.

Table 1 Characteristics of survey respondents

Baseline characteristics	<i>n</i>	%
Gender		
Male	329	41
Female	476	59
Respondent Faculty*		
Double Degree	8	1.0
Business	156	19.4
Hotel & Tourism Management	57	7.1
Construction & Environment	98	12.2
Applied Science and Textiles	100	12.4
Health and Social Sciences	123	15.3
Engineering	144	17.9
Humanities	73	9.1
Design	46	5.7
Service Activities during Undergraduate Studies ^a		
Served as a student leader or helper in a service learning subject	106	13
Student-initiated service project supported by the SL office	58	7
Other community services at the University	63	8
Voluntary/community service outside the University	147	18
Any one of the above ^b	283	35

N = 805

*Percentages do not add to 100% due to rounding

^aThe prompt was: "Have you participated in any of the following SL or community service during your study at the University?" Check all that apply."

^bAuthors' calculation

Table 2 Alumni's ratings on service learning experience

"SL was a [...] component of my undergraduate education."	<i>n</i>	%
[Negative]	30	4
[Neutral]	232	29
[Positive]	543	67

N = 805

In particular, alumni reported to have learned the most in social skills that enabled them to work and communicate effectively with others, next in civic learning that increased their commitment to serve, helped them understand better issues facing the underprivileged, and become more responsible members in local and global communities, followed by cross-cultural competency as measured by their understanding of different cultures as well as their interests, confidence, and skills in working with people from different backgrounds, and lastly in intellectual developments that let them apply academic knowledge and critical thinking skills to deal with complex issues.

RQ2: Alumni's Civic Engagement After Undergraduate Education

The construct of civic engagement is multifaceted (Bringle & Wall, 2020; Bringle et al., 2019), and the current study

uses it to describe activities such as giving donations to charities, participating in voluntary/community service for those in need, or other engagements for the betterment of the community. During the two years after the students graduated, Table 4 shows that a significant portion (68%) of them reported continuing to have some degree of civic engagement. Donations to charitable organizations and volunteer work for those in need are the most popular modes of engagement (41% and 35%, respectively), while 18% of the survey respondents indicated to have participated in other services for the betterment of the local or global community.

RQ3: Learning Outcomes and Post-graduation Civic Engagement

Lastly, we examine whether and how students' self-assessed outcomes from a mandatory service learning program relate to civic engagement post-graduation. We answer this question by means of a multiple logistic regression according to the specification laid out in Eq. (1), and the regression output with the coefficients' marginal effects and their *p*-values in parenthesis are summarized in Table 5. The results show that out of the four learning outcomes, i.e., *Intellect*, *Social*, *Civic*, and *Cross-cultural Competency*, only *Civic* is statistically significant. Its marginal effect is 0.085 ($p = 0.004$), which means that for every one-point increase in alumni's civic learning outcome rating, the likelihood of continual engagement increases by 8.5 percentage points.

Table 3 Summary statistics of learning outcomes from the service learning program

	Less than a fair amount (% < 4)	A fair amount and more (% ≥ 4)	<i>M</i>	<i>SD</i>	<i>α</i>
Intellectual Learning Outcomes (<i>Intellect</i> , 3 items)			4.2	1.15	0.89
Apply knowledge to deal with complex issues	25	75			
Solve challenging problems	25	75			
Think critically	25	75			
Social Learning Outcomes (<i>Social</i> , 2 items)			4.8	1.19	0.83
Work effectively in teams	16	84			
Communicate effectively with others	12	88			
Civic Learning Outcomes (<i>Civic</i> , 4 items)			4.6	1.16	0.88
Understand problems facing underprivileged	15	85			
Increased commitment to serve	17	83			
Become a responsible community member	15	85			
Becoming a more responsible global citizen	21	79			
Cross-cultural Competency (<i>Cross-cultural</i> , 4 items)			4.5	1.21	0.91
Better understanding of different cultures	21	79			
Increased interest in interacting with people from different background	19	81			
Increased confidence in working with people from different background	20	80			
Improved skills in interacting with people from different background	20	80			

N = 805. The question prompt was "How well do you think the service learning experience at the University prepared you in the following aspects?" Each instrument follows a 7-point scale: 1 = very little, 4 = a fair amount, 7 = very much. For all instruments, min = 1 and max = 7

Table 4 Civic engagement after undergraduate studies

	<i>n</i>	%
Donated	328	41
Volunteered	284	35
Others, please specify	142	18
Any one of the above (<i>Engagement after college</i>)	546	68

N=805, % of *N* that checked 1 item only, 2 items only, and all 3 items are, respectively, 46.8%, 16.2%, 4.8%. The question prompt was: "Have you done/taken part in any of the following since your graduation from the University? Check all that apply."

Furthermore, service involvement beyond what is required by the service learning program plays a statistically significant role in explaining future civic engagement, with a marginal effect of 0.116 ($p=0.002$). This means that those who were active in service during college were 11.6 percentage points more likely to be civically engaged post-graduation compared to those who were not. This finding echoes existing literature, which identifies the intensity and length of service involvement during college as significant predictors of engagement after college (Astin et al., 1999; Misa et al., 2005).

We also see from the regression results that alumni who viewed the service learning program as a positive experience also tended to report a higher level of civic engagement post-graduation with a significant marginal effect of 0.092 ($p=0.023$), holding other variables constant. When looking at the coefficients for the home faculty controls, one can see that alumni who were affiliated with the Faculty of Business, Humanities, Health and Social Sciences, and Design were more likely to be active civically after graduation compared with those affiliated with the Faculty of Engineering

(reference group). This finding is partially consistent with studies that find social science and education majors to be more engaged than business and science majors. One may see Mitic (2020) for a summary of these findings in the literature.

Discussion

This study finds that two years after graduation, the alumni recalled their service learning experience favorably, similar to the results in Moely and Ilustre (2019). Such findings should provide comfort to educators who worry that mandatory service requirements may leave a sour taste in participants' mouths, and thus diminish their intrinsic motivation to serve. Consistent with existing literature (e.g., Astin et al., 1999; Fenzel & Peyrot, 2005), we also find community service during college to be a reliable predictor of engagement after college. When asked additionally about their learning gains two years later, only civic learning outcome significantly predicted alumni's future civic actions, whereas social, intellectual outcomes, or cross-cultural competency did not. This finding brings light to inconclusive results in the existing literature on the relationship between service learning and continual civic engagement. It could simply be that the service learning programs in the non-positive result studies were structured with more emphasis on students' intellectual and social skill developments, or that they were not effective in helping students achieve their civic learning outcome.

Our findings also suggest that HEIs should be aware of the pitfall in associating developing students' sense of civic duty as a given byproduct of the process that involves them serving the communities in service learning (Mann

Table 5 Multiple logistic regression results

Variable	<i>Coefficient</i>	<i>SE</i>	<i>p</i>
Intellect	−0.027	0.025	0.282
Social	0.016	0.023	0.483
Civic	0.085	0.030	0.004
Cross-Cultural	−0.018	0.025	0.457
Engagement in Voluntary Service during College	0.116	0.037	0.002
Evaluation of Service Learning Program	0.092	0.040	0.023
Double Degree (HF ₁)	−0.106	0.170	0.532
Applied Science and Textiles (HF ₂)	0.046	0.059	0.434
Business (HF ₃)	0.114	0.054	0.034
Construction & Environment (HF ₄)	0.052	0.061	0.396
Humanities Applied Science and Textiles (HF ₆)	0.177	0.074	0.016
Health and Social Sciences (HF ₇)	0.131	0.058	0.024
Design (HF ₈)	0.218	0.089	0.014
Hotel & Tourism Management (HF ₉)	0.036	0.071	0.614

N=805. Pseudo. R-sq is 0.074. The coefficients presented are marginal effects

& Patrick, 2000). To use service learning effectively as also a civic pedagogy, educators and policymakers should keep the following in mind:

- Clearly define and articulate civic learning goals. Civic learning, just like civic engagement, is multifaceted and highly contextualized in that some outcomes may work well in some national contexts but taboo in others (Jackson, 2019). Educators should first evaluate the appropriate framework for civic learning (a summary of which can be found in Bringle & Clayton, 2021), and then tailor it in consideration with the academic discipline as well as the community served. The identified objectives should be made explicit to students and community partners. After the relevant terminology and concepts are discussed in the classroom, students and community partners should be primed and prompted to understand why and how to achieve these objectives through the service project and community involvement.
- Put in place critical reflection to reinforce civic learning. It is imperative to conduct frequent and targeted reflections to help students achieve specified civic outcomes (Stokamer & Clayton, 2017). The prompts should be designed to steer students to examine the causes of social problems that concern the community served, whether and how the service project addresses the problems, what the community's strengths and weaknesses are in addressing these problems, and the implications for students' future actions in their civic and professional life (Stith et al., 2018).
- Develop a holistic assessment framework that is both formative and summative. Formative assessment should be provided throughout the experience to provide feedback to students on their civic learning progress. Summative assessment is a basis for grading and can focus on students' acquired civic knowledge and skills, as well as whether they could provide specific examples in their experience that could demonstrate their learning. Depending on the purpose of the assessment, educators may also employ indirect measures such as surveys to gauge students' civic learning. Irrespective of the context or the purpose of assessment, the criteria should always be made explicit and known to the students.

In summary, civic learning in the classroom needs to be proactive rather than passive to sustain students' increased interest/commitment to serve people in need via different capacities. The teaching and assessment of civic learning needs to be intentional and explicit, and the service in the community should be accompanied by proper preparation and frequent reflection (Battistoni, 2000).

Limitations and Delimitations

While the results we found in the study are robust, there are also some obvious caveats we can think of. First of all, since we use self-reported data, we are also subject to the critique faced by most existing studies on the topic that social desirability bias may exist. Even though it is often not possible to fully prevent or remove such bias from our research, we had taken the steps to mitigate its impact. The survey was conducted on an entirely voluntary basis, and the alumni were ensured that his or her anonymity would be kept in strict confidence. Secondly, the key independent variables in the study are alumni's self-assessments of their service learning outcomes in four domains. Since it was not a validated scale, some may question the extent to which it captured what we set out to measure, even though the items within each domain are internally consistent according to their Cronbach's Alpha. Lastly, even though we have considered additional community service activities during alumni's undergraduate studies to account for differences in their initial inclination to serve, it is not a perfect control. It is likely that those who are more civically inclined are also more likely to take away from their courses the civic aspects or pay more attention to that aspect of it when asked to recall their service learning experiences. If that is the case, then the effect we find likely overestimates the impact of the service learning program on civic outcomes.

Conclusion

The current paper contributes to the literature in several ways. First of all, most service learning programs are optional and thus these studies rely on evidence from courses that naturally attract engaged students (Daynes & Wygant, 2003). Our study looks at a mandatory service learning program and therefore predisposition to service is less of a concern. Secondly, there has long been a debate on the effectiveness of mandatory service learning programs, and we know relatively little about how students are impacted in the long run as a result. The analysis we did on alumni's views and ratings of their learning outcomes two years after graduation goes to fill some of that gap. Lastly, we examine specific aspects of a service learning program that are most associated with continual civic engagement according to the alumni's assessments, thus enriching the scarce research on this front.

In service learning, students learn to serve, and they serve to learn. When done correctly, the service recipients and the community benefit from such partnerships, and the students not only walk away with skills applicable in the real world, but also knowledge about the community they serve and the importance of social responsibility. We hope the current

study provides a useful frame of comparison on the topic and helpful lessons for HEIs that look to employ service learning as a vehicle to nurture civic engagement among graduates. Future studies can develop richer measures of civic engagement to illustrate how service learning contributes to active citizenship in different contexts. More research is also needed to investigate the effectiveness of various program designs and features that are meant to enhance students' civic learning.

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Data availability Not applicable.

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