Challenge, Meaning, Interest, and Preparation: Critical Success Factors Influencing Student Learning Outcomes from Service-Learning

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Abstract

What makes service-learning effective? This article examines key factors influencing student service-learning outcomes in higher education. We studied 2,214 students who had completed a credit-bearing service-learning course in a large public university in Hong Kong. The students were asked to rate the course and pedagogical features, as well as their attainment of the intended learning outcomes of the course. Multiple regressions were then performed to identify and compare the relative contribution of the individual course and pedagogical elements. Results showed that students' attainment of the different service-learning outcomes is influenced to varying degrees by different course and pedagogical elements. Specifically, we found that the most positive outcomes are associated with challenging and meaningful tasks, interest in the subject/project, perceived benefits to people served, preparation for service, and appreciation of the service by the people served. We discuss implications of the findings for theory, practice, and further research.

Keywords: service-learning, higher education, learning outcomes, course and pedagogical features

Introduction

Service-learning is an experiential pedagogy that integrates rigorous academic study with meaningful community service and critical reflection. It has been widely recognized as a high-impact educational practice in higher education *(Kuh, 2008)* and an essential component of promoting civic engagement *(Waters & Anderson-Lain, 2014)*. Worldwide, service-learning is increasingly being adopted as a pedagogical approach to achieve a multitude of student learning outcomes across a variety of disciplines, educational levels, and universities *(Kenworthy-U'Ren, 2008)*.

Although there is strong evidence to suggest that service-learning can be an effective pedagogy to achieve a wide range of cognitive and affective outcomes (e.g., *Celio, Durlak, & Dymnicki, 2011; Novak, Markey, & Allen, 2007; Warren, 2012; Yorio & Ye, 2012*), students do not automatically learn from just participating in service-learning. Rather, how and what students learn depends on

the quality of their learning experiences *(Billig, 2007; Chan, Ngai, & Kwan, 2017; Metz & Youniss, 2005; Pancer, Brown, Henderson, & Ellis-Hale, 2007; Riedel, 2002; Taylor & Pancer, 2007)*. Melchoir and Bailis *(2002)* therefore urge that we "look carefully at the quality of the experience we offer young people and . . . pay more attention to program design and implementation (inputs) in our research as well as to outcomes" *(p. 219)*.

There is no lack of suggestions on how to design an effective service-learning program. The National Service-Learning Cooperative, for example, identified 11 key elements of effective service-learning practice *(National Service-Learning Cooperative, 1999)*, as follows:

1. Clear educational goals.
2. Involve students in cognitively challenging tasks.
3. Assessment used to enhance student learning and evaluate how well students have met content and skill standards.
4. Engage students in service tasks with clear goals that meet genuine community needs and have significant consequences.
5. Use of evaluation.
6. Youth voice in selecting, designing, implementing, and evaluating service-learning projects.
7. Valuing diversity.
8. Communication, interaction, partnership, and collaboration with the community.
9. Students being prepared for all aspects of their service work.
10. Use of reflection.
11. Celebration and acknowledgment of service work.

However, empirical studies on the effects of curricular and pedagogical features on student outcomes from service-learning have been scanty *(Moely & Ilustre, 2014)* and thus offer limited support for those recommended practices. Furthermore, most of the studies were conducted in the United States and focus on a few selected course characteristics, often based on experience from a single program or course. The generalizability of these findings to courses or projects in distinctly different disciplines or cultures is therefore yet to be established. In addition, few studies compare the relative contribution of the factors influencing students' learning from service-learning. There is therefore a need not only to identify the key course and pedagogical elements that affect students' ser-

vice-learning outcomes, but also assess if some of the elements are more important than others in affecting the different desired outcomes of service-learning *(Celio et al., 2011)*. Indeed, there is a strong consensus among service-learning scholars that more research is needed to understand how specific curricular or pedagogical elements will affect students' learning experience and outcomes of service-learning *(Hecht, 2003; Lambright & Lu, 2009; Novak et al., 2007)*.

This study contributes to the literature in several ways. First, it attempts to identify and compare the relative impacts of a wide range of program and pedagogical elements on students' attainment of three different service-learning outcomes. Second, it targets students in a non–United States setting, which have been largely ignored in the literature to date. Third, it attempts to generalize across student backgrounds, disciplines, and nature of service projects through studying a large sample of students from a large diversity of university-level service-learning courses in different discipline areas, with different service natures, working with different targeted beneficiaries, and at different locations.

How Service-Learning Impacts Student Learning Outcomes

Decades of research has demonstrated that students' engagement in service-learning can benefit their intellectual, social, civic, and personal development *(Jacoby, 2015)*. Intellectually, service-learning has been shown to have a positive effect by deepening students' understanding of the academic content; increasing their ability to apply knowledge and skills in real-life service settings; enhancing problem-solving, critical, and other higher order thinking skills; improving academic achievements; and fostering persistence and retention at college *(Lemons, Carberry, Swan, & Jarvin, 2011; Lockeman & Pelco, 2013; Novak et al., 2007; Prentice & Robinson, 2010; Yeh, 2010)*. Socially, studies have also found that service-learning contributes significantly to students' communication, interpersonal, and leadership skills *(Celio et al., 2011; Fullerton, Reitenauer, & Kerrigan, 2015; Simons & Cleary, 2006; Wurr & Hamilton, 2012)*, among others. Civic learning outcomes associated with service-learning include increases in students' sense of civic responsibility and engagement, awareness and understanding of social issues, empathy for others, political participation, and willingness to volunteer in the future *(Greenwood, 2015; Jorge, 2011; Weber & Weber, 2010; Winston, 2015)*. With respect to personal development, there is also evidence that students' participation in service-learning enhances their self-understanding, self-efficacy,

self-esteem, personal growth, and attitude toward learning *(Beatty, Meadows, SwamiNathan, & Mulvihill, 2016; Celio et al., 2011; Weiler et al., 2013; Yorio & Ye, 2012)*.

However, relatively few studies have looked into the factors influencing students' achievement of the service-learning outcomes. At the high school level, Moore and Sandholtz *(1999)* found that students developed more positive attitudinal outcomes when they participated in service-learning projects that had an emphasis on service with learning as a necessary by-product, provided services in the community rather than in their own schools, worked for a longer duration, and had more direct contact with the service beneficiaries. Billig, Root, and Jesse *(2005)* examined the contribution of the service-learning elements and other perceived quality indicators to high school participants' civic and academic development, and found that cognitive challenge, meeting genuine needs, valuing diversity, and student preparation were associated with specific increases in academic and civic outcomes.

At the tertiary level, Mabry *(1998)* demonstrated that service-learning is more effective when students have at least 15–20 hours of service, frequent contact with the beneficiaries of their service, weekly in-class reflection, ongoing and summative written reflection, and discussions of their service experiences with both instructors and site supervisors. Astin, Vogelgesang, Ikeda, and Yee *(2000)* found that the single most important factor associated with a positive service-learning experience is students' degree of interest in the subject matter, followed by class discussion, connecting the service experience to the course subject matter, and amount of training that the students received prior to service. Raman and Pashupati *(2002)* examined the relative effects of selected program characteristics and student motivation on different service-learning outcomes and revealed that motivation and program characteristics work jointly in affecting outcomes, but the individual effects differ across variables. Using a qualitative approach, Largent *(2009)* showed that students' learning from service-learning and intention for future participation in voluntary service is affected by their ability to connect course material and the service experience, the extent to which they believe the service had an impact on the community, and the training and orientation they receive at the community agency. Based on data collected from seven master's-level courses, Lambright and Lu *(2009)* identified three key factors that affect the effectiveness of a service-learning project in achieving its learning objectives: the extent of the project's integration with class materials, whether or not students work in groups, and whether

or not the participating students are studying full time. In a meta-analysis of 62 studies on the impact of service-learning on students, Celio et al. *(2011)* found four key practices that mediated the impact: linking to curriculum, youth voice, community involvement, and reflection. In a more recent study, Moely and Ilustre *(2014)* found that the two outcomes that are most closely related to service-learning—learning about the community and academic learning—were strongly predicted by students' perceived value of the service, the opportunities for reflection, and the social change orientation of the students. However, they reported that focus on service was associated mainly with students' problem-solving and decision-making skills, but not with outcomes related to academic learning or learning about the community.

Given the small number of studies, the results are far from conclusive. Furthermore, most of the studies focused on a few selected course or pedagogical elements and did not compare their respective relative contribution to different student learning outcomes from service-learning. It is still unclear which of the course and pedagogical elements has a stronger impact on which student outcome.

This study aims to identify and compare the relative impact of the key factors that influence university students' intellectual, social, and civic learning outcomes from service-learning. We examined two specific research questions:

1. What are the key course and pedagogical elements that affect students' intellectual, social, civic, and personal learning outcomes from service-learning?

2. Do the identified elements have uniform impacts across different types of service-learning outcomes? Which of the elements has a relatively higher impact, and which of them has a relatively lower impact on each of the outcomes?

Methods

Setting and Participants

The study was conducted in a large public comprehensive university in Hong Kong. It was funded by the university as part of an institutional research project to study students' learning outcomes from service-learning. The proposal for the study was reviewed and approved by the university's ethics committee (which oversees all research involving human or animal subjects), and the investigators were given permission and access to the target participants, who

were 2,880 students enrolled in 55 credit-bearing service-learning courses completed in the 2014–15 academic year.

The 55 courses cover a diversity of class sizes, discipline topics, and types of projects. Each course carries 3 credits. For reference, each student normally takes 15 credits in a semester, with 2 semesters in an academic year.

Since the students hail from all departments, and the service-learning courses are offered by different academic departments across the university, the data exhibits a large diversity in many aspects:

- The discipline areas of the service-learning subjects include engineering, languages, fashion design, tourism, social work, public health, and others.
- The service projects vary widely in nature:
  - instruction-based projects that organize workshops or activities for children and adults;
  - service-based projects that build assistive devices, codesign clothes, perform consultancy services for social enterprises, or identify good farming practices; and
  - advocacy-based projects such as indirect service projects that investigate social topics such as urban planning or accessibility.
- The service beneficiaries include children, people recovering from mental illnesses, residents of slum housing, rural village dwellers, and organizations such as social enterprises.
- The majors of the students range from the humanities (language and history), to engineering and construction, to business (accounting and management), to the hard sciences (physics and mathematics), to hospitality and design.
- The ethnicities of the students are predominantly Chinese, though from various subcultures and dialect groups.

A total of 2,214 valid returns were received, making up a response rate of 76.9%. A detailed analysis of the demographic information of the respondents reveals that only 1,158 (52.3%) of them had had some service-related experience before enrolling in the course. In addition, 565 (25.5%) of the respondents indicated that they had taken part in voluntary services at secondary schools, 551 (24.9%) in community service at university, 64 (2.9%) in credit-

bearing service-learning courses at this or other universities, and 278 (12.6%) in other forms of community service.

The service locations were equally diverse. Although 1,650 (74.5%) of the respondents were engaged in service projects in Hong Kong, the home environment for most of the students, 533 (24.1%) performed service in the Chinese Mainland, in which the culture is similar but the environment and dialect unfamiliar, and 138 (6.2%) participated in international service projects, with an unfamiliar culture, environment, and language. In terms of time, 935 (42.2%) of the respondents indicated having spent 36–45 hours in direct service or contact with clients, which is the level of service engagement expected of all service-learning courses at the university. Four hundred nineteen (18.9%) of the respondents reported having engaged in direct service for more than 45 hours, whereas 766 (34.6%) indicated that they spent less than 36 hours on direct service with clients.

Instruments

The Student Post-Experience Questionnaire was developed by the research team, with reference to the literature reviewed and the specific contexts in which the service-learning subjects and projects were implemented at the university. The questionnaire included, among other things, the following three sets of questions:

- questions asking students to rate, on a seven-point scale (1 = very little; 4 = a fair amount; 7 = very much), their attainment of the intended learning outcomes relating to their intellectual (four items), social (two items), and civic (five items) development as a result of attending the service-learning course;

- questions inviting students to indicate their experience, on a seven-point scale (1 = strongly disagree; 4 = neutral; 7 = strongly agree), regarding 17 course and pedagogical elements of the service-learning course; and

- questions aiming to collect demographic information about the respondents, including their previous service-related experience, location of the service-learning project, and the total number of hours of direct service or interaction with clients.

Content and face validity of the instrument was established by a review of a three-member panel of experienced service-learning teachers and researchers. Exploratory and confirmatory factor analyses were conducted to examine the construct validity of the

multiple-item scales. Results show that the instrument is reasonably valid, with all of the fit indices meeting the criteria for goodness of fit (CFI = 0.973, TLI = 0.9564, NFI = 0.971, RMSEA = 0.073).

Administration

The questionnaire was administered in class by the course instructor or staff from the Office of Service-Learning after the completion of the service-learning project. The purpose of the survey was explained to the students, with the assurance that their response would not affect their assessment grades. Students were given 15 minutes to complete the questionnaire and asked to return it immediately afterward. Absentees were followed up at least twice by e-mail invitations and urged to complete and return the questionnaire via e-mail.

Data Analysis Method

Data were analyzed using SPSS Version 24 software. Descriptive statistics of all variables included in the study were first calculated. Pearson's product-moment correlations were then computed to examine the relationships among the pedagogical elements and students' attainment of intellectual, social, civic, and personal learning outcomes from service-learning. To determine the relative contribution of the individual pedagogical elements to different student learning outcomes, a series of multiple linear regressions was performed with each of the student learning outcomes as the dependent variable and students' ratings on the 17 course and pedagogical elements of the service-learning course as the independent variables, using the forward selection method. The standardized regression coefficients (beta) were then computed and compared.

Results

Descriptive Statistics

As shown in Table 1, the intellectual (INTELL), social (SOCIAL), and civic (CIVIC) learning outcomes scales were found to be highly reliable, with Cronbach's alpha values ranging between .855 and .901. Furthermore, respondents as a whole reported substantial learning gains as a result of studying the service-learning courses. Among the three outcomes, SOCIAL has the highest mean (5.63 on a 7-point scale), whereas INTELL has the lowest (5.40), which is still significantly higher than the midpoint of 4 (a fair

amount). The standard deviations of the scores ranged from 0.90 to 0.96.

Students' ratings on the course and pedagogical elements were also quite positive, with the mean scores of the items ranging from 4.85 to 5.71. Students rated the following four features of the courses highest: "student effort in service" (EFFORT), "motivated and supportive teammates" (TEAM), "good personal relationship with teammates" (PEER_REL), and "regular reflection" (REG_REFLECT), with respective means of 5.71, 5.69, 5.68, and 5.68. On the other hand, the items on "interest in service-learning subject/project" (INTEREST) and "service related to major" (MAJOR) received relatively lower ratings, with a mean of 4.90 and 4.85 respectively. When compared with the ratings on outcomes, a slightly larger spread was observed in students' ratings on the course and pedagogical elements, with standard deviations ranging from 0.96 to 1.52.

Table 1. Descriptive Statistics

Variables Included in the Study	N	Min	Max	Mean	Std. Dev.	No. of items	Cronbach's alpha
Learning Outcomes							
Intellectual (INTELL)	2197	1.0	7.0	5.40	0.90	4	.895
Social (SOCIAL)	2207	1.0	7.0	5.63	0.96	2	.855
Civic (CIVIC)	2206	1.0	7.0	5.46	0.90	5	.901
Pedagogical Features of Service-Learning Course							
Interest in service-learning subject/ project (INTEREST)	2209	1.0	7.0	4.90	1.21	1	--
Service related to major (MAJOR)	2210	1.0	7.0	4.85	1.52	1	--
Perceived benefits to people served (BENEFIT)	2207	1.0	7.0	5.53	1.02	1	--
Service appreciated by community (COM_APPREC)	2207	1.0	7.0	5.55	0.98	1	--
Instructor enthusiasm and passion (INS_PASSION)	2210	1.0	7.0	5.58	1.12	1	--

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Table 1. Descriptive Statistics (continued)

Variables Included in the Study	N	Min	Max	Mean	Std. Dev.	No. of items	Cronbach's alpha
Preparing students for service (PREPARE)	2209	1.0	7.0	5.45	1.14	1	--
Interaction with teachers, tutors, and teammates (INTERACT)	2210	1.0	7.0	5.49	1.04	1	--
Help and support available when needed (SUPPORT)	2210	1.0	7.0	5.55	1.05	1	--
Motivated and supportive teammates (TEAM)	2208	1.0	7.0	5.69	1.10	1	--
Good personal relationship with teammates (PEER_REL)	2210	1.0	7.0	5.68	1.06	1	--
Interaction with service recipients (INT_CLIENTS)	2210	1.0	7.0	5.55	1.06	1	--
Student autonomy in service tasks (AUTONOMY)	2207	1.0	7.0	5.44	1.06	1	--
Challenging and meaningful tasks (MEANINGFUL_TASK)	2209	1.0	7.0	5.57	1.02	1	--
Challenge students to try new things (CHALLENGE)	2210	1.0	7.0	5.61	1.09	1	--
Student effort in service (EFFORT)	2208	1.0	7.0	5.71	0.98	1	--
Regular reflection (REG_REFLECT)	2209	1.0	7.0	5.68	0.96	1	--
Structured reflection with clear instructions (STRUCTURED_REFLECT)	2206	1.0	7.0	5.40	1.05	1	--

Correlations between course and pedagogical elements and service-learning outcomes. As expected, all of the course and pedagogical elements were found to have a statistically significant positive correlation with all three learning outcomes, albeit to different degrees (Table 2).

The highest correlates of intellectual learning outcomes (INTELL) were

- "challenging and meaningful tasks" (MEANINGFUL_TASK),
- "interaction with teachers, tutors, and teammates" (INTERACT),
- "preparing students for service" (PREPARE),
- "instructor enthusiasm and passion" (INS_PASSION), and
- "perceived benefits to people served" (BENEFIT).

Social learning outcomes (SOCIAL), on the other hand, were more strongly associated with

- "good personal relationship with teammates" (PEER_REL),
- "motivated and supportive teammates" (TEAM),
- "service appreciated by community" (COM_APPREC),
- "challenging and meaningful tasks" (MEANINGFUL_TASK), and
- "perceived benefits to people served" (BENEFIT).

Civic learning outcomes (CIVIC) had the strongest correlations with

- "challenging and meaningful tasks" (MEANINGFUL_TASK),
- "perceived benefits to people served" (BENEFIT),
- "service appreciated by community" (COM_APPREC),
- "interaction with teachers, tutors, and teammates" (INTERACT), and
- "instructor enthusiasm and passion" (INS_PASSION).

Table 2. Correlations Between Course and Pedagogical Elements and Service-Learning Outcomes

Course and Pedagogical Elements	Service-Learning Outcomes		
	INTELL	SOCIAL	CIVIC
Interest in service-learning subject/ project (INTEREST)	.512**	.427**	.534**
Service related to Mmajor (MAJOR)	.310**	.228**	.301**
Perceived benefits to people served (BENEFIT)	**.574****	**.558****	**.591****
Service appreciated by community (COM_APPREC)	.570**	**.571****	**.582****
Instructor enthusiasm and passion (INS_PASSION)	**.582****	.553**	**.570****
Preparing students for service (PREPARE)	**.586****	.532**	.556**
Interaction with teachers, tutors, and teammates (INTERACT)	**.589****	.539**	**.581****
Help and support available when needed (SUPPORT)	.562**	.523**	.540**
Motivated and supportive teammates (TEAM)	.517**	**.606****	.517**
Good personal relationship with teammates (PEER_REL)	.506**	**.626****	.524**
Interaction with service recipients (INT_CLIENTS)	.520**	.530**	.513**
Student autonomy in service tasks (AUTONOMY)	.458**	.444**	.433**
Challenging and meaningful tasks (MEANINGFUL_TASK)	**.615****	**.559****	**.613****
Challenge students to try new things (CHALLENGE)	.545**	.508**	.535**
Student effort in service (EFFORT)	.557**	.555**	.565**
Regular reflection (REG_REFLECT)	.509**	.500**	.514**
Structured reflection with clear instructions (STRUCTURED_REFLECT)	.548**	.497**	.534**

Note. ** $p < .001$. The top five correlation coefficients for each outcome were put in bold print and underlined.

Relative impact of course and pedagogical elements on service-learning outcomes. The correlations reported above, although useful in revealing the direction and strength of association between pairs of variables, did not control for their possible

covariations with other variables included in the study. To determine the relative contribution of the multiple pedagogical features to different student learning outcomes, a series of multiple linear regressions was performed. Results are shown in Tables 3–5 below.

Intellectual learning. As revealed in Table 3, 11 of the 17 pedagogical features were found to be statistically significant predictors of students' intellectual learning outcomes (INTELL), with beta values ranging from 0.159 to 0.050. The combined effects of the 11 predictors explained 55.1% of the variations in INTELL ($F = 243.531$, $p < .001$). The five strongest predictors were

- "preparing student for service" (PREPARE),
- "challenging and meaningful tasks" (MEANINGFUL_TASK),
- "interest in service-learning subject/project" (INTEREST),
- "service appreciated by community" (COM_APPREC), and
- "structured reflection with clear instructions" (STRUCTURED_REFLECT).

The tolerance statistics were all above 0.2, suggesting that there was no evidence of multicollinearity problems among the predictor variables *(Belsley, Kuh, & Welsch, 1980).*

Table 3. Multiple Regression of Students' Intellectual Learning Outcome on Course and Pedagogical Elements of Service-Learning Course

Independent Variables	Stand. Regr. Coefficient (Beta)	Sig.	Tolerance
Preparing students for service (PREPARE)	.159	$p < .001$	.500
Challenging and meaningful tasks (MEANINGFUL_TASK)	.154	$p < .001$	.407
Interest in service-learning subject/ project (INTEREST)	.149	$p < .001$	.658
Service appreciated by community (COM_APPREC)	.092	$p < .001$	.442
Structured reflection with clear instructions (STRUCTURED_REFLECT)	.081	$p < .001$	.520
Challenge students to try new things (CHALLENGE)	.078	$p < .001$	.510
Student effort in service (EFFORT)	.072	$p = .001$	.447
Perceived benefits to people served (BENEFIT)	.066	$p = .002$	.456
Interaction with service recipients (INT_CLIENTS)	.059	$p = .003$	.530
Service related to major (MAJOR)	.056	$p < .001$	.847
Student autonomy in service tasks (AUTONOMY)	.050	$p = .006$	.621

Note. Dependent variable = Intellectual Learning Outcome (INTELL), Method = Forward, Adjusted R^2 = .551; F = 243.531, $p < .001$

Social learning. Ten of the 17 pedagogical features were found to be significant predictors of students' social learning outcome (SOCIAL) from service-learning (Table 4). The beta values ranged from 0.230 to 0.054. Their combined effect accounted for 54% of the variations in the dependent variables ($F = 255.049$, $p < .001$). The five elements that had the strongest impact on this outcome were

- "good personal relationship with teammates" (PEER_REL),
- "motivated and supportive teammates" (TEAM),
- "preparing students for service" (PREPARE),
- "interest in service-learning subject/project" (INTEREST), and
- "interaction with service recipients" (INT_CLIENTS).

Table 4. Multiple Regression of Students' Social Learning Outcome on Course and Pedagogical Elements of Service-Learning Course

Independent Variables	Stand. Regr. Coefficient (Beta)	Sig.	Tolerance
Good personal relationship with teammates (PEER_REL)	.230	$p < .001$	.426
Motivated and supportive teammates (TEAM)	.162	$p < .001$	.446
Preparing students for service (PREPARE)	.084	$p < .001$	.479
Interest in service-learning subject/ project (INTEREST)	.079	$p < .001$	.672
Interaction with service recipients (INT_CLIENTS)	.075	$p < .001$	.519
Student effort in service (EFFORT)	.074	$p = .001$	.454
Service appreciated by community (COM_APPREC)	.071	$p = .001$	.431
Perceived benefits to people served (BENEFIT)	.069	$p = .001$	.448
Challenging and meaningful tasks (MEANINGFUL_TASK)	.056	$p = .013$	.422
Structured reflection with clear instructions (STRUCTURED_REFLECT)	.054	$p = .006$	.537

Note. Dependent variable = Social Learning Outcome (SOCIAL), Method = Forward, Adjusted R^2 = .540; F = 255.049, $p < .001$

Civic learning. Table 5 reveals that 11 of the 17 pedagogical features were statistically significant in predicting students' civic learning outcome (CIVIC) from service-learning, with beta values ranging between 0.184 and 0.039. Together, they explained 55.3% of the variations in CIVIC (F = 226.561, $p < .001$). The following five elements have been found to have the strongest predictive value on students' civic learning outcome:

- "interest in service-learning subject/project" (INTEREST),
- "challenging and meaningful tasks" (MEANINGFUL_TASK),
- "service appreciated by community" (COM_APPREC),
- "perceived benefits to people served" (BENEFIT), and
- "preparing students for service" (PREPARE).

Table 5. Multiple Regression of Students' Civic Learning Outcome on Course and Pedagogical Elements of Service-Learning Course

Independent Variables	Stand. Regr. Coefficient (Beta)	Sig.	Tolerance
Interest in service-learning subject/project (INTEREST)	.184	$p < .001$	.655
Challenging and meaningful tasks (MEANINGFUL_TASK)	.148	$p < .001$	.399
Service appreciated by community (COM_APPREC)	.115	$p < .001$	.428
Perceived benefits to people served (BENEFIT)	.109	$p < .001$	.453
Preparing students for service (PREPARE)	.083	$p < .001$	.476
Student effort in service (EFFORT)	.082	$p < .001$	.440
Good personal relationship with teammates (PEER_REL)	.060	$p = .003$	.490
Structured reflection with clear instructions (STRUCTURED_REFLECT)	.056	$p = .006$	.502
Challenge students to try new things (CHALLENGE)	.048	$p = .019$	.483
Interaction with service recipients (INT_CLIENTS)	.040	$p = .042$	.526
Service related to major (MAJOR)	.039	$p = .014$	.826

Note. Dependent variable = Civic Learning Outcome (CIVIC), Method = Forward, Adjusted R^2 = .553; F = 226.561, $p < .001$

Discussion and Conclusions

Table 6 summarizes the relative impact of the key course and pedagogical elements that influence students' intellectual, social, and civic learning outcomes from service-learning. Taken as a whole, the results show that (a) students' learning outcomes from service-learning are influenced simultaneously by a multitude of course and pedagogical elements, with some having more impact than others; and (b) the relative impacts of the different elements are not uniform across different service-learning outcomes. In other words, a certain element may have a strong relative impact on one outcome but low or no impact on another.

Table 6. Summary of Relative Impact of Course and Pedagogical Elements on Service-Learning Outcomes

Course and Pedagogical Elements	Service-Learning Outcomes		
	INTELL	SOCIAL	CIVIC
Interest in service-learning subject/project (INTEREST)	• •	•	• •
Service related to major (MAJOR)	•	ns	•
Perceived benefits to people served (BENEFIT)	•	•	• •
Service appreciated by community (COM_APPREC)	•	•	• •
Instructor enthusiasm and passion (INS_PASSION)	ns	ns	ns
Preparing students for service (PREPARE)	• •	•	•
Interaction with teachers, tutors, and teammates (INTERACT)	ns	ns	ns
Help and support available when needed (SUPPORT)	ns	ns	ns
Motivated and supportive teammates (TEAM)	ns	• •	ns
Good personal relationship with teammates (PEER_REL)	ns	• • •	•
Interaction with service recipients (INT_CLIENTS)	•	•	•
Student autonomy in service tasks (AUTONOMY)	•	ns	ns
Challenging and meaningful tasks (MEANINGFUL_TASK)	• •	•	• •
Challenge students to try new things (CHALLENGE)	•	ns	•
Student effort in service (EFFORT)	•	•	•
Regular reflection (REG_REFLECT)	ns	ns	ns
Structured reflection with clear instructions (STRUCTURED_REFLECT)	•	•	•

Note. • Beta < .10; • • .10 < Beta < .20; • • • Beta > .20; ns: not statistically significant

A closer examination of the results reveals 13 course and pedagogical elements that are significantly associated with at least one of the three service-learning outcomes included in the study. Eight elements have a significant predictive value on all three student learning outcomes:

- "challenging and meaningful tasks" (MEANINGFUL_TASK),
- "interest in service-learning subject/project" (INTEREST),

- "perceived benefits to people served" (BENEFIT),
- "service appreciated by community" (COM_APPREC),
- "preparing students for service" (PREPARE),
- "student effort in service" (EFFORT),
- "interaction with service recipients" (INT_CLIENTS), and
- "structured reflection with clear instructions" (STRUCTURED_REFLECT).

Three of the features have significant impact on two of the three outcomes:

- "challenge students to try new things" (CHALLENGE) was found to associate significantly with students' intellectual and civic learning outcomes;
- "good personal relationship with teammates" (PEER_REL) had a particularly strong impact on students' social development but a much lower impact on their civic development; and
- "service related to major" (MAJOR), on the other hand, was found to associate with both intellectual and civic development of the students.

One feature, "motivated and supportive teammates" (TEAM), had a significant impact only on students' social outcome.

These results are broadly consistent with previous research (e.g., *Astin et al., 2000; Billig et al., 2005; Celio et al., 2011; Largent, 2009; Mabry, 1998; Moely and Ilustre, 2014*). Findings reflecting the most impactful practices in achieving each of the intended service-learning outcomes include the following:

- Students' intellectual outcomes were most strongly influenced by "preparing students for service" (PREPARE), "challenging and meaningful tasks" (MEANINGFUL_TASK), and "interest in service-learning subject/project" (INTEREST).
- Students' social outcomes, on the other hand, were most strongly associated with "good personal relationship with teammates" (PEER_REL) and "motivated and supportive teammates" (TEAM).
- Students' civic outcomes were found to relate most strongly to "interest in service-learning subject/project" (INTEREST), "challenging and meaningful tasks" (MEANINGFUL_TASK), "service appreciated by community" (COM_APPREC), and "perceived benefits to people served" (BENEFIT).

It should be noted that even though four of the pedagogical features included in the study—"instructor enthusiasm and passion" (INS_PASSION), "interaction with teachers, tutors, and teammates" (INTERACT), "help and support available when needed" (SUPPORT), and "regular reflection" (REG_REFLECT)—have no statistically significant independent effect on any of the service-learning outcomes, this does not imply that they are unimportant to learning. It may only mean that their impact has been manifested in or subsumed under other factors and thus for statistical purposes diminished after controlling for the effects of the other elements included in the study. For example, enthusiastic and passionate instructors are more likely to design a challenging and meaningful project that would result in tangible benefits to the community and thus receive appreciation from the people served; preparing students for service would clearly involve providing students with help and support when needed, which would involve interaction with teachers, tutors, and other teammates; and structured reflection with clear instructions would obviously imply regular reflection.

Interestingly, some of the elements that are conventionally regarded as critical for successful service-learning do not show up as statistically significant in our study. For example, "student autonomy in service tasks" (AUTONOMY), which is linked to "youth voice in selecting, designing, implementing, and evaluating service-learning projects" does not show up as a statistically significant independent factor in service-learning, nor is it one of the top five correlates for any of the service-learning outcomes. "Service related to major" (MAJOR) also does not seem to be an impactful factor—in fact, it is no more highly correlated than "challenge students to try new things" (CHALLENGE), which in many cases involves scenarios that bring students outside contexts and topics that they are familiar with (i.e., their major discipline).

There is also a match between our findings and previous work on character development. In contrast to conventional academic courses that mainly aim to develop students' cognitive skills, service-learning is often considered to be relevant to the development of the students' character. We find that our results significantly resemble recent research on the nature of "grit" from Duckworth *(2017)*. Although grit is strongly associated with outstanding achievement, grit itself is associated with four assets: interest (intrinsically enjoying what one does), capacity to practice (persevering in trying to do things better), purpose (conviction that one's work matters to other people), and hope (rising to the occasion type of perseverance). It is interesting and encouraging to note that

the six elements that we found to have a significant predictive value on all four student learning outcomes are highly correlated with three of the four assets identified by Duckworth.

- "Interest" in our study is obviously related to Duckworth's interest.
- "Challenging and meaningful tasks," "interaction with service clients," and, most of all, "perceived benefits to people served" are related to purpose.
- "Preparing students" and "student effort" are somewhat related to capacity to practice.

The apparent match is indicative that service-learning, as studied in this project, is consistent with the development of character conducive to the achievement of success.

Although we should not overgeneralize from one single case, results of the present study do provide some empirical support for the following practices in designing and implementing a service-learning program to maximize student learning across different service-learning outcomes:

- *Involve students in challenging tasks.* It is not sufficient just to send students out to do some voluntary service or charity work, however needed or meaningful. It is important to involve them in *challenging* tasks that require them to apply the knowledge and skills they acquire in the classroom to deal with *complex* problems in the service setting. Moreover, if the emphasis is on students' intellectual and civic development (the latter arguably *the* key objective of service-learning), we should also challenge students to move outside their comfort zone and try things that they have never tried before, including things that have little to do with their academic major.

- *Design meaningful services that meet genuine community needs.* The service to be performed must be readily perceived by students as something meaningful that will bring about real benefits to the community or the people they serve. Students will work harder and learn better if they believe that they are making a real difference to others through their service and can readily feel that their service is valued and appreciated by the community.

- *Prepare students well for the service.* Students need to understand the community and clients they serve, including their needs and the challenges they are facing. They also need to be equipped with the necessary knowledge and

skills for designing and implementing the service to meet the identified needs of the community and learn from the experience.

- *Engage students, as far as possible, in direct interaction with the service recipients, particularly for indirect services.* It is very difficult to develop empathy "at arms' length." Direct interaction with the service recipients helps to reinforce students' understanding of social issues and problems, develop their empathy for people in need, and provide direct feedback on the value and effectiveness of the service they provide.

- *Motivate students to invest time and effort in planning and conducting the service in a serious manner.* Research has shown that students need to have a sufficiently long service duration and deep enough experience for the learning to endure *(Billig et al., 2005)*. Students who do not have the heart for service and put in only minimal effort, or are allowed to get away with minimal effort, will not gain much from their experience.

- *Provide a wide range of service-learning subjects and projects* to suit different student interests and meet different community needs, and allow students choices, as far as possible, to select the ones that match their interests and aspirations.

- *Help students engage in critical deep reflections* on their service-learning experience through structured reflection tasks with clear instructions.

Service-learning teachers should also note that different course and pedagogical elements may have differential effects on different service-learning outcomes. For example, students' civic outcomes are most influenced by their perception of the benefits of the service, their feeling that their service was appreciated by the community, their engagement in challenging and meaningful tasks, and their interest in the service-learning subject or project. Their social outcomes, however, are more strongly associated with their developing a good personal relationship with teammates and having a motivated and supportive team. Teachers should take note of the most influential elements and design their programs accordingly with reference to the particular intended learning outcomes.

It should be stressed that the study has a number of limitations. First, the use of a home-grown instrument and the single-item approach adopted to measure the curriculum and pedagogical

factors may raise some doubts about the reliability and validity of the results, though the study sample is large. Second, all the measures used in the study were based on students' self-reported data. Future studies should include or triangulate the results with more authentic or direct measures of the process and student outcomes from service-learning. Third, the study was basically correlational research. It must be remembered that correlation is not causation; findings from this study alone are not conclusive proof of cause and effect. Fourth, all the participants came from a single university in Hong Kong, thus the generalizability of the findings to other contexts should be treated with caution. Finally, the large number of independent variables made it impracticable to examine the interactive effects of the factors influencing different service-learning outcomes. Future studies might look more deeply into how those factors might interact with each other in affecting students' learning.

Acknowledgments

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