

Mandatory service learning at university: Do less-inclined students learn from it?

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Abstract

At many universities, there is a growing realization that the university owes a social responsibility to the community. Society invests in its citizens through the university, and the university empowers its students to realise their potential, both as competent professionals as well as responsible citizens. This requires the cultivation of attributes such as social awareness, ethical leadership and social responsibility, which are generally recognized as being difficult to teach in a classroom setting. Service learning is a form of active learning that integrates meaningful service to the community with academic study and reflective learning. In service learning, the learning goals of the students are as important as the benefits of the service that is rendered to the community; in addition, the two are interlinked and mutually reinforcing. Research has shown that service learning contributes positively to the attainment of many of the aforementioned desired graduate attributes for university students. However, there is much controversy about whether service learning should be *mandated*. There is a need to examine if and to what extent students' learning and development from completing a mandatory service learning subject is influenced by their initial inclination. Data in the study described in this article were collected from 756 students via an online post-experience survey. Results show that students' total learning experience from service learning had a much stronger impact on their learning and development than their initial inclination or even interest in the subject.

Keywords

Service learning, mandatory requirement, impact, student learning

Service learning and its benefits to higher education

Service learning is defined as a “course-based, credit-bearing educational experience in which students (a) participate in an organized activity that meets identified community needs and (b) reflect on the service activity in such a way as to gain further understanding of course content, a broader appreciation of the discipline, and an enhanced sense of personal values and civic responsibility” (Bringle and Hatcher, 1995, p.112). It differs from other forms of experiential learning in that it places equal emphasis on both the service provided and the learning that is taking place, and intends to benefit both the providers (students) and the service recipients (Furco, 1996). It has been increasingly adopted across a wide range of disciplines in higher education not only in the US, but also in other parts of the world including Asia (Xing and Ma, 2010), Australia (Bartleet et al., 2016), Europe (Luna, 2012), Latin America (Tapia, 2010) and South Africa (Osman and Petersen, 2013).

Research has shown that service learning, as a form of active learning, is a high-impact educational practice at the higher education level (Kuh, 2008) that, when well implemented, can influence positively the following aspects of students’ learning and development:

- academic achievement and higher order thinking skills (Hébert and Hauf, 2015; Lundy, 2007);
- critical thinking and problem solving skills (Astin et al., 2000);
- social awareness and understanding (Weber and Glyptis, 2000);
- empathy (Lundy, 2007);
- civic engagement or responsibility (Astin et al., 2006, Caspersz and Olaru, 2017);
- personal transformation and interpersonal development (Deeley, 2010);
- self-efficacy (Simons and Cleary, 2006); and
- moral development (Lies et al., 2012); and
- commitment to serve (Payne, 2000; Vogelgesang and Astin, 2000).

These outcomes are commonly considered to be desirable in university graduates, but many of them are not easily taught in a classroom setting. These results have been further reaffirmed by three recent meta-analyses on the impact of service learning on students. Service learning generally has a positive effect on students’ understanding of social issues, personal insight and cognitive development (Yorio and Ye, 2012). Likewise, Students participating in service learning programmes demonstrated significant gain in their attitudes towards self, attitudes towards school and learning, civic engagement, social skills, and academic performance (Celio et al., 2011). Service learning had a positive influence on students’ learning outcome, regardless of whether the learning was measured by self-reported gains or by more concrete measures such as examination scores (Warren, 2012).

The debate on mandatory service learning

While there is little dispute about the potential benefits of service learning to student learning, educators have vastly diverse views on whether service learning should be mandatory for students (Anderson, 1998, 1999; Crews, 2002; Klie and Steele, 1990). Proponents (for example, Campbell, 2000) argue that service learning is a powerful pedagogy for promoting students’ intellectual, social, personal, career and most importantly, civic development. They reason that mandatory service learning has the advantage of reaching all students, including those who would never participate voluntarily, and may have its greatest impact on students who are least inclined to participate on their own choice. They argue that a service learning requirement is not that different from other forms of curricular requirements that require students to take language or science subjects, final year projects, or practical training for graduation, with the added advantage that mandated service learning will add legitimacy, visibility, recognition and resources that help to ensure its success.

Opponents (for example, Brock, 2001; Marks and Jones, 2004; Stukas et al., 1999) criticize mandatory service learning as “involuntary servitude” and insist that while service learning can be mandated, caring and civic-mindedness cannot. They warn that mandatory service learning may undermine the sincerity of students in serving the community, and diminish their willingness to serve in future. Students who feel that they are compelled may consequently perform the service poorly, tainting the experience of other students and causing harm not only to their own learning but also to the service recipients.

Very few studies have been conducted on the impact of an institution-wide mandatory service learning requirement on students, and those that exist focus mainly on the impact of required community service in high schools on students’ subsequent service participation. The results to date are mixed. A number of studies have revealed that students who were required to perform service were less likely to engage voluntarily in service in subsequent years (for example, Jones and Hill, 2003; Marks and Jones, 2004; Stukas et al., 1999). Other studies, however, have found no negative or even positive impact of mandatory service programs on subsequent volunteering or civic engagement. Dienhart et al. (2016) found that students’ future community engagement is influenced not simply by whether or not the service learning experience is required, but also by other factors such as the context and nature of the requirement. Using a quasi-experimental design, Henderson et al. (2007) demonstrated that students’ subsequent civic engagement is most strongly related to the quality of their service experience and sustained involvement rather than whether the service is mandated. Metz and Youniss (2005) compared students with different levels of inclination to volunteer in successive cohorts of students from a public high school in the US, and showed that while students with a strong prior inclination to serve seemed to gain little from the requirement, students with a lower prior inclination but were required to complete a service learning requirement showed marked improvements when compared with similar students who did not need to fulfill a requirement. Similar findings have been reported in other works (for example, Metz and Youniss, 2003; Niemi et al., 2000).

All the above studies are promising; however, there are few studies that look into how well the less-inclined students learn from a mandatory service learning experience as compared to the more-inclined ones. Furthermore, most of the studies to date were conducted in the North American context. The applicability of the findings to other countries or regions with a different culture is yet to be established. There is therefore a need to examine if and to what extent students’ learning and development from completing a university-wide mandatory service learning requirement are influenced by their initial inclination to serve or take part in service learning. The specific research questions are these. What do students perceive that they have learned from taking a mandatory service learning subject? To what extent are students’ learning and development from taking the service learning subject influenced by their initial inclination towards service learning, as measured by whether their main reason for taking the subject was to fulfill the graduation requirement, and whether they have ever engaged in service at university prior to enrolling in the subject, after controlling for their interest in and learning experience of service learning, as a subject?

Methodology

Setting

The study was conducted in a large public university in Hong Kong which has required, since the 2012/13 academic year, all of its full-time undergraduates to successfully complete a three-credit academic service learning subject of their own choice as part of their degree requirement. All service learning subjects are required to include the following three components:

- An experiential component: students are required to participate in a substantial service project that will benefit the target community in a tangible and meaningful way;
- An academic component: students are required to learn concepts that link the knowledge and skills acquired from their Major or other learning experiences at the University to community needs; and

- A reflective component: students are required to reflect on their service learning experience in order to link theory with practice, and to develop an enhanced sense of ethical, social and national responsibility.

The service learning subjects are assessed according to a letter-grade system, and the assessment results are counted towards students' grade point average in the same manner as other academic subjects.

Participants

A total of 2069 students enrolled in 32 service learning subjects offered in academic years 2012/13 and 2013/14 were invited to take part in the survey via an invitation email. Non-respondents were followed up twice via reminder emails, and prizes and lucky draw were offered as incentives to boost the response rate. A total of 756 valid responses were received, making up a response rate of 36.5%. 680 cases had complete data for all of the variables of the study and were included in the data analysis. Among the 680 participants, 262 (38.5%) were male and 418 (61.5%) were female. The average age was 20.2 (SD = 1.164). The time between completing the service learning subject and filling in the questionnaire ranged from three to seventeen months.

Instrument

The questionnaire (Appendix 1) was developed by the research team with reference to the literature and the contexts in which the service learning subjects and projects were implemented at the university. The questionnaire comprises, among other things, the following questions:

- One question (Question I (a) – (l)) asking students to rate, on a seven-point scale (1=*very little*; 4=*a fair amount*; 7=*very much*), their attainment of intellectual learning outcomes (four items), social learning outcomes (two items), civic learning outcomes (five items) and personal learning outcome (one item);
- One question (Question II (b) – (r)) inviting students to rate, on a seven-point scale (1=*strongly disagree*, 4=*neutral*; 7=*strongly agree*), their level of agreement with items on:
 - Whether they took the subject because they were interested in the service project (one item); and
 - Various aspects of their learning experience of the service learning subject/project they had completed (16 items).
- Questions on students' initial inclination towards service learning as measured by their responses to the items on:
 - Whether their main reason for taking the subject was to fulfill the graduation requirement (Question II (a)); and
 - Whether they had ever engaged in community service at university before enrolling in the service learning subject (Question III (a2)).

Data were collected via an online survey administered in October 2014. In addition, students' overall subject grades were obtained from students' record with the approval of the University.

Data analysis

Data were analyzed using the Statistical Package for the Social Sciences (SPSS) software package. Students' subject grades (GRADE) were converted into the numerical subject GPA equivalent (A+=4.5; A=4; B+=3.5; B=3; C+=2.5; C=2; D+=1.5; D=1; F=0) before data analysis, and students' individual scale scores on their attainment of the intellectual learning outcomes (INTELLECT), social learning outcomes (SOCIAL), and civic learning outcomes (CIVIC) were computed by the means of the relevant item scores, whereas students' total learning experience of studying the service learning subject (LEARN_EXP) was measured by the mean student rating on the 16 items pertinent to this construct.

The means and percentage distribution of students' ratings on the intended learning outcomes of service learning and their subject grade were computed to examine students' learning and development from service learning. The effect of students' initial inclination to partake in service learning on their learning and development was investigated by a series of univariate multiple linear regressions with students' reported attainment of the four learning outcomes and their subject grade as dependent variables, and

their rating on whether they took the subject mainly to fulfill the requirement (MEET_REQ), interest in the service learning subject/project (INTEREST) and overall learning experience (LEARN_EXP) as the independent variables. Finally, a series of analysis of covariance (ANCOVA) was conducted to examine the effects of students' previous engagement in community service at university (PRE_ENGAGE) on their four reported learning outcomes from service learning as well as their subject grade, with their interest in the service learning project and learning experience of the subject as covariates.

Results

What do students perceive that they have learned from taking a mandatory service learning subject?

Students generally perceived considerable learning gains in those outcomes as a result of studying the subject (Table 1). A closer examination of the students' responses to the individual items (Q. 1 (a) to (l)) reveals that 91.4% to 96.5% of the respondents gave a rating of 4 (a fair amount) or above on those items, reaffirming that most students learned quite a lot from the experience, at least from their own perspective.

In addition, the mean subject grade as rated by the subject teachers is quite high (mean = 3.47 out of 4.5), which indicates that the general performance of students was approaching "very good".

<<Insert Table 1 here>>

Did students' initial inclination to participate in service learning affect their learning from taking the service learning, as a subject?

As can be expected, there were rather strong positive correlations among students' self-reported gains in intellectual, social, civic and personal learning outcomes, with correlation coefficients (r) ranging from .624 to .749 (Table 2).

Furthermore, moderate to strong positive correlations were found between the four self-reported learning gains with the student's interest in the service learning subject/project (with r values ranging from .400 to .499) and their total learning experience of the subject (r values ranging from .665 to .750). However, there was no statistically significant correlation between students' self-reported learning outcomes and their rating on whether they took with subject mainly to fulfill the graduation requirements.

Finally, students' subject grades were found to have a weak positive correlation with their total learning experience ($r = .238$), interest in the service learning project ($r = .176$), their self-reported learning gains (r values ranging from .137 to .186), but a weak negative correlation with their rating on whether they took the subject mainly to fulfill the graduation requirements ($r = -.110$).

<<Insert Table 2 here>>

The results suggest that students' initial inclination does not impact their learning and development from service learning, but these results are not conclusive as they do not control for the presence of other confounding variables. To examine the independent effect of each variable after controlling for the variations in other factors, a series of univariate multiple linear regressions was carried out.

The results show that the regression models are statistically significant with regard to students' self-reported learning gains, with F values ranging from 178.753 to 298.493, $p < .01$ (Table 3). They also explained a significant amount of the variance in students' self-reported gains, with R^2 values ranging from .442 to .570.

Among the independent variables, LEARN_EXP (students' total learning experience) had the strongest and most statistically significant impact on students' reported gains in the four intended learning outcomes (INTELLECT, CIVIC, PERSONAL, SOCIAL), with β values ranging from .652 to .745, $p < .01$. INTEREST (students' interest in the service learning subject/project) was found to have a much weaker but statistically significant impact on INTELLECT ($\beta = .115$, $p < .01$) and CIVIC ($\beta = .095$, $p < .01$), but not on SOCIAL and PERSONAL ($\beta = -.007$ and $.025$ respectively, $p > .05$). However, the impact of MEET_REQ (students' rating on whether they took the subject primarily to fulfill the graduation requirements) was not statistically significant for any of the four self-reported learning gains at .05 level. This suggests that students who were less inclined to participate in service learning reported similar level of learning gains as their more-inclined counterparts did.

The regression model was also statistically significant on the students' subject grade ($R^2 = .076$, $F(3, 676) = 18.503$, $p < .01$), but could only explain less than 8% of the variance. Similarly, students' total learning experience was found to have the strongest impact on students' grade ($\beta = .234$, $p < .01$) but the absolute value of β was much smaller than those for the self-reported gains. The impact of students' interest in the subject/project, however, was not statistically significant at .05 level.

The impact of taking the subject primarily to fulfill the graduation requirements on students' grade was weakly negative, albeit statistically significant ($\beta = -.134$, $p < .01$). A comparison of the mean subject grade of students giving a rating of "5" or above on MEET_REQ (that is, students who tended to agree that they took the service learning subject primarily to meet the graduation requirement) with those giving a rating of "4" and below shows that the former group as a whole received a slightly lower subject grade than the latter group (3.45 versus 3.51), with a mean difference of -0.06 and an effect size (Cohen's d) of .12.

<<Insert Table 3 here>>

Did students' previous engagement in community service at university affect their learning from taking the service learning, as a subject?

Results of the analysis of covariance (ANCOVA) results shown in Table 4 reveals that after controlling for their interest and total learning experience, students' previous engagement in community service at university had a small albeit statistically significant effect on their civic ($F(4, 676) = 7.328$, $p < .01$, $\eta_p^2 = .011$) but not on the other three learning outcomes nor subject grade at .05 level (see Table 4).

<<Insert Table 4 here>>

On the other hand, students' total learning experience was again found to have a strong and statistically significant impact on all of the four self-reported learning gains ($p < .01$, η_p^2 values ranging from .337 to .450), and a smaller but statistically significant impact on their subject grade ($p < .01$, $\eta_p^2 = .029$). Finally, students' interest in the subject/project had a statistically significant but small impact on their intellectual ($p < .01$, $\eta_p^2 = .022$) and civic learning outcomes ($p < .01$, $\eta_p^2 = .014$), but not on their social or personal learning outcomes, nor their subject grade.

Discussion and conclusion

This study examined the impacts of students' initial inclination on their learning and development from taking mandatory service learning, as a subject. The results clearly show, after controlling for students' interest and total learning experience of the subject, that:

1. Students' initial inclination to take part in service learning did not have any significant impact on their self-reported intellectual, social, civic and personal development attained from completing the mandatory service learning requirement.
2. The more-inclined students tended to perform better than the less-inclined ones as graded by the instructors, however, the difference was very small.
3. Students' previous engagement (or lack thereof) in community service at university did not have any significant impact on their self-reported intellectual, social and personal development from service learning, or on their subject grade. Students who had previously engaged in community service generally reported a higher level of civic development, but the difference was rather small.
4. Overall, the main factors impacting students' learning and development from service learning were students' total learning experience of, and to a lesser extent, their interest in, the service learning subject.

These results therefore suggest that some of the arguments against mandating a service learning requirement at the higher education level may not be justified. An often-heard argument against mandating service learning is that students who feel "coerced" to do service may resent being compelled, and consequently perform the service poorly, learn very little from the experience, and even impair the experience of others (Anderson, 1998; Brown et al., 2000; Warburton and Smith, 2003). This is not borne out by the study, since the results suggest that even the initially less-inclined students still learn considerably from a mandatory service learning experience – provided that the learning experience is positive. There is little evidence to support the allegation that mandatory service learning will "poison the well" for other students who are genuinely interested in serving the community.

This finding is significant for the primary reason that if left completely free to make their own choice, many of these students would not enroll in a service learning subject voluntarily. They would therefore miss the opportunity to acquire many of the desired graduate outcomes through the service learning subject and project. This supports the argument that there is merit in making service learning mandatory for students, as it would benefit those who would otherwise not participate voluntarily.

The findings also lend support to research demonstrating that it is the quality of students' service learning experience, rather than the mandated or non-mandated nature of the experience, that is more important in determining student learning outcomes. These include a supportive and positive experience, such as thoughtful curricula, meaningful reflection opportunities and student participation; significant amount of service hours involving frequent contact with beneficiaries, regular and structured discussions and reflection; and integration of academic content with the service experience. It appears that the critical question, as Jones et al. (2008) rightly stressed, "is not simply about required versus voluntary service, but more so, how the required service is structured in the school setting and the types of service in which students are involved" (p. 13).

It should be noted that while the study provides some support for the benefits of a mandatory service learning requirement to student learning and development, it has a number of limitations. First, there is a potential self-selection bias as students' participation in the survey was voluntary. The representativeness of the sample is therefore open to doubt. Secondly, student learning outcomes have been measured mainly by students' self-reported learning gains, although subject grades were also included in the analysis. The use of a homegrown instrument rather than known validated psychometric or behavioral measures might further hamper the validity of the findings. Thirdly, the study was conducted after the first two years of implementation when novelty, staff enthusiasm and institutional priority were high. Fourthly, the study involved a particular form of mandatory service learning requirement that is integrated with credit-bearing academic study, reflection and rigorous assessment. Lastly, the study was conducted in a single university in Hong Kong. The generalizability of the findings to other contexts must be viewed within the context and background of this study. Future work needs to consider objective or observable evaluations of student learning gains, other forms of mandatory service learning such as community service hours, and the long-term impact upon student development. In general, empirical research in service learning is still scant, with very few studies conducted outside the North American context. Much more research is needed, particularly in places with a different culture and background.

To conclude, the study shows that well-designed and implemented mandatory service learning that integrates rigorous academic study with meaningful service and deep reflection can benefit both the initially more- and less-inclined students. The main challenge is how to ensure that the mandatory service learning requirement is not just another hurdle for graduation but rather a truly transformative and rewarding experience for students to achieve the intended intellectual, social, civic and personal learning outcomes. More research is needed to provide evidence-based principles and guidelines for teachers to design and deliver effective service learning programmes that maximize students' learning from the experience.

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References

- Andersen SM (1998) *Service-learning: A National Strategy for Youth Development*. A Position Paper Issued by the Task Force on Education Policy. Washington, DC, Institute for Communitarian Policy Studies: George Washington University.
- Anderson SM (1999) Mandatory Community Service: Citizenship Education or Involuntary Servitude? *Service-learning, General*. Paper 107. Available at: <http://digitalcommons.unomaha.edu/slceslgen/107> (accessed 10 March 2016).
- Astin AW, Vogelgesand LJ, Ikeda EK, et al. (2000) *How Service-Learning Affects Students*. Los Angeles, University of California, Los Angeles: Higher Education Research Institute.
- Astin AW, Vogelgesang LJ, Misa K et al (2006). *Understanding the effects of service-learning: A study of students and faculty*. University of California, Los Angeles: Higher Education Research Institute.
- Bartleet BL, Sunderland N and Carfoot G (2016) Enhancing intercultural engagement through service learning and music making with Indigenous communities in Australia. *Research Studies in Music Education* 38(2): 173-191.
- Bringle RG and Hatcher JA (1995) A service learning curriculum for faculty. *The Michigan Journal of Community Service-Learning* 2(1): 112-122.
- Brock KL (2001) Promoting voluntary action and civil society through the state. *Isuma/Canadian Journal of Policy Research* 2(2): 53-61.
- Brown K, Kenny S, Turner B et al (2000) *Rhetorics of Welfare: Uncertainty, Choice and Voluntary Associations*. Basingstoke: Macmillan.
- Campbell ED (2000) Social capital and service-learning. *PS: Political Science and Politics* 23(3): 641-646.
- Caspersz D and Olaru D (2017) The value of service-learning: the student perspective. *Studies in Higher Education* 42(4):685-700
- Celio CI, Durlak J and Dymnicki A (2011) A meta-analysis of the impact of service-learning on students. *Journal of Experiential Education* 34(2): 164-181.
- Crews RJ (2002) *Higher Education Service-learning Sourcebook*. Westport, Connecticut: Oryx Press.
- Deeley SJ (2010) Service-learning: Thinking outside the box. *Active Learning in Higher Education* 11(1): 43-53.
- Dienhart C, Maruyama G, Snyder M et al (2016) The impacts of mandatory service on students in service-learning classes. *The Journal of Social Psychology* 156(3): 305-309.
- Furco A (1996) Service-learning: A balanced approach to experiential education. In Taylor B (ed.) *Expanding Boundaries: Serving and Learning*. Washington, DC: Corporation for National Service, pp.2-6.
- Hatcher JA, Bringle RG and Muthiah R (2004) Designing effective reflection: What matters to service-learning?. *Michigan Journal of Community Service Learning* 11(1): 38-46.
- Hébert A and Hauf P (2015) Student learning through service learning: Effects on academic development, civic responsibility, interpersonal skills and practical skills. *Active Learning in Higher Education* 16(1): 37-49.

Henderson A, Brown SD, Pancer SM et al (2007) Mandated community service in high school and subsequent civic engagement: The case of the “double cohort” in Ontario, Canada. *Journal of Youth and Adolescence* 36 (7): 849-860.

Hullender R, Hinck S, Wood-Nartker J et al (2015) Evidences of transformative learning in service-learning reflections. *Journal of Scholarship of Teaching and Learning* 15(4): 58-82.

Jones SR and Hill KE (2003) Understanding patterns of commitment: Student motivation for community service involvement. *The Journal of Higher Education* 74(5): 516-539.

Jones SR, Segar TC and Gasiorski AL (2008) “A double-edged sword”: College student perceptions of required high school service-learning. *Michigan Journal of Community Service-learning* Fall 2008: 5-17.

Klie R and Steele G (1990) Should service be mandatory? In: J.C. Kendall and Associates (eds.), *Combining Service and Learning: A Resource Book for Community and Public Service* Vol. 1: 550-556.

Kuh GD (2008) *High-impact Educational Practices: What They Are, Who Has Access to Them, and Why They Matter*. Washington, DC: Association of American Colleges and Universities.

Lambright KT and Lu Y (2009) What impacts the learning in service-learning? An examination of project structure and student characteristics. *The Journal of Public Affairs Education* 15(4): 425-444.

Lies JM, Bock T and Brandenberger J et al (2012). The effects of off-campus service learning on the moral reasoning of college students. *Journal of Moral Education* 41(2): 189-199.

Luna E (2012) *What about service learning in Europe?* Available at: <http://hdl.handle.net/2445/27563> (accessed 25 May 2016).

Lundy BL (2007) Service-learning in life-span developmental psychology: Higher exam scores and increased empathy. *Teaching of Psychology* 34(1): 23-27.

Mabry JB (1998) Pedagogical variations in service-learning and student outcomes: How time, contact, and reflection matter. *Michigan Journal of Community Service Learning* 5(1): 32-47.

Marks HM and Jones SR (2004) Community service in the transition: Shifts and continuities in participation from high school to college. *The Journal of Higher Education* 75(3): 307-339.

Meinhard A, Foster M and Wright P (2006) Re-thinking school-based community service: The importance of a structured program. *The Philanthropist* 20(1): 5-22.

Metz E and Youniss J (2003) A demonstration that school-based required service does not deter—but heightens—volunteerism. *Political Science and Politics* 36(02): 281-286.

Metz EC and Youniss J (2005) Longitudinal gains in civic development through school-based required service. *Political Psychology* 26(3): 413-437.

Niemi RG, Hepburn MA and Chapman C (2000) Community service by high school students: A cure for civic ills? *Political Behavior* 22(1): 45-69.

Osman R and Petersen N (eds.) (2013) *Service Learning in South Africa*. Southern Africa: Oxford University Press.

Pancer SM, Brown SD and Henderson A et al (2007) The impact of high school mandatory community service programs on subsequent volunteering and civic engagement. *Imagine Canada: Knowledge Development Centre, Toronto, Canada*. Available at: http://hbrary.imaginecanada.ca/files/nonprofitscan/kdccc/wlu_mandatoryvolunteering_feb07_2007.pdf (accessed 10 March 2016).

Payne CA (2000) Changes in involvement as measured by the community service involvement preferences inventory. *Michigan Journal of Community Service Learning* 7(1): 41-53.

Riedel E (2002) The impact of high school community service programs on students’ feelings of civic obligation. *American Political Research* 30(5): 499-527.

Simons L and Cleary B (2006) The influence of service-learning on students’ personal and social development. *College Teaching* 54(4): 304-319.

Stukas AA, Snyder M and Clary EG (1999) The effects of “mandatory volunteerism” on intentions to volunteer. *Psychological Science* 10(1): 59-64.

Tapia MN (2010) Service learning widespread in Latin America. *Phi Delta Kappan* 91(5): 31-32.

Taylor TP and Pancer SM (2007) Community service experiences and commitment to volunteering. *Journal of Applied Social Psychology* 37(2): 320-345.

Vogelgesang LJ and Astin AW (2000) Comparing the effects of service-learning and community service. *Michigan Journal of Community Service Learning* 7(1): 25-34.

Warburton J and Smith J (2003) Out of the generosity of your heart: Are we creating active citizens through compulsory volunteer programmes for young people in Australia? *Social Policy and Administration* 37(7): 772-786.

Warren JL (2012) Does service-learning increase student learning: A meta-analysis. *Michigan Journal of Community Service-learning* 18(2): 56-61.

Weber J and Glyptis SM (2000) Measuring the impact of a business ethics course and community service experience on students' values and opinions. *Teaching Business Ethics* 4(4): 341-358.

Xing J and Ma C (2010) *Service-Learning in Asia: Curricular Modules and Practices*. Hong Kong: Hong Kong University Press.

Yorio PL and Ye F (2012) A meta-analysis on the effects of service-learning on the social, personal, and cognitive outcomes of learning. *Academy of Management Learning and Education* 11(1): 9-27.

Appendix 1

Items included in the online student post-experience survey

- I. Please rate the amount of learning you have gained in each of the areas below as a result of attending this service learning subject:
1 = Very little; 4 = A fair amount; 7 = Very much
 - a. Deeper understanding of the linkage between service learning and the academic content of the subject.
 - b. Applying/integrating knowledge to deal with complex issues.
 - c. Solving challenging real-life problems.
 - d. Thinking critically.
 - e. Working effectively in teams.
 - f. Communicating effectively with peers, collaborators, and service recipients.
 - g. Better understanding of the problems facing underprivileged members of the community.
 - h. Increased interest/commitment to serve people in need.
 - i. Becoming a more responsible member of your community.
 - j. Cross-cultural awareness and skills.
 - k. Becoming a more responsible global citizen.
 - l. Better understanding of my own strengths and weaknesses.
- II. Please indicate your motivation and learning experience of the service learning subject and project:
1 = Strongly disagree; 4 = Neutral; 7 = Strongly agree
 - a. The main reason for me to take this service learning subject is to fulfill the Service learning Requirement for graduation.
 - b. I took this subject because I was very interested in the service learning project of the subject.
 - c. I believe that the service I performed in the service learning project has benefited the people I served.
 - d. My instructors and TAs prepared me appropriately for performing the service.
 - e. My team-mates in the service learning project were generally motivated and supportive.
 - f. I could feel the enthusiasm and passion of my instructors and TAs in delivering the subject and the service.
 - g. There were a lot of opportunities for me to meet and interact with the people I served.
 - h. Help and support was usually available from the instructors/TAs/collaborative agency when I needed it.
 - i. The service learning project provided challenging and meaningful tasks for me to accomplish.
 - j. In my service learning project, I carried out tasks that were mainly designed by me/my team rather than following instructions.
 - k. I developed a good personal relationship with my teammates.
 - l. I felt that my service was appreciated by the collaborating agency/service recipients.
 - m. I put a lot of effort into planning, preparing and delivering the service.
 - n. I was required to engage regularly in reflective activities (e.g. writing reflective journals or

- project logs, debriefing sessions, project reports) during and after the service learning project.
- o. The reflective activities of the subject were well structured with clear instructions and guidelines.
 - p. The service I performed was closely related to my chosen major/discipline of study.
 - q. I benefited a lot from the interaction I had with the instructors, TAs and other students in class.
 - r. The service learning project challenged me to try things that I had never done before.
- III. About you and the subject:
- a. Have you ever engaged in the following activities before enrolling in this subject: (please choose all that apply)
 - ① Voluntary services at secondary schools
 - ② Community service at university
 - ③ A credit-bearing service learning subject at this or other university
 - ④ Other forms of community service (Please specify:_____)

Table 1. Descriptive statistics of variables include in the study

| Variable | Description | Mean | SD | Min | Max | No. of items | Cronbach's alpha |
|-----------|---|------|-------|-----|-----|--------------|------------------|
| INTELLECT | Students' self-reported attainment of intellectual learning outcomes | 5.15 | .914 | 1 | 7 | 4 | .863 |
| SOCIAL | Students' self-reported attainment of social learning outcomes | 5.45 | 1.012 | 1 | 7 | 2 | .836 |
| CIVIC | Students' self-reported attainment of civic learning outcomes | 5.31 | .975 | 1 | 7 | 5 | .898 |
| PERSONAL | Students' self-reported attainment of personal learning outcomes | 5.33 | 1.117 | 1 | 7 | 1 | NA |
| MEET_REQ | Main reason for enrolling in subject is to fulfill the graduation requirements | 5.00 | 1.364 | 1 | 7 | 1 | NA |
| INTEREST | Taking the subject because of interest in the service learning project | 4.78 | 1.247 | 1 | 7 | 1 | NA |
| LEARN_EXP | Mean student ratings on 16 items relating to different aspects of their learning experience of the service learning subject/project | 5.34 | .876 | 1.0 | 7.0 | 16 | .940 |
| GRADE | Students' grade in the | 3.47 | .497 | 2.0 | 4.5 | NA | NA |

| | | | | | | | | | |
|------------|---|-----|------|---|---|---|---|---|----|
| | subject awarded by teacher | | | | | | | | |
| PRE-ENGAGE | Students' engagement in community service at university prior to enrolling in the subject | .36 | .480 | 0 | 1 | 1 | 1 | 1 | NA |

Table 2. Intercorrelation of the study variables

| | MEET_REQ | INTEREST | PRE_ENGAGE | LEARN_EXP | INTELLECT | SOCIAL | CIVIC | PERSONAL | GRADE |
|------------|----------|----------|------------|-----------|-----------|--------|-------|----------|---------|
| MEET_REQ | 1 | -.068 | -.121** | .111** | .021 | .074 | .040 | .058 | -.110** |
| INTEREST | | 1 | .071 | .574** | .496** | .422** | .499* | .400** | .176** |
| PRE_ENGAGE | | | 1 | .023 | .006 | -.020 | .091* | .058 | -.035 |
| LEARN_EXP | | | | 1 | .720** | .740** | .750* | .665** | .238** |
| INTELLECT | | | | | 1 | .685** | .741* | .660** | .186** |
| SOCIAL | | | | | | 1 | .725* | .624** | .137** |
| CIVIC | | | | | | | 1 | .749** | .146** |
| PERSONAL | | | | | | | | 1 | .138** |
| GRADE | | | | | | | | | 1 |

* Significant at .05 level (two-tailed)

** Significant at .01 level (two-tailed)

Table 3. Results of univariate multiple regression analyses

| Dependent Variable | Independent Variables | Standardized Coefficients | | Model Summary | | | |
|----------------------|-----------------------|---------------------------|---------|----------------|-------------------------|---------|---------|
| | | β | Sig | R ² | Adjusted R ² | F | Sig |
| INTELLECT (n=680) | INTEREST | .115 | <.001** | .530 | .528 | 254.606 | <.001** |
| | LEARN_EXP | .659 | <.001** | | | | |
| | MEET_REQ | -.045 | .093 | | | | |
| SOCIAL (n=680) | INTEREST | -.007 | .836 | .548 | .546 | 273.276 | <.001** |
| | LEARN_EXP | .745 | <.001** | | | | |
| | MEET_REQ | -.009 | .722 | | | | |
| CIVIC (n=680) | INTEREST | .095 | .002** | .570 | .568 | 298.493 | <.001** |
| | LEARN_EXP | .698 | <.001** | | | | |

| | | | | | | | |
|----------|-----------|-------|---------|------|------|---------|---------|
| | MEET_REQ | -.032 | .219 | | | | |
| PERSONAL | INTEREST | .025 | .490 | | | | |
| (n=680) | LEARN_EXP | .652 | <.001** | .442 | .440 | 178.753 | <.001** |
| | MEET_REQ | -.013 | .664 | | | | |
| GRADE | INTEREST | .032 | .484 | | | | |
| (n=680) | LEARN_EXP | .234 | <.001** | .076 | .072 | 18.503 | <.001** |
| | MEET_REQ | -.134 | <.001** | | | | |

** Significant at .01 level (two-tailed)

Table 4. Results of univariate ANCOVA

| Dependent Variable | Factors and Covariates | F | Sig | Partial Eta Square η_p^2 |
|--------------------|------------------------|---------|---------|-------------------------------|
| INTELLECT | INTEREST | 14.929 | <.001** | .022 |
| (n=680) | LEARN_EXP | 404.282 | <.001** | .374 |
| | PRE_ENGAGE | .441 | .507 | .001 |
| SOCIAL | INTEREST | .003 | .959 | .000 |
| (n=680) | LEARN_EXP | 553.145 | <.001** | .450 |
| | PRE_ENGAGE | 1.971 | .161 | .003 |
| CIVIC | INTEREST | 9.701 | .002** | .014 |
| (n=680) | LEARN_EXP | 509.924 | <.001** | .430 |
| | PRE_ENGAGE | 7.328 | .007** | .011 |
| PERSONAL | INTEREST | .448 | .504 | .001 |
| (n=680) | LEARN_EXP | 344.205 | <.001** | .337 |
| | PRE_ENGAGE | 2.054 | .152 | .003 |
| GRADE | INTEREST | 1.851 | .174 | .003 |
| (n=680) | LEARN_EXP | 19.841 | <.001** | .029 |
| | PRE_ENGAGE | 1.388 | .239 | .002 |

** Significant at .01 level (two-tailed)