# Quantifying the Value of Service-Learning: A Comparison of Grade Achievement Between Service-Learning and Non-Service-Learning Students

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This study evaluates whether students who participate voluntarily in a service-learning activity achieve higher learning outcomes, measured by grades, than students who voluntarily choose not to participate in service learning. Analysis is based on a study of an introductory urban studies course at a large North American research university over a four-year period. Findings indicate that, overall, students achieve higher grades as a result of participation in service learning, and additionally that females, international students, and students who are enrolled in either the Urban Studies minor program or who are non-Urban Studies students benefit most from optional participation in service learning in terms of grade achievement.

Dewey (1938), Dale (1969) and Kolb (1984)—all significant and relatively early proponents of experiential learning—are often credited with raising the profile of combining learning and doing in an academic context, as well as highlighting the role of connectivity between academic learning and community engagement as a means of teaching.

Emphasis on learning through experience in academia dates back at least many decades now to Dewey's (1938) book *Experience and Education* in which the functional role of learning through experience was highlighted, as well as the required criteria to ensure that experience and learning were connected and continuous. Dale's (1969) focus on actionable learning suggested that learning outcomes and knowledge retention are related to the ways in which knowledge is transferred to learners: the more experiential the learning, the higher the level of knowledge retention. For instance, it has been said that after two weeks, one remembers 20% of what they heard in a lecture and 90% of what they did in a demonstration on the same topic. To this day, Dale's (1969) influence continues to underlie best practices in engaged teaching, both in the form of experiential and active learning pedagogies. For instance, Revell and Wainwright (2009) note that

> the prevailing wisdom amongst pedagogic scholars now is that students do not actively listen very much at all in formal lectures, unless they are broken up with multiple rest periods and activities that help to lift attention levels back up again (p. 210).

Furthering attempts to understand how to promote active learning through connecting experience with knowledge, Kolb (1984) depicted an experiential learning cycle that connects a continuum of actions from concrete experience, reflective observation, abstract conceptualization, and active experience. Together, and in a cyclical fashion, these notions form a learning cycle in which learning by experience through feeling, watching, thinking, and doing all play a part in the promotion of learning. Kolb (1984) contended that learning should be understood as a process and not an outcome, and he defined learning as "the process whereby knowledge is created through the transformation of experience" (p. 38).

Today, experiential learning opportunities such as service learning, internships and work integrated learning are being heralded as a means of supporting undergraduate student learning by providing opportunities for students to develop transferable, functional, and practical skills. This paper focuses on a case study that attempts to quantify the impacts of service learning participation on learning by using grade achievement as a key demonstration of learning.

## Service Learning: Measuring Learning Outcomes?

Service learning is a form of experiential learning that focuses on enabling and enhancing student learning through experience, reflection and connection to academic learning. Service learning is defined in this paper as a means of promoting learning through the creation of connections between community service volunteering and academic learning, and it has been touted as a pillar of university education that has the potential to contribute to deep student learning, community engagement, acceptance and understanding of difference, and the promotion of students' future civic engagement (Astin & Sax, 1998; Astin, Voglegesang, Ikeda, & Yee, 2000; Eyler & Giles, 1999; Felten & Clayton, 2013; Keen & Hall, 2009).

In a study of student achievement and service learning, Brail (2013) concludes that service learning enables students to develop a deeper understanding of discipline-specific knowledge. For example, students that volunteer in a food bank suggest that they can learn more about the realities of inequality, hunger, and

poverty through 10 hours of volunteering than through innumerable hours spent reading or listening to lectures.

While these qualities are admirable, research on the role and value of service learning still begs the question: can the impacts of service-learning outcomes be measured and quantified? From Eyler and Giles' (1999) "Where's the learning in service learning?" to critical pieces that question the value of traditional vs. critical and reconstructive vs. deconstructive forms of service learning (Holdsworth & Quinn, 2012; Mitchell, 2008), there are numerous calls for implementing best practices in service learning as pedagogy and practice.

In part, the justification for these critiques stems from the sheer fact that many claims related to the advantages of service learning are focused on qualitative evidence, whereas there are relatively few studies aimed at measuring quantitative outcomes. Furthermore, several high quality quantitative studies of the impact of service learning are based on surveys of student perceptions of learning and measures of satisfaction associated with service learning (Kezar, 2002) rather than quantifiable outcomes that provide evidence-based proof of service learning's contribution to learning as measured by the outcome of student grades.

Furthermore, it needs to be acknowledged that using grades as a measure of student achievement and student learning remains an imperfect and potentially imprecise measurement due to challenges associated with the validity and objectivity of grading practices (Allen, 2005). Grading practices associated with service learning are often, by the very nature of service-learning pedagogy, implicitly if not explicitly focused on practices subject to potential bias, such as the assessment of narratives, reflective journals, and interviews. In addition, measurements of key types of learning frequently associated with benefits of service learning – such as the development of critical thinking skills, higher order reasoning, engagement between theory and experience, and integrative learning (Jameson, Clayton & Ash, 2013) can pose assessment challenges. This acknowledgement is intended not to suggest that grades cannot or should not be used as a measure of learning, but rather that the use of grades to measure learning is complicated by the types of learning being measured. However, this uncertainty can be mitigated through assignment design that aligns assignment objectives clearly with learning outcomes, as well as grading practices that adhere to consistency and clarity.

Studies focused on the impacts and potential of service learning to contribute to student learning from a quantitative perspective are limited. Astin and colleagues (2000) conducted an extensive longitudinal study of 22,236 undergraduate students at US-based universities that focused on both quantitative and qualitative outcomes associated with service learning.

Their findings demonstrated a positive relationship between service learning and 11 measured outcomes, including academic performance (Astin et al., 2000).

In other studies of specific service learning achievement outcomes based on studies of individual courses (Mpufo, 2007; Strage, 2004) findings suggest that student achievement, as measured by grades, is positively influenced by participation in service learning. While Mpufo's (2007) study of rehabilitation services students found that service learning did not have an impact on student mastery of course content, service-learning students achieved the greatest gains in their ability to respond to essay questions on case studies, although there was little measurable difference in service-learning students' ability to successfully respond to multiple choice test questions. Following up on an earlier study on the impacts of service learning for students in an introductory child development course, Strage (2004) found that "differences in student performance in upper division child development course work favored the 'service learning' students, although they failed to reach conventional levels of statistical significance" (p. 259). Mansfield (2011) demonstrated that mature students benefit the most from participation in a full year industrial placement in terms of grade achievement in their final year, a somewhat surprising finding given that these students likely already entered university with some work experience.

Along these lines, Kezar (2002) concluded that researchers examining traditional methods of assessment, such as grades, do not demonstrate significant improvement in achievement for service learners over non-service learners. Nevertheless, Kezar's findings supported service learning as a pedagogy that can have important and measurable learning outcomes for students, as measured by both traditional and more holistic forms of assessment (2002).

This paper presents an opportunity to explore and measure the ways in which service learning can contribute to student achievement as measured by student grades. The research reported on in this study includes an analysis of the grades of four cohorts of students enrolled in an introductory urban studies course in which participation in a service-learning module was optional / voluntary. Furthermore, in addition to examining whether voluntary participation in service learning contributes to enhanced learning as measured through grades, this study examines differences in gender, citizenship, and program of study on student grades.

**About the Course**

Introduction to Urban Studies is a second year undergraduate course offered at the University of

Toronto, a large North American research university. It is a full year interdisciplinary course in which students learn about theory and practices connected to the urban realm, including a focus on the state of urbanization around the world, industrialization, urban planning, urban form, civic engagement, inequality, and global urbanization. The course is a required course for all students enrolled in the Urban Studies Program (specialist, major and minor) and is also open to other students who meet the prerequisite of having completed the equivalent of at least four full year course credits, one of which must be in the field of either economics, geography, political science or sociology.

Students attend two hours of lecture each week for the full year, divided into two 12-week terms, as well as four hour-long tutorials focused on assisting students in preparing assignments

In the first term of the course, all students complete the same assignments and tests, and in the second term, students are asked to choose between participating in service learning or city learning. In service learning, students are placed in groups at a variety of non-profit, community-focused placements where they volunteer for 10 to 12 hours. Following their experiences, they submit a written assignment for grading in the form of a guided reflective journal. Students who select the city-learning option complete a research assignment in which they are required to examine a local neighborhood and prepare a term paper based on their research. All students, regardless of their selection of city learning or service learning, present a poster through which they highlight their research or service learning experiences during one of two in-class poster sessions. All students in the course also write a final exam at the conclusion of the course.

**Goals of Study**

An optional service-learning opportunity was implemented in this course beginning in 2008-2009. Implementation was largely based on the instructor's notion and understanding that experience provides an opportunity to learn in a way that can create a depth of learning that cannot be achieved in the classroom alone. It was also connected to the increased profile of and promotion of experiential learning by university administration.

Anecdotally, there are multiple examples of students who have participated in this service- learning opportunity that have gone on to excel in both graduate studies and in the community. For instance, one student who was placed at a food bank as part of his service learning several years ago, worked at the food bank the following year as part of a work-study arrangement, and upon graduation continued to volunteer at the food bank and shortly afterward became a member of the food bank's Board of Directors. Many other such

anecdotal examples tell the stories of ways in which participation in the service-learning opportunity have impacted students' learning and, more significantly, their lives post-graduation. In addition, a qualitative study of 31 student journals submitted as part of this course over the period 2009 to 2011 revealed that service learning promoted student development of "critical thinking and analytical writing skills related to understanding themselves and others, gained perspective on stereotyping and tolerance, and in large part described a greater connection to civic engagement by the end of their service learning" (Brail, 2013).

However, there remains limited quantitative support to confirm these and other findings (Astin & Sax, 1998; Keen & Hall, 2009; Markus, Howard, & King, 1993; Mpofu, 2007; Shastri, 2001; Strage, 2000; Strage, 2004; Wittmer, 2004; Wurr, 2002) related to understanding the potential learning impacts of service learning. This study therefore aims to answer the question: does service learning impact student achievement as measured by student grades? The study is based on four years of student data and records from the course, combined with data on gender, citizenship and subject POSt. Subject POSt defines programs of study at the university: students have the choice of enrolling in a combination of specialist, major or minor programs. Urban Studies is a subject POSt that includes each of these three program options. As such, this study presents an opportunity to definitively understand whether, and under what circumstances, service learning contributes to student learning, as measured by student grades.

**Method**

The service-learning opportunity has been offered as part of the course since the 2008-2009 academic year and has operated yearly with the exception of 2011-2012 when the instructor was on sabbatical. This study therefore includes student data from the following years: 2008-2009, 2009-2010, 2010-2011, and 2012-2013.

Table 1 identifies the number of students in the class each year, as well as a breakdown of students by number and percentage who selected service learning and those who selected the alternative city-learning option. Based on course enrolments of between 82 and 86 students each year, student participation in the service-learning option ranged from just over 45% in 2012-2013 to nearly 70% in 2010-2011.

A total of 343 students completed the course during this four year period. One student was removed from the database prior to analysis due to an incomplete final grade that had not been resolved at the time of data collection. Four additional student records were removed from the database as outliers. These four students either received final grades of 25% or lower in

Table 1
*Course Enrollment: Service-Learning and City Learning*

| Year | Total Enrollment | Service-Learning | City-Learning |
|------|------------------|------------------|---------------|
| 2008-2009 | 84 | 40 (47.6%) | 44 (52.4%) |
| 2009-2010 | 86 | 56 (65.1%) | 30 (34.9%) |
| 2010-2011 | 82 | 57 (69.5%) | 25 (30.5%) |
| 2012-2013 | 86 | 39 (45.3%) | 47 (54.7%) |
| Total | 338 | 192 (56.8%) | 146 (43.2%) |

the course and/or did not complete the final exam. This results in a total analysis of 338 student records, with 192 (57%) participating in service learning and 146 (43%) participating in city learning over the four-year period under study.

**Assignments**

Throughout the first term, the work submitted by students varied somewhat from year to year; however, in each year the first term assignments included the submission of at least two written pieces of work, and in all years with the exception of 2008-2009, the students completed a mid-term test. In every year, the total proportion of the grade earned during the first term equaled 40% of the student's total grade for the course. In order to compare achievement across all four years, a summary of all grades earned in the first term was calculated.

Assignments for the second term in all four years were weighted in the same way and consisted of the same assignments. Over the four year period, some changes were made to accepted research topics in the city-learning assignment and details about the service-learning assignment that were shared with students were altered slightly over time. Second term assignments included a written component that was worth 15% of the final grade and a poster presentation worth 10% of the final grade. The written assignment was comprised of an eight page research paper for city-learning students and an eight-page reflective journal for service- learning students. Clear and specific criteria for each assignment were communicated to students by means of an in-class discussion as well as a detailed assignment guidelines document describing the tasks involved and format required for each assignment.

Students selecting the city-learning assignment were tasked with studying a particular problem (i.e., inner suburban challenges or opportunities) in a specific neighborhood of their choice. Students were required to demonstrate that they had visited the neighborhood to make observations and take photos to introduce their topic of study, to connect their neighborhood-based research to a broader literature review using both scholarly and non-scholarly materials, and to identify how the neighborhood under study connected to the broader literature and discussion on the particular topic or problem.

In the service-learning assignment, students were informed that the assessment of their journal would be based on their ability to successfully demonstrate their learning as a result of their participation in the service-learning option. Reflective journals were graded based on the students' ability to successfully follow the required structure of the assignment, connect service to learning, develop their reflections based on connections with academic literature, include relevant theoretical links in APA format, and demonstrate critical reflection based on experiences, observations and reflection.

While there were obvious differences between the written assignments, most notably the introduction of personal experience and perspectives in the service-learning journal, both assignments required students to demonstrate strong writing and communication skills, clear knowledge of literature and theory, the ability to create connections between observations/experiences and literature, and critical thinking.

The poster assignment was similar for both groups of students – students were tasked with creating a poster that described either their research or service learning, and all students were required to participate in an in-class poster session during which their posters were evaluated by course teaching assistants and instructors. One difference in the poster assignment was that service-learning students were permitted to work in groups to develop and present their posters, whereas city-learning students presented their posters individually. The reason for this difference relates to the group element of the service-learning placements. City-learning students did their research individually and therefore were required to present their work individually. Working as a group may provide benefits to students who might otherwise have created weak posters, if they were placed in a group in which a highly capable student(s)

contributed a greater share of effort towards the poster preparation. However, group work can be notoriously tricky and while in some cases students may benefit from being placed with high achieving peers, in other cases students feel penalized by being placed with a group in which the dynamics do not contribute to a well-conceived output. It is also for this reason, and to provide some degree of autonomy for students, that service-learning students are given the option of presenting their posters either individually or as a group.

In terms of support for preparing assignments, all students in the course were invited to participate in an optional, hour-long tutorial to discuss the requirements of the written assignment as well as a second tutorial in which the focus was on helping students to prepare for their poster presentation. Students were divided into tutorials based on their selection of either service or city learning. All assignments were graded by two course teaching assistants, with oversight from the instructor. The teaching assistants were tasked with grading a portion of both the research papers and the reflective journals. With the exception of the written assignment in the second term, all students in the course completed the same assignments and were graded under the same conditions.

Students completed an exam at the conclusion of the course that was valued at 30% of the final grade. The exam consisted of a variety of short answer keywords and longer answer essay and article / map analysis questions; there were no multiple choice questions on the exam.

Additionally, students were assigned a participation score worth 5% of their total course grade. The participation score essentially rewards students for being present in class at five random dates throughout both the first and second terms of the course. In order to earn 1% of their final grade at each random participation day, students respond to a question posed during the lecture, and submit a written response to the instructor during class time.

### Data Collection and Analysis

A database was created for each of the four years that included the following information:

1) Student name and student number;
2) Participation in service-learning (1) or city-learning (0);
3) Grade at mid-term point /40;
4) Second term written assignment /15;
5) Second term poster assignment /10;
6) Grade on final exam /30;
7) Participation grade /5;
8) Final grade /100.

The database was then sent to the Office of the Faculty Registrar in the University's Faculty of Arts and Science for the addition of the following information for each student: 1) gender, 2) subject POSt, and 3) citizenship. It should be noted that information on subject POSt / program of study was captured at the time of data collection (ie: Fall 2013) and not at the time of student enrollment in the course. The Faculty of Arts and Science Registrar also then randomized the order of the student data, removed all personal identifiers including student name and student number, and returned the database to a research assistant working with the author.

### Results

The results presented below for grade achievement are based on four key comparisons: 1) service-learning and city-learning students, 2) female and male students, 3) international and non-international students, and 4) students enrolled in the specialist, major, minor and non-Urban Studies students.

### Service vs. City

Students were divided into two groups: 1) those who participated in the service-learning activity and 2) those who participated in the city-learning activity. Grades were reported based on final grades as well as the individual components that comprised the final grade.

As all students completed the same assignments during the first term of the course, the results demonstrate student grade achievement prior to student selection and participation in either service-learning or city-learning. Mean grades at the mid-year point, prior to the selection of service-learning (n = 192) or city-learning (n = 146) demonstrate that there was no statistically significant difference in grades at the mid-year point between service-learning (mean = 72.1%, SD = 3.14) and city-learning students (mean = 71.7%, SD = 2.54) (p = 0.56).

In contrast, students who participated in service-learning achieved statistically significant higher final grades as compared to those who selected city-learning (75.1% vs. 73.1%, p = 0.002).

Further analysis of individual second term assignments demonstrates statistically significant findings in favor of service-learning student grade achievement in all second term assignments, with the exception of the final exam (see Table 2).

### Gender

Female students (n = 183) achieved a mean final grade of 74.7% which was not significantly different (p

Table 2
*Grade Achievement Breakdown*

| Grading | Service-Learning n=192 | | City-Learning n=146 | | p value |
|---|---|---|---|---|---|
| | M | SD | M | SD | |
| Prior to Selection | | | | | |
| Mid-year grade / 40 | 72.1 | 3.140 | 71.7 | 2.54 | 0.560 |
| After Selection | | | | | |
| Paper /10 | 75.1 | 1.480 | 72.1 | 2.12 | 0.021 |
| Poster /15 | 85.2 | .630 | 78.4 | 1.39 | 0.001 |
| Participation / 5 | 93.6 | .597 | 83.2 | 1.06 | <0.001 |
| Final exam / 30 | 72.2 | 2.210 | 71.7 | 2.14 | 0.545 |
| Final grade /100 | 75.1 | 5.580 | 73.1 | 6.29 | 0.002 |

Table 3
*Subject POSt*

| | Specialist and Major | | | Minor | | | Not Urban Studies | | | No Program | | | P value |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | M | SD | n | M | SD | n | M | SD | n | M | SD | n | |
| All students | 75.1 | 4.67 | 150 | 74.7 | 5.41 | 112 | 70.5 | 7.03 | 73 | 67 | 13 | 3 | <0.001 |
| Service-learning | 76.5 | 4.56 | 97 | 75.0 | 5.71 | 64 | 71.8 | 6.83 | 30 | 67 | n/a | 1 | <0.001 |

0.11) than male students (n = 155) who achieved a mean final grade of 73.7%.

Within service-learning, there was a non-significant trend towards females (n = 116) having a higher mean final grade compared to males (n = 76) (75.8% vs. 74.2% respectively, p = 0.052).

**International and Canadian Student Grade Achievement**

Of the 338 students enrolled in the course during the study period, 67 or 19.8% were international students, somewhat higher than the proportion of international undergraduate students at the university overall. In Fall 2014, 17.5% of undergraduate students at the university were identified as international students (University of Toronto, 2014). Twenty two percent of students participating in the service-learning option were international students, and those students achieved an average final grade of 72.9% (n = 43), which was lower than the overall average final grade for all service-learning participants of 75.1% (n = 192) and higher than the average final grade of 72.1% for all international students (n = 67).

**Enrollment by Subject POSt**

Table 3 presents results for student grade achievement in the course based on subject POSt data. For all students in the course, regardless of whether or not they participated in service learning or city learning, students with an Urban Studies Program subject POSt achieved statistically significant higher final grades than those who were not enrolled in the Urban Studies Program subject POSt. For both service-learning and city-learning students, there is a regressive relationship between final grade achievement in the course and student enrollment in the Urban Studies Program.

## Discussion

### Service vs. City

The data shows that final grades of students who participated in the service-learning opportunity achieved an average of a full grade higher (B instead of B-) at the end of the course in comparison to students who participated in the city-learning option. Looking at each grading component in the second term presents a nuanced picture of the ways in which service-learning students demonstrated greater learning and ultimately higher achievement than their city-learning counterparts. In all graded elements of the course with the exception of the final exam, students who participated in the service-learning option achieved higher grades than those who participated in the city-learning option.

Furthermore, across all components of the grade in the second term (with the exception of the final exam) the standard deviation was larger in the city-learning group than in the service-learning group. Anecdotal evidence suggests that this may be the case because groups of students at both the top and bottom levels of the grading spectrum select the city-learning option, albeit for different reasons. Some high achieving students select the city-learning option because they would prefer to gain additional research experience and might not directly connect the concept of service-learning to academic learning—it is a conscious decision. The service-learning option requires high levels of student organization, time management and focus far in advance of the assignment due date. This may dissuade some students at the lower end of the grade spectrum from choosing this option.. While these are, admittedly, generalizations and do not apply across the board to all students, they may nevertheless help to explain the more dramatic variation in standard deviation amongst the city-learning group.

An underlying question related to the finding that service-learning promotes academic learning is as follows: do students who choose to participate in service-learning demonstrate greater academic achievement as a result of participation in service-learning, or is it the case that brighter, higher achieving students select service-learning in the first instance?

As the choice between service-learning and city-learning is optional within the course, and given that this research demonstrates significant differences in achievement between service-learning and city-learning students, it is important to test whether some of this difference might be related to student strengths in the course prior to the selection of either service or city-learning in the second term.

In order to rule out the argument that higher achieving students are selecting the service-learning option, we looked at mid-year grades to ascertain whether it is not the service-learning that is leading to enhanced learning outcomes, but rather the self-selection of students. Analysis of data demonstrates that there is no significant difference between achievement at the mid-term point for students who selected the different options, regardless of whether one examines the average or the mean.

The participation grade is measured at five random dates throughout the full course where, one each occasion, students had the opportunity to earn a one percent grade by responding to a question in lecture and submitting a written answer to the instructor during class. Based on this measure, achievement among service-learning students was greater than amongst non-service-learning students. In addition to higher achievement, the participation grade is also a proxy for class attendance, thus demonstrating that students who participated in the service-learning option had greater attendance levels than those who participated in city learning. This finding is especially significant in the context of this study as it is an objective measure of achievement that does not vary based on grader bias or subjectivity, and yet it shows significant differences in achievement for service-learning students.

One somewhat surprising finding relates to the lack of statistical difference in student achievement on the final exam. In earlier studies, (e.g., Mpofu, 2007), it has been found that service-learning leads to higher grade achievement when testing is in the format of essay answers as opposed to multiple choice. The final exam in the course is based on a variety of answer formats, including keywords, article analysis, short answer essay and longer essays. This finding deserves further future attention to understand the manner in which service-learning does and does not contribute to higher achievement on final exams.

### Gender

Previous studies have identified a gender imbalance in service learning, with Astin & Sax (1998, 253) indicating that "being a woman" was identified as a predisposing factor to predicting participation in service-learning. The findings of this study indicate that females tend to dominate service-learning opportunities with 60% of service-learning participants from this study being female. This female participation rate is notably also higher than the proportion of total females to males enrolled in the course (54% female, 46% male).

While achievement by gender as measured by final grade is not significant, when achievement in service-learning is taken into consideration, a strong significant trend is evident with female students participating in service-learning obtaining an average grade of 75.8% while male students achieve an average grade of 74.2%.

## International and Canadian Students

Data also provided insight into whether there were differences in achievement between Canadian citizens and international students. Of note, the proportion of international students that participated in the service-learning option was significantly higher than the proportion of Canadian students that participated. Whereas 55% of all Canadian students selected service-learning, more than 64% of international students enrolled in the course selected the service-learning option. Though it was not a goal of this study to understand how service-learning uptake by students might be differentiated through citizenship, it is an important finding that could be addressed in future research. This finding might suggest that service learning offers an opportunity for international students that is valued above and beyond a traditional class curriculum.

Furthermore, service-learning opportunities tend to value diverse language skills which international students may possess, and at the very least, generally do not discriminate against students for whom English may not be their first language. Finally, for students who are limited by their status in Canada in terms of off-campus employment, service-learning offers an opportunity for these students to obtain experience outside of campus in a way that may otherwise not be easily available to them. International students are eligible to work off campus; however, they must take the additional step of applying for a Social Insurance Number at a Service Canada office in order to be eligible to accept paid work.

In terms of the impact of service-learning participation on international student grades, the findings are more reserved. While not statistically significant, results demonstrate that the course average for international students increased from 72.1% to 72.9% for those who participated in the service-learning option. Furthermore, the mean final grade achieved by international service-learning students in the course was equal to a B, whereas the mean final grade for international city-learning students was a B-.

## Enrollment by Subject POSt

It might be expected that students enrolled in the Urban Studies Program would achieve strong results in Urban Studies courses for several reasons: first, Urban Studies is a relatively small program at the university with approximately two hundred students enrolled at any one time (across second, third and fourth year and beyond) and students who seek it out tend to have a very keen interest in cities; second, as a program in which admission is selective, students enrolled in the program already have to demonstrate a relatively high achievement in first year courses as admission is limited to those who have a minimum grade of 72% in a selection of first year courses.

One limitation of the study data is that information on subject POSt was captured at the time of data collection (i.e., Fall 2013) and not at the time of student enrollment in the course. It could therefore be hypothesized that some students who did not do well in the course may have chosen to switch their focus away from Urban Studies in subsequent years, or they may have elected not to enroll in the subject POSt after expressing an initial interest, while those who excelled may have elected to apply to the specialist program which can only be entered upon completion of the Introduction to Urban Studies course, or to the major program.

While it is somewhat disheartening to find that students who are not enrolled in an Urban Studies subject POSt perform less well in the course overall (average course grade of 70.5% as opposed to 75.9% for majors and specialists and 74.7% for minors) the data does demonstrate that participation in service-learning for non-Urban Studies students has statistically significant and demonstrable benefits where grades are concerned. While the average course grade for non-Urban Studies students was 70.5%, students without an Urban Studies subject POSt who selected service-learning achieved a course average of 71.8%. This represents the difference between a final grade of C+ and B-. Participation in the service-learning option provides a clear benefit to non-Urban Studies students in terms of grade achievement.

Achievement for Urban Studies majors and specialists is also impacted by service-learning participation. For majors and specialists of the Urban Studies Program, service-learning participation in the course raises the average final grade from 75.9% to 76.4%.

Astin and colleagues (2000) attribute some of the positive impacts associated with service-learning to the role that increased interaction with their peers, as well as with faculty, can provide. This explanation may also help to underscore the achievement benefits found in this study for all participants, and particularly for non-Urban Studies students as well as international students who have a heightened opportunity to engage in discussion and interactions with classmates, community members, and supervising faculty through participation in the service-learning option.

## Conclusion

This study quantifies the impact that participation in service-learning can have on undergraduate student grade achievement. The data demonstrate that participation in service-learning results in statistically significant student achievement as measured by student grades. Furthermore, the effects of grade achievement

are especially pronounced for females, international students, and non-Urban Studies students. This study represents data on grade achievement as a result of participation in service-learning from a novel perspective by highlighting the potential impacts that service-learning participation can have on grade achievement for various groupings of students according to gender, citizenship, and program of study.

While this study is specific to undergraduate students enrolled in an Urban Studies course, the findings are consistent with other interdisciplinary and discipline-specific studies, particularly as they relate to the role of service-learning in highlighting gains in student achievement. Furthermore, the application of service-learning as a means of promoting deeper subject-based learning and critical thinking is believed to be responsible in part for the higher grades achieved by service-learning participants. The results presented here support the findings of previous studies conducted across a variety of disciplines that also emphasize higher achievement for service-learning students (Astin et al, 2000; Mansfield, 2011; Mpufo, 2007; Strage, 2004).

The findings presented here suggest that from a policy and administration perspective, we need to understand more about how service-learning participation is relevant and possibly beneficial to different groups of students in terms of grade achievement. For instance, how can and should information about the value of participating in service-learning for international students (a growing and much-desired cohort at many Canadian universities) and students who are not enrolled in a particular program of study be shared to the benefit of both students and community partners that make service learning possible while at the same time ensuring that the quality of the service-learning initiative and adherence to best practices is not diluted?

In addition, this study does not tell us how or why international students and students studying outside the field of Urban Studies managed to achieve higher learning outcomes than their peers as a result of their participation in service learning. One might surmise, however, that perhaps it was the role of group work and enhanced opportunities for interaction with peers and others outside the classroom that helped lead to higher achievement.

This study suggests that a detailed classification of students is relevant to understanding the relationship between service-learning and student achievement. Knowledge about the differential effects of service learning based on demographic and citizenship features presents a new lens through which to examine the potential impacts and benefits of service-learning. Eyler (2000) has insisted that service-learning research needs to focus not only on the outcomes of service-learning for students but also on ways in which educators can improve service-learning outcomes from an academic standpoint. Kezar (2002) echoed these sentiments in her call for examining service-learning outcomes by focusing on forms of assessment that are holistic and capture the full range of learning that may ensue as a result of a service-learning pedagogy. This research attempts to contribute to both of these calls by breaking down student grade achievement and providing a finer grained analysis of both participation in service-learning and achievement as a result of the optional selection of service-learning in a multi-format course. Along these lines, it is apparent that further conversation and exploration about who participates in service learning, why, and to what outcomes is warranted.

Finally, it should be noted that while grades are certainly an important measurement of the value of service-learning as an experiential learning activity to students, educators and university administrators, they remain only a part of the value of service-learning initiatives. In short, assessment of grades may demonstrate student learning, and improved student grades as a result of service-learning may contribute to students' future success in academic and postgraduate endeavors; however, higher grade achievement is also largely irrelevant from a learning perspective if it does not also go hand in hand with students' abilities to develop deep connections through critical and reflective experience alongside connection and relevance to service-learning partners.

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