

# Service Learning Enhances Retention Rates of WSU Undergraduates, Especially Students of Color

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## ABSTRACT

Service-learning can help students connect with peers and the community at large and influence academic success and retention. BIO 102 enrolls about 1200 students annually, mostly first-year students, thus providing opportunity for a controlled study of the effects of service learning on academic success and retention. The Center for Civic Engagement (CCE) partnered with Biology 102 in AY18 and AY19, with half of the lab sections incorporating service-learning experiences - structured community-based projects organized by the CCE, including orientation and reflection - while the other half proceeded with the traditional curriculum. Statistical analysis comparing overall grade earned in BIO 102, overall GPA, and retention to the subsequent academic year between the randomly assigned control and CCE groups showed a single service earning experience improved both grades and retention. Comparisons were performed separately for each of four cohorts: Fall 2017 (N=599), Spring 2018 (I=418), Fall 2018 (N=701), Spring 2019 (N=446). Service-learning students had significantly higher grades for BIO 102 among three of the four cohorts (p<0.05). The service-learning group also had significantly higher overall GPA during the semester they took the class among three of the four cohorts (p<0.05). Additionally, higher retention rates of students who completed service-learning projects was seen for the Fall 2017 (81% and 75%, respectively) and Spring 2019 (91% and 86%, respectively) cohorts. These differences were especially pronounced among vulnerable sub-populations of First-Gen and students of color. Following these students longitudinally to graduation would provide insight into longer-term benefits of service-learning.

## BACKGROUND

Success in college requires substantial commitments of emotion, time, and money. That higher education can do better in encouraging both emotional security and intellectual effort is evidenced by disappointing six-year graduation rates for first-time, full-time students both nationally (60%) and at WSU (62%). At least in part, this stems from failure to retain first-year students, resulting in a lower than desired transition to the sophomore year (Stewart et al. 2015). At WSU, approximately eight out of every 10 first-year students stay to become sophomores. We clearly need to implement additional, evidence-based strategies to enhance rates of both retention and graduation.

Engagement in diverse aspects of college life can increase the likelihood that first-year students are retained (Kuh et al. 2006), and service learning (SL) is one form of engagement (Bringle et al. 2010). SL aims to connect students to their academic interests, and provide opportunities to connect with peers and the community at large (in our study, both WSU specifically and the Palouse more generally). Together with structured reflection, SL also aims to provides opportunities for students to further develop organizational and interpersonal skills (Bowen 2010). National data show that connectedness can enhance retention rates, as well as increase resiliency and social agency (Cress 2012). Here we provide the first evidence that a single SL experience can enhance academic performance and first-year retention rates for WSU students, especially those belonging to the vulnerable sub-population of students of color.

## METHODS

### Design

We conducted a semi-randomized blind controlled study of the impact of SL on retention rates of a diverse population of first-year students. enrolled in BIOLOGY 102, a large UCORE-BSCI class offered both Fall and Spring semesters. Students were tracked in four cohorts based on the semester they enrolled in BIOLOGY 102: Cohort 1 = Fall 2017 (N = 599 Cohort 2 = Spring 2018 (N =418); Cohort 3 = Fall 2018 (N = 701), and Cohort 4 = Spring 2019 (N = 446). Students in each cohort were assigned to one of two treatment groups based on their lab section. Neither control nor experimental students were informed that they were participating in a research study on academic performance and retention. Students in the control group completed a standard set of lab exercises. In the experimental group, one lab was replaced by a SL experience coordinated by the Center for Civic Engagement (CCE). Students were free to choose their own SL projects, few of which were connected to the subject content of the class. A typical project involved a commitment of about 3 hours, and involved interactions with peers and other community members. Upon completion of their projects, students were required to reflect on the meaning of the experience given their personal values, and how their values influence their future goals.

### Analyses

Data were extracted from class records, and databases maintained by the CCE and Institutional Research. Analyses were conducted first among the full sample of students per cohort and then repeated by including only first-year students. In each case (full sample, first-year students only), we also repeated the analyses by restricting the sample to include only those experimental group students who completed the SL component (i.e., “compliers”). Students assigned to the experimental group who did not complete the SL component (i.e., “non-compliers”) were excluded in these analyses. All analyses are reported separately for each of the four cohorts. We used t-tests of independent sample means to compare within-semester academic performance outcomes. Logistic regression models were used to examine retention outcomes.

## RESULTS

### Academic Performance

Students who completed SL earned significantly higher end-of-semester class grades in three of the four cohorts (Table 1; p < 0.05). In addition, SL students earned significantly higher end-of-semester GPAs in three of the four cohorts (Table 2; p < 0.05).

TABLE 1. End-of-semester grades (out of a maximum of 100%) for control and SL students in each of the four cohorts. NS = no significant difference.

	Cohort 1 (Fall 2017)	Cohort 2 (Spring 2018)	Cohort 3 (Fall 2018)	Cohort 4 (Spring 2019)
Control	80.61	75.64	84.11	74.41
SL	81.29	78.63	85.45	79.68
	p < 0.05	p < 0.05	NS	p < 0.05

TABLE 2. End-of-semester GPAs (out of a maximum of 4) for control and SL students in each of the four cohorts.

NS = no significant difference.

	Cohort 1 (Fall 2017)	Cohort 2 (Spring 2018)	Cohort 3 (Fall 2018)	Cohort 4 (Spring 2019)
Control	2.87	2.70	3.08	2.66
SL	2.99	2.88	3.10	2.91
	p < 0.05	p < 0.05	NS	p < 0.05

A single service-learning experience is enough to increase grades, GPA, and retention in first-year students



## LITERATURE CITED

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### Within-Academic Year Retention

Within-year retention from fall to spring semester was examined for Fall 2017 and Fall 2018 cohorts. There were no statistically significant differences in within-year retention between the experimental and control groups, regardless of sample used (full sample, first-year students only, and compliers only).

### Between-Academic Year Retention

#### ‘First-Year First Semester’ To ‘Second-Year First Semester’

For Cohort 1 (Fall 2017), there was significantly higher retention to Fall 2018 among the SL compliers compared to the control group (82% vs. 75%, respectively; p < 0.05). As shown in Fig. 1, this difference was even more pronounced when comparing students of color to white students. The retention rate among students of color assigned to the control group was 67%. In contrast, the retention rate among students of color in the SL compliers group was 82%, the same rate as white students.

Although of smaller magnitude and not statistically significant, there was a similar pattern for Cohort 3 (Fall 2018), in which 85% of SL compliers were enrolled at the beginning of the Fall 2019 semester, compared to 81% of students assigned to the control group.

#### ‘First-Year Second Semester’ To ‘Second-Year First Semester’

For Cohort 4 (Spring 2019), significantly higher retention rates to Fall 2019 were found when comparing all first-year students and first-year SL compliers to the control group. Among all first-year students, 93% of SL students were enrolled at the beginning of the Fall 2019 semester, compared to 84% of students assigned to the control group (p < 0.05). An identical difference in retention rates was found for first-year SL compliers and students in the control group (93% vs. 84% respectively; p < 0.05).

There were no significant differences among any of the groups in Cohort 2 (Spring 2018) when comparing retention rates to Fall 2018.

## Retention from Fall 2017 to Fall 2018

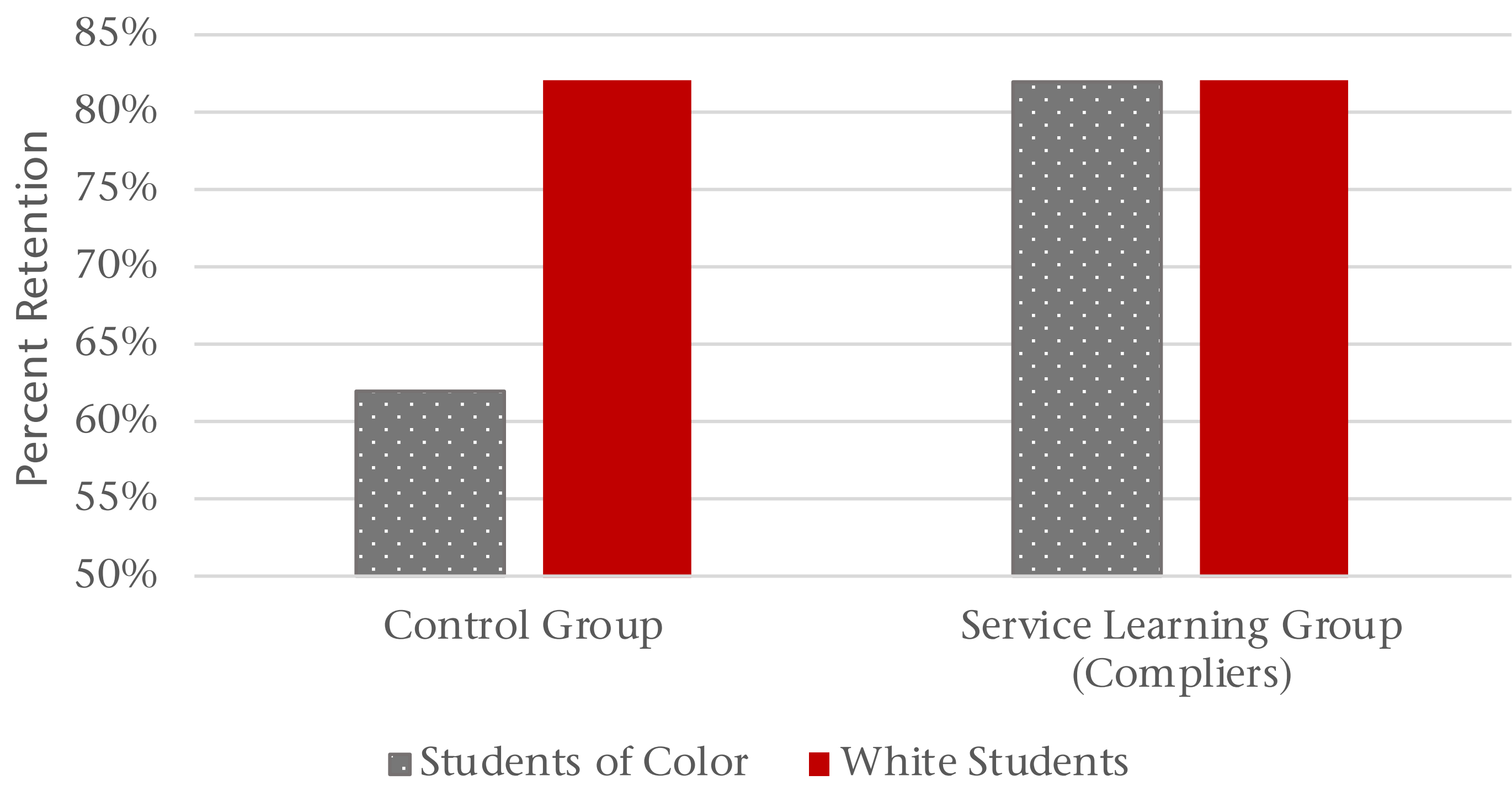


FIGURE 1. Retention rates for control students and SL compliers from Fall 2017 to Fall 2018. As reported in the text, retention was significantly higher in SL compliers than students in the control group for students of color (p < 0.05).

## DISCUSSION

Our study clearly supports the value of providing first-year students with even just one SL experience. Relative to controls, students who completed a SL project achieved higher academic performance, with end-of-semester class grades 9.7% higher and a 9.9% boost in end-of-semester GPAs. In addition, fall-to-fall retention was 9.3% higher for SL than for control students.

Of course, retention is necessary for an increased likelihood of timely graduation, academic deficiencies notwithstanding (e.g., a cumulative GPA below 2.0). It would be most instructive to follow our students longitudinally into the future to test for longer-term benefits of SL.

Some sub-populations of first-year students may be more vulnerable to attrition, especially if their families/communities have little or no history/tradition of college attendance (e.g., Petty 2014). We partitioned our total data set in order to compare control and experimental students who identified as students of color, largely Latinx. We note that many of these students also are First-Gen. For Cohort 1 (Fall 2017), students of color in the SL group showed first- to second-year retention rates that were 15% above those of peer students of color in the control group.

We find this to be a remarkably strong effect for such a small and simple intervention, and it provides strong support for the inclusion of SL opportunities into existing First-Year programs, or as components of early and near-universal classes such as ENGLISH 101 and HIST 105. Doing so will require allocation of resources to support the infrastructure required for offering SL on a larger scale. Nevertheless, our data indicate that such investment can benefit the academic performance and retention of all first-year students, including students of color who are among the most vulnerable to attrition.

## ACKNOWLEDGMENTS

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