

Does Service Learning Help Students Succeed?

Assessing the Effects of Service Learning at California State University-Fresno

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Through Service Learning, students learn while serving the community. This “ educational approach ties relevant community service to academic content and uses critical reflection activities to strengthen learning and developmental outcomes” (www.csufresno.edu/sl/). Studies have shown (Astin, et.al., 2000; Eyler, et.al., 2001) that Service Learning (SL) helps students improve their academic performance, build leadership skills, strengthen their sense of community, gain professional and career advantages, foster personal development, and cultivate a lifelong civic and service ethic.

At Fresno State, “engaging with the region” is one of our strategic goals. Adopting effective teaching methods is a goal in our Academic Plan. SL is one of the means by which engagement and active, experiential learning (known to be effective teaching methods) are achieved. Since 2005-06, the number of SL classes has grown from 124 to 160 in 2007-08. The number of students participating increased from 3,660 to 3,774. Approximately 10% of 2007-08 Fresno State graduates completed a SL course. The university has supported SL since the early 1990s. In 2007, Fresno State received a \$3.5 million donation to launch the Jan and Bud Richter Center for Community Engagement and Service Learning to continue and expand those activities.

So, more faculty members are using SL. More students are participating. And the university and Fresno community are supporting this method of teaching and learning. But does SL show positive effects for Fresno State students?

To find out, this study examined student demographic and academic preparation characteristics, persistence and graduation rates, time-to-degree, grades, course withdrawal rates, and survey responses to personal growth and job-related skills development for students who participated in SL courses and those who did not participate in SL courses.

Methodology

This research design includes three components: 1) a comparison of demographic and academic preparation characteristics of SL and non-SL students and their success as measured by persistence and graduation rates and time to degree. In addition to providing an overall picture of SL students, the demographic and preparation characteristics were used as control variables to aid in isolating the effect of SL on the success measures. 2) Courses with SL and non-SL sections were analyzed for differences in grades and passing and withdrawal rates for SL and non-SL students. 3) Student responses to the personal growth and job-related skills items on the 2007 National Survey of Student Engagement (NSSE) were compared for SL and non-SL students to determine the extent of Fresno State’s contribution to their learning in these areas.

Although undergraduates enroll in SL courses at all student levels (freshmen, sophomore, junior and senior), this research focuses on freshmen and seniors in order to determine if SL effects differ for students early in their college life and when they are nearing completion. Five cohorts, or time periods, were analyzed individually and combined. Examining multiple cohorts separately offers a way to determine the stability of the effects from year to year. When a trend or changes in a pattern are evident, they can serve as a pointer to a program manager to review the program for changes that may have produced the differential effect. Such changes, as well as inconsistent findings across time, can prompt researchers to explore more deeply. (See Appendix A for technical details.)

Findings

Demographics and Academic Preparation

Overall Patterns

In order to provide a broad picture of the differences between SL and non-SL students at Fresno State, Table 1 in Appendix B details the demographic and preparation characteristics of students in each of the five Fall semesters in this analysis. SL students are slightly more likely (58%) than non-SL students (54%) to enter as freshmen than as transfers. SL students are substantially more likely than non-SL students to be female (67% to 53%, respectively) and a little more likely to be White (39% to 36%, respectively). Overall, SL students are a little more likely than non-SL students to need Math remediation (53% to 49%, respectively) and their SAT Scores are a little lower.

Freshman and Senior Study Populations

Unlike the overall pattern of differences between SL and non-SL students, SL freshmen are no more likely than non-SL freshmen to need Math remediation (Appendix B, Table 2). They are less likely than non-SL students to need English remediation. Like the overall pattern, they are more likely to be female and White, but unlike the overall pattern SAT Scores are equivalent. It should be noted that this group includes all freshmen, not just first-time freshmen. Therefore, a small percentage is transfer students.

For the population of seniors, there is no racial/ethnic difference between SL and non-SL groups but again SL students are much more likely than non-SL students to be female (Appendix B, Table 3). Both SL and non-SL groups accumulated the same average number of units with an equivalent cumulative GPA. A large majority of both SL and non-SL seniors entered as transfers rather than new freshmen. There is little difference between the percentage based on SL and non-SL status, but this does differ from the overall pattern in which new freshmen and new transfers are more evenly distributed (Appendix B, Table 1). This would be expected given that most of our incoming transfers are upper division students and taking into account attrition of entering freshmen during the first and second years. Because SAT Score and High School GPA is not reported for most transfer students, these data in Appendix Table 3 reflect that portion of seniors who entered as new freshmen. For this subset, the SL group was more likely to need Math remediation than the non-SL group (reflecting the overall pattern) and SAT Scores were higher for the non-SL group than the SL group (also reflecting the overall pattern). It may be worth noting that the overall SAT Scores for both groups of seniors are higher than the overall SAT Scores for both groups of freshmen (reflecting the importance of preparation on academic success).

Graduation, Retention, Persistence, and Time to Degree

This component of the study examines freshmen and seniors to determine whether SL affected these success measures. For freshmen, the analysis included one-year persistence after taking an SL class, time to degree, and four-year and five-year graduation rates. For comparison, these same rates were analyzed for non-SL freshmen enrolled during the same semester. These freshmen were tracked across the entire analysis period and never enrolled in an SL class. For example, the Fall 2003 freshmen were tracked through Fall 2008, the most recent semester utilized in this study. If they had never taken an SL class, they were categorized as non-SL.

For seniors, success measures include graduating within one year after taking an SL class (one-year graduation rate), one-year persistence after taking the SL class if not graduated, and time to degree. The non-SL seniors are seniors who were enrolled in the same analysis semester as SL seniors but had never taken an SL class. The same SL and non-SL classification method was used for seniors as for freshmen, except both backward and forward tracking across time was necessary to assure that the non-SL seniors had never taken an SL class.

Freshmen SL and Non-SL Differences

Freshmen who took an SL class had higher 4-year and 5-year graduation rates than non-SL freshmen (Table 1.1), even when controlling for new student type at entry, EPT and ELM Status, gender and ethnicity (Table 1.2). However, when High School GPA and SAT Math and Verbal Scores are added to the model, the effect of SL is no longer evident on 4-year graduation, indicating that preparation is a stronger influence than SL (Table 1.3). For the single 5-year cohort in this analysis, the SL effect still shows (Table 1.3) but it is not quite as strong (as evidenced by a slightly lower odds ratio in Table 1.3 than in Table 1.2).

Table 1.1 Graduation Comparison for Freshmen*

	Fall 2003	Fall 2004	Overall
Four-year graduation rate (percentage of students who graduated in 4 years after taking SL classes and NSL enrolled in same semester)			
NSL	17.6%	17.2%	17.4%
SL	19.3%	22.1%	20.8%
Five-year graduation rate (percentage of students who graduated in five years after taking SL classes)			
NSL	30.9%	NA	30.9%
SL	37.7%	NA	37.7%

* Only includes Fall 2003 and 2004 cohorts for four-year graduation rates and Fall 2003 cohort for five-year graduation rate to allow for sufficient time for students to graduate.

Table 1.2 Effect of Service Learning on Graduation

	Fall 2003	Fall 2004	Overall
	Odds Ratio	Odds Ratio	Odds Ratio
Graduation (Odds of students graduating in four or five years after taking Service Learning courses, the reference group is NSL)			
Four-year graduation			
All Freshmen	1.164	1.391**	1.336***
Five-year graduation			
All Freshmen	1.392***	NA	1.392***

Note: Logistic regression is applied to determine the significant difference in graduation between SL students and Non-SL students. Control variables include new student type at entry, EPT status, ELM status, gender and ethnicity. *, ** and *** mean the effect is significant at the level of 0.1, 0.05 and 0.01, respectively.

Table 1.3 Effect of Service Learning on Graduation

	Fall 2003	Fall 2004	Overall
	Odds Ratio	Odds Ratio	Odds Ratio
Graduation (Odds of students graduating in four or five years after taking Service Learning courses, the reference group is NSL)			
Four-year graduation			
All Freshmen	1.035	1.146	1.108
Five-year graduation			
All Freshmen	1.251**	NA	1.251**

Note: Logistic regression is applied to determine the significant difference in graduation between SL students and Non-SL students. Control variables include new student type at entry, EPT status, ELM status, HS GPA, SAT Verb, SAT Math, gender and ethnicity. *, ** and *** mean the effect is significant at the level of 0.1, 0.05 and 0.01, respectively.

SL freshmen's one-year persistence rate after taking the class is higher than for non-SL freshmen enrolled during that same semester (Table 2.1). This effect remains when controlling for multiple demographic and academic preparation characteristics, including High School GPA and SAT Scores (Table 2.2). Overall, the odds are 1.474 to 1 that SL students will be retained into the following fall semester.

Table 2.1 One-Year Persistence Comparison for Freshmen

	Fall 2003	Fall 2004	Fall 2005	Fall 2006	Fall 2007	Overall
One-year retention rate (percentage of students who stayed in the next fall semester after taking SL classes in a given fall semester, if not graduated or NSL in same semester)						
NSL	70.9%	74.0%	74.7%	75.4%	76.5%	74.5%
SL	82.0%	84.8%	74.3%	79.3%	86.0%	81.5%

Table 2.2 Effect of Service Learning on One-Year Persistence

	Fall 2003	Fall 2004	Fall 2005	Fall 2006	Fall 2007	Overall
One-year retention (odds of returning in the next Fall after taking Service Learning courses, if not graduated)						
Freshmen						
Odds Ratio	1.667***	1.953***	1.031	1.268	1.688***	1.474***

Note: Logistic regression is applied to determine the significant difference in persistence between SL students and Non-SL students. Control variables include new student type at entry, EPT status, ELM status, HS GPA, SAT Verb, SAT Math, gender and ethnicity. *, ** and *** mean the effect is significant at the level of 0.1, 0.05 and 0.01, respectively.

On time to degree there was no difference for the two cohorts for which enough time has elapsed for them to have graduated (Table 3). Because most of our undergraduates who graduate do so in six or more years, the number of semesters to complete a degree shown in this table may appear low. It should be noted that the table only includes those students who were freshmen in the given fall semester and graduated within the time period of this analysis (by Fall 2008), i.e., four to five years. (See the cell counts).

Table 3 Time to Degree Comparison for Freshmen*

	Fall 2003		Fall 2004		Overall	
Time to Degree (number of semesters enrolled from entry term through graduation term. Fall/Spring is counted as 1 and Summer as 0.5)						
	HC	Time to Degree	HC	Time to Degree	HC	Time to Degree
NSL	668	9.0	308	8.5	976	8.8
SL	172	8.9	118	8.8	290	8.8

* Only includes Fall 2003 and 2004 cohorts to allow for sufficient time for students to graduate.

Senior SL and Non-SL Differences

Students who took SL as seniors were more likely to graduate within one year after taking the class compared to seniors with the same cumulative units earned who never took an SL class even when controlling for new student type at entry, EPT and ELM Status, gender and ethnicity (Tables 4.1 and 4.2). This was true for seniors who entered as first-time freshmen or as transfers, although the effect on those who entered as first-time freshmen is weaker than for new transfers. The odds ratio (or effect) is much smaller for seniors who entered as new transfers and is only statistically significant (at the .10 level) across the combined cohorts and with the most recent cohort.

Although it is customary in basic research to use the .05 significance level, this finding is considered worthwhile to consider despite the lower level of certainty due to the nature of the project¹. In program evaluation, effects of the program can be difficult to detect due to the many potential influences, some of which cannot be controlled (especially with a post-hoc research design). Therefore, statistical versus practical significance is an important distinction. One method of determining practical significance, in addition to the magnitude of the test statistic (in this case the odds ratio) is noticing common patterns that occur in the data. In this regard, it is notable that the effect of SL on the one-year graduation of seniors is clearly decreasing over time and that change is primarily among transfer students, as shown by the declining odds ratio in Table 4.2.

Table 4.1 Graduation Comparison for Seniors

	Fall 2003	Fall 2004	Fall 2005	Fall 2006	Fall 2007	Overall
One-year graduation rate (percentage of students who graduated in one year after taking SL in the noted semester or NSL in the same semester)						
All students						
NSL	44.1%	46.5%	44.7%	44.3%	45.6%	45.0%
SL	57.9%	51.6%	52.2%	46.1%	51.3%	51.8%
First-time freshmen						
NSL	47.9%	54.8%	51.1%	52.7%	52.2%	51.6%
SL	49.1%	56.1%	55.5%	46.1%	59.0%	53.6%
New transfer						
NSL	42.4%	42.5%	42.0%	40.4%	42.8%	42.0%
SL	61.3%	49.8%	50.3%	46.2%	46.1%	50.8%

Table 4.2 Effect of Service Learning on Graduation (Seniors Only)

	Fall 2003	Fall 2004	Fall 2005	Fall 2006	Fall 2007	Overall
	Odds Ratio	Odds Ratio	Odds Ratio	Odds Ratio	Odds Ratio	Odds Ratio
Graduation (Odds ratio of students who graduated in one year after the noted semester, the reference group is NSL)						
One-year graduation						
All students	1.846***	1.370***	1.325***	1.048	1.172*	1.329***
First-time freshmen	1.159	1.130	1.213	0.822	1.285*	1.134*
New transfers	2.220***	1.477***	1.354***	1.203	1.122	1.432***

Note: Logistic regression is applied to determine the significant difference in graduation between SL students and Non-SL students. Control variables include EPT status, ELM status, earned units, gender, ethnicity and for "All students" new student type at entry. *, ** and *** mean the effect is significant at the level of 0.1, 0.05 and 0.01, respectively.

Simultaneously, the effect of SL on seniors' one-year persistence rate is increasing for those who entered as new transfers (Tables 5.1 and 5.2). Overall, seniors who did not graduate within one year after taking an SL class persisted into the next year at higher rates than comparable non-SL students even when controlling for cumulative units earned, new student type at entry, EPT and ELM Status, gender and ethnicity (Tables 5.1 and 5.2). On persistence, the effect is a bit stronger for those who entered as new freshmen than as transfers and is more consistent across the semesters. As already noted, the SL effect on the one-year persistence of seniors who entered as transfers is increasing. This is resulting in a more similar SL effect for seniors regardless of entry type.

¹Statistical significance is generally used with sample data in order to generalize findings to a larger population, to show that the findings are unlikely to have occurred by chance as a result of the particular sample and would likely be found in any group with the same characteristics being studied for the same purpose. A common disagreement among researchers is the definition of "population," whether population is defined as the universe of all students, past, current and future and at all higher education institutions, or all students at a particular institution where the research is being carried out. When conducting basic research, the former is most reasonable. In that case, all students at a specific college or university would be considered a sample. However, in program evaluation and outcomes assessment, if all students in the program are included in the analysis (rather than a sample of participants) and findings are to be used for purposes of program improvement and demonstration of outcomes, statistical significance is less relevant than effect size. This project assumes the latter definition of population and the purpose as program evaluation.

Table 5.1 Persistence Comparison for Seniors

	Fall 2003	Fall 2004	Fall 2005	Fall 2006	Fall 2007	Overall
One-year persistence rate (percentage of students who persisted in the next Fall after taking SL classes in a given fall semester if not graduated)						
All students						
NSL	66.2%	74.7%	74.6%	73.7%	74.4%	72.4%
SL	73.9%	79.6%	80.7%	82.7%	82.3%	80.2%
First-time freshmen						
NSL	66.4%	73.2%	78.5%	72.7%	71.1%	72.0%
SL	81.4%	81.3%	84.2%	80.3%	80.2%	81.5%
New transfer						
NSL	66.2%	75.3%	73.2%	74.1%	75.6%	72.6%
SL	69.8%	79.0%	79.0%	83.9%	83.3%	79.5%

Table 5.2 Effect of Service Learning on Persistence (Seniors Only)

	Fall 2003	Fall 2004	Fall 2005	Fall 2006	Fall 2007	Overall
One-year persistence (odds ratio of persisting in the next fall after the noted semester if not graduated)						
All students						
Odds Ratio	1.311*	1.233	1.346**	1.606***	1.556***	1.436***
First-time freshmen						
Odds Ratio	2.166**	1.561	1.376	1.359	1.594*	1.553***
New transfers						
Odds Ratio	1.053	1.145	1.330*	1.766***	1.566**	1.378***

Note: Logistic regression is applied to determine the significant difference in persistence between SL students and Non-SL students. Control variables include EPT status, ELM status, earned units, gender, ethnicity and for "All students" new student type at entry. *, ** and *** mean the effect is significant at the level of 0.1, 0.05 and 0.01, respectively.

The small differences between SL and non-SL seniors on time to degree are inconsequential and the direction is inconsistent across the cohorts. (Note that this table includes all seniors who graduated with a bachelor's degree by the end of the analysis period, Fall 2008. Students were tracked backward and forward from the indicated Fall semester. Using this method, Fall 2007 seniors would have had less time to graduate, which is likely why the time to degree is a little less for that group.)

Table 6.1 Time to Degree Comparison for Seniors

	Fall 2003	Fall 2004	Fall 2005	Fall 2006	Fall 2007	Overall
Time to Degree (number of semesters enrolled between entry terms and graduation terms. Fall/ Spring is counted as 1 and Summer as 0.5)						
All students						
NSL	8.0	8.0	7.8	7.7	7.3	7.8
SL	7.2	7.6	7.9	7.7	7.8	7.6
First-time freshmen						
NSL	10.6	10.4	10.3	10.2	9.9	10.3
SL	10.5	10.9	10.3	10.0	9.8	10.3
New transfer						
NSL	6.8	6.8	6.6	6.4	6.0	6.6
SL	5.8	6.3	6.6	6.3	6.1	6.2

Course Grade Comparisons

To determine whether SL affects student grades, passing, and withdrawal, courses with SL and non-SL sections offered in the same semester were analyzed. Control variables in the model include student level (freshman, sophomore, junior, or senior), new student type at entry, EPT and ELM status, gender, ethnicity, cumulative units earned and cumulative GPA. This comparison shows no overall difference in the average grade earned by students in SL and non-SL sections (Tables 7.1 and 7.2.). However, there are some semesters in which differences are evident, and not in a consistent direction. SL sections show a slightly higher passing rate overall and a slightly lower withdrawal rate

overall, but not consistently across semesters nor consistently in the same direction (Tables 7.1, 7.3 and 7.4). Consistent effects on these types of measures may be more likely in research that controls for specific course type (e.g., comparing SL and non-SL Marketing course sections), instructor, or quality of SL experience.

Table 7.1 Grade Comparison for SL and NSL Sections of Same Courses*

	Fall 2003	Spring 2004	Fall 2004	Spring 2005	Fall 2005	Spring 2006	Fall 2006	Spring 2007	Fall 2007	Spring 2008	Overall
HC											
NSL	1956	462	1502	900	1920	983	1809	764	1151	481	11928
SL	1113	556	746	870	660	270	529	404	594	520	6262
Average Grade											
NSL	2.39	2.62	3.17	2.99	3.20	2.77	2.99	2.95	3.04	3.16	2.92
SL	2.86	2.85	2.92	3.07	2.86	2.89	2.82	2.90	3.02	3.00	2.92
Passing Rate											
NSL	79.3%	84.2%	91.6%	91.2%	91.3%	85.5%	89.2%	88.6%	89.7%	93.6%	88.1%
SL	89.3%	89.7%	89.1%	94.1%	87.3%	87.4%	85.4%	89.4%	91.4%	92.1%	89.8%
Withdrawal Rate											
NSL	4.9%	8.1%	3.2%	4.6%	3.8%	4.9%	4.3%	2.3%	2.3%	2.5%	4.0%
SL	3.0%	3.2%	5.2%	2.8%	4.0%	5.3%	4.8%	3.4%	2.0%	1.9%	3.4%

* Selected courses include only courses having Service Learning (SL) sections and Non-Service Learning (NSL) sections in the same term.

Table 7.2 Effect of Service Learning on Average Grades

	Fall 2003	Spring 2004	Fall 2004	Spring 2005	Fall 2005	Spring 2006	Fall 2006	Spring 2007	Fall 2007	Spring 2008	Overall
ANOVA Coefficient (for SL type, NSL is the reference group)											
Estimated	0.347	0.291	-0.209	0.086	-0.389	-0.045	NA	-0.120	0.130	-0.014	-0.014
Significance	***	***	***	*	***		NA	**	**		

Note: Multi-way ANOVA is applied to determine the significant difference in grades between SL and NSL sections. Control variables include student level, new student type at entry, EPT status, ELM status, Cumulative GPA and Units earned, gender and ethnicity. *, ** and *** mean the effect is significant at the level of 0.1, 0.05 and 0.01, respectively. Fall 2006 Data can't be tested in the same way as for other cohorts since Cumulative GPA data are not available for this cohort.

Table 7.3 Effect of Service Learning on Course Passing

	Fall 2003	Spring 2004	Fall 2004	Spring 2005	Fall 2005	Spring 2006	Fall 2006	Spring 2007	Fall 2007	Spring 2008	Overall
Course Passing (Odds of passing courses, NSL is the reference group)											
Estimated	2.022	2.074	0.733	1.534	0.584	0.930	NA	0.918	1.314	0.898	1.183
Significance	***	***	*	**	***		NA				***

Note: Logistic regression is applied to determine the significant difference in passing rates between SL and NSL sections. Control variables include student level, new student type at entry, EPT status, ELM status, Cumulative GPA and Units earned, gender and ethnicity. *, ** and *** mean the effect is significant at the level of 0.1, 0.05 and 0.01, respectively.

Table 7.4 Effect of Service Learning on Course Withdrawal

	Fall 2003	Spring 2004	Fall 2004	Spring 2005	Fall 2005	Spring 2006	Fall 2006	Spring 2007	Fall 2007	Spring 2008	Overall
Course Withdrawal (Odds of withdrawal from courses, NSL is the reference group)											
Estimated	0.717	0.316	1.712	0.551	0.934	0.975	NA	1.172	0.704	0.750	0.838
Significance		***	**	**			NA				*

Note: Logistic regression is applied to determine the significant difference in withdrawal between SL and NSL sections. Control variables include student level, new student type at entry, EPT status, ELM status, Cumulative GPA and Units earned, gender and ethnicity. *, ** and *** mean the effect is significant at the level of 0.1, 0.05 and 0.01, respectively.

A substantial portion of SL classes are not “officially” designated “S” classes in the class schedule. Because outcomes of a program can be affected by how the program is implemented, and classes that are not “S” designated deviate from the expected course approval process, the analysis additionally categorized students into those taking “S” designated SL course sections and non “S” designated SL sections (NS-SL) and compared them on average grade, pass rate and withdrawal rate (Table 8.1). Controlling for the same factors as the SL and NSL course comparisons above, overall there is no difference in the effect of SL on average grade or withdrawal when offered through “S” designated or non “S” designated sections (Tables 8.2 and 8.4). Overall, “S” designated courses show a small positive effect on passing (Table 8.3). But again, findings are inconsistent by semester.

Table 8.1 Grade Comparison for SL and NS-SL Sections of Same Course*

	Fall 2003	Spring 2004	Spring 2005	Spring 2007	Fall 2007	Spring 2008	Overall
HC							
1: S-SL	404	179	250	96	21	59	1009
2: NS-SL	709	377	620	308	573	461	3048
Average Grade							
1: S-SL	3.26	2.87	2.93	2.50	2.56	2.36	2.97
2: NS-SL	2.62	2.84	3.13	3.02	3.04	3.07	2.94
Passing Rate							
1: S-SL	94.6%	90.5%	95.6%	87.5%	71.4%	78.0%	92.0%
2: NS-SL	86.3%	89.4%	93.5%	89.9%	92.1%	93.9%	90.8%
Withdrawal Rate							
1: S-SL	1.9%	2.2%	2.7%	7.8%	9.5%	3.3%	3.0%
2: NS-SL	3.6%	3.6%	2.8%	1.9%	1.7%	1.7%	2.6%

* Selected courses include only courses having Service Learning (SL) sections and Non-Service Learning (NSL) sections in the same term. SL sections are further classified into two groups: S-designated SL (S-SL) sections and Non-S-designated (NS-SL) sections. S-SL sections have "S" as the suffix in catalog number and NS-SL sections have Service Learning component but don't have "S" as the suffix in catalog number. Only semesters in which all three section types were offered are included.

Table 8.2 Effect of Service Learning on Average Grades

	Fall 2003	Spring 2004	Spring 2005	Spring 2007	Fall 2007	Spring 2008	Overall
ANOVA Coefficient (for SL type, NS-SL is the reference group)							
S-SL (Compared to NS-SL)							
Estimated	0.421	-0.159	-0.399	-0.166	-0.500	-0.938	-0.044
Significance	***		***		*	***	

Note: Multi-way ANOVA is applied to determine the significant difference in grades between SL and NSL sections. Control variables include student level, new student type at entry, EPT status, ELM status, Cumulative GPA and Units earned, gender and ethnicity. *, ** and *** mean the effect is significant at the level of 0.1, 0.05 and 0.01, respectively.

Table 8.3 Effect of Service Learning on Course Passing

	Fall 2003	Spring 2004	Spring 2005	Spring 2007	Fall 2007	Spring 2008	Overall
Course passing (Odds of passing courses, NS-SL is the reference group)							
S-SL (Compared to NS-SL)							
Estimated	1.806	1.047	1.150	1.935	0.171	0.185	1.236
Significance	*				**	**	

Note: Logistic regression is applied to determine the significant difference in passing rates between SL and NSL sections. Control variables include student level, new student type at entry, EPT status, ELM status, Cumulative GPA and Units earned, gender and ethnicity. *, ** and *** mean the effect is significant at the level of 0.1, 0.05 and 0.01, respectively.

Table 8.4 Effect of Service Learning on Course Withdrawal

	Fall 2003	Spring 2004	Spring 2005	Spring 2007	Fall 2007	Spring 2008	Overall
Course withdrawal (Odds of withdrawal from courses, NS-SL is the reference group)							
S-SL (Compared to NS-SL)							
Estimated	0.437	0.357	0.968	2.638	1.612	2.254	0.938
Significance							

Note: Logistic regression is applied to determine the significant difference in withdrawal between SL and NSL sections. Control variables include student level, new student type at entry, EPT status, ELM status, Cumulative GPA and Units earned, gender and ethnicity. *, ** and *** mean the effect is significant at the level of 0.1, 0.05 and 0.01, respectively.

Personal Growth and Job Skills

Linking the 2007 National Survey of Student Engagement (NSSE) data to IRAP databases, the survey's personal growth and job-related items were analyzed to determine whether differences exist between students who had taken an SL class and those who had not. Although differences are small, SL students rated Fresno State's contribution to their personal and job-related growth higher

Table 9: NSSE 2007 Personal Growth and Job Skills Items

Freshmen							
Survey Item	Service Learning Class Participant	N	Mean*	Std. Deviation	Sig.	Mean Difference	Effect Size**
Institutional contribution: Working effectively with others	Yes	75	3.21	.810	.005	.306	.35
	No	400	2.91	.866			
Institutional contribution: Acquiring job or work-related knowledge and skills	Yes	75	2.77	.924	.052	.226	.24
	No	400	2.55	.922			
Quality: Your relationships with other students	Yes	79	5.67	1.106	.009	.373	.27
	No	423	5.30	1.379			
Institutional contribution: Contributing to the welfare of your community	Yes	74	2.42	.965	.209	.152	.16
	No	394	2.27	.956			
Institutional contribution: Understanding people of other racial and ethnic	Yes	73	2.84	.882	.206	.147	.16
	No	395	2.69	.916			
Institutional contribution: Acquiring a broad general education	Yes	75	3.17	.795	.410	.078	.10
	No	399	3.10	.744			
Examined the strengths and weaknesses of your own views on a topic or issue	Yes	79	2.47	.889	.677	.042	.05
	No	434	2.43	.813			
Institutional contribution: Developing a personal code of values and ethics	Yes	74	2.84	.907	.010	.304	.32
	No	395	2.53	.956			
Coursework emphasized: APPLYING theories or concepts to practical problems or	Yes	81	2.91	.869	.699	.039	.05
	No	437	2.87	.838			
Institutional contribution: Solving complex real-world problems	Yes	74	2.69	.843	.177	.150	.17
	No	395	2.54	.881			

* On scale from 1 to 4, except item "Quality: Your relationships with other students" which scale is from 1 to 7.

** Effect size indicates the "practical significance" of the mean difference. It is calculated by dividing the mean difference by the standard deviation of the group with which SL students are being compared. In practice, an effect size of .2 is often considered small, .5 moderate, and .8 large. A positive value indicates that SL students' mean was greater.

Table 10: NSSE 2007 Personal Growth and Job Skills Items

Seniors							
Survey Item	Service Learning Class Participant	N	Mean*	Std. Deviation	Sig.	Mean Difference	Effect Size**
Institutional contribution: Working effectively with others	Yes	261	3.20	.800	.001	.255	.27
	No	287	2.95	.958			
Institutional contribution: Acquiring job or work-related knowledge and skills	Yes	261	3.07	.886	.102	.131	.13
	No	287	2.93	.989			
Quality: Your relationships with other students	Yes	267	5.68	1.235	.016	.270	.19
	No	304	5.41	1.428			
Institutional contribution: Contributing to the welfare of your community	Yes	261	2.49	.914	.001	.274	.27
	No	282	2.22	1.013			
Institutional contribution: Understanding people of other racial and ethnic	Yes	260	2.82	.972	.006	.239	.23
	No	281	2.58	1.046			
Institutional contribution: Acquiring a broad general education	Yes	261	3.29	.707	.127	.103	.12
	No	287	3.19	.869			
Examined the strengths and weaknesses of your own views on a topic or issue	Yes	270	2.64	.855	.176	.102	.11
	No	310	2.54	.940			
Institutional contribution: Developing a personal code of values and ethics	Yes	261	2.63	.975	.200	.111	.11
	No	282	2.52	1.031			
Coursework emphasized: APPLYING theories or concepts to practical problems or	Yes	276	3.10	.805	.302	.073	.08
	No	317	3.03	.893			
Institutional contribution: Solving complex real-world problems	Yes	261	2.68	.905	.162	.114	.11
	No	282	2.56	.997			

* On scale from 1 to 4, except item "Quality: Your relationships with other students" which scale is from 1 to 7.

** Effect size indicates the "practical significance" of the mean difference. It is calculated by dividing the mean difference by the standard deviation of the group with which SL students are being compared. In practice, an effect size of .2 is often considered small, .5 moderate, and .8 large. A positive value indicates that SL students' mean was greater.

than did non-SL students. For example, SL students report higher quality relationships with people and they work more effectively with others (Tables 9 and 10). Seniors who had taken an SL class

were more likely to report a greater contribution to the welfare of the community and better understanding of people from other racial and ethnic backgrounds (Table 10). SL freshmen reported a higher level of job related knowledge and skills acquisition and more development of a personal code of values and ethics compared to non-SL freshmen (Table 9).

Discussion

This study shows that Service Learning positively affects student persistence, graduation, personal development and job skills. However, because the research is conducted post-hoc utilizing readily available data collected through routine university operations rather than through an intentional assessment design developed and implemented as part of the Service Learning program, potential outcomes are limited to these factors. Additionally, some likely influential factors could not be controlled. For example, it is reasonable to assume that the quality of the Service Learning experience would influence its effect unless the quality is uniform across SL courses. These data would best be collected in the classroom or through the organizations that host students' SL experience. Student traits that are less obvious than demographics and academic preparation, such as propensity to volunteer or a pre-existing world view that coincides with the tenets of SL, could influence one's selection of an SL or NSL class, and potentially influence one's experience with SL or its effects. Those data, as well, were not available for this study.

Findings of this study indicate that overall SL has little or no effect on students' grades, passing the course or withdrawing from the course. In some semesters, however, an effect was evident but inconsistent in that, when it exists, it was at times positive and at other times negative. Underlying these grade comparisons are unmeasured factors such as the type of course and the instructor. A more refined analysis may help determine the conditions under which SL would affect academic performance or whether, using these particular measures, SL continues to have no effect. Prior studies (Eyler, et.al., 2001) show mixed results when measuring academic performance utilizing course grade or GPA. Using existing Fresno State data, SL and non-SL sections of the same course could be paired in order to control for course type. However, to also control for instructor would require an experimental design in which the same instructor teaches multiple sections of the same course, one section with an SL component and the other without. As is generally the case in learning outcomes assessment, results are likely to be more conclusive when using measures of learning such as problem resolution, writing, critical thinking, and application to real world situations rather than grades.

Another factor that can be controlled in subsequent studies utilizing existing data is student major or major college. At Fresno State SL is more typical for some majors, such as Business and Education, than for other majors, such as Engineering and Science and Math. The potential effect of SL on academic performance, personal development or success measures may differ by college or major. The study by Astin, et. al. (2000) concluded that SL should be offered in students' major for the experience to be most positive and to increase understanding of course material. Additional research may determine whether SL is more effective for some majors than others at Fresno State.

Conclusion

Only over time, through what students do long after they graduate, can we know whether Service Learning at Fresno State fosters career advantage or cultivates a lifelong civic and service ethic. Additional research may answer some of the questions and respond to some of the inconsistencies found in this study, but this project's findings support the existing literature. Service Learning helps students succeed.

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APPENDIX A

Notes on data and methodologies

This Service Learning research includes three components based on three sets of data: student success comparison, course grades comparison and NSSE data comparison.

1. Student Success Comparison

1.1 Data Preparation

The periods of time considered in the analyses include the most recent five fall cohorts on which the necessary tracking could be performed; Fall 2003 through Fall 2007. Where relevant, these groups are tracked through Fall 2008. The new Fall 2008 cohort is excluded because the Fall 2009 data are not yet available. 55,821 degree-seeking undergraduates (excludes transitory students) comprise the overall study population with specific analyses conducted on subsets of freshmen and seniors. Students are classified into two groups: SL (8,433 students) and NSL (47,388 students). SL refers to Service Learning students who took at least one Service Learning class in a given fall semester; NSL means Non-Service Learning students who never took a Service Learning class in any semester. Freshmen and seniors are the focus of this study in order to determine if SL effects differ for students early in their college life or when they are nearing completion.

1.2 Methodologies

1.1.1 Students' Characteristics

To identify the characteristics of SL students, the following comparisons are made between SL and NSL students: student level, new student type at entry, English remediation status (EPT), Math remediation status (ELM), High School GPA, SAT Comp, SAT Math and SAT Verbal scores, cumulative GPA, cumulative units earned, gender, and ethnicity (See Appendix B Table 1). Further comparisons between SL and NSL are made for freshmen and seniors (See Appendix B, Table 2 and 3) in order to identify the nature of these specific populations and the data underlying the control variables.

1.1.2 Definition of Measures

Performances are measured by graduation rates, time to degree and one-year persistence rates. The graduation rate refers to the percentage of students who graduated within a certain number of years after the noted fall semester. Time to degree is the number of semesters enrolled from entry term through graduation for students who graduated with a bachelor's degree by the end of Fall 2008. Fall or Spring semesters are counted as one and Summer as 0.5. Semesters in which students did not enroll are excluded from the count. One-year persistence rate is the percentage of students who enrolled in the next fall semester after the noted fall semester, if not graduated.

These performance measures are calculated for freshmen and seniors. For freshmen, the measures are four-year and five-year graduation rate, one-year persistence rate and time to degree. For seniors the measures are one-year

graduation rate, one-year persistence rate and time to degree. One-year graduation is whether they graduated within one year after taking the SL class or, for those who did not take SL, one year after the same semester in which SL students were enrolled. For example, seniors enrolled in an SL class in Fall 2003 are compared to other seniors enrolled in Fall 2003 who have never taken an SL class.

1.1.3 Comparisons and Statistical Tests

Performance comparisons based on descriptive statistics show how SL students differ from NSL students on the performance measures noted above. To evaluate the unique contributions of SL to students' performance, the influence of other factors needs to be controlled. Thus, regression analyses are employed utilizing SL as the IV (independent variable of interest). Control variables, or covariates, in the models include new student type at entry, EPT status, ELM status, HS GPA, SAT Verb, SAT Math, units earned, gender and ethnicity. For the binary dependent variables (i.e., graduation and persistence), logistic regression is applied and the estimated odds ratio is used to show the unique effect of SL on each DV. Graduation status is coded as a binary variable (1 if students graduated in a designated number of years after the noted fall semester; 0 if not graduated). Persistence status is coded as 1 if students enrolled in the next fall semester after the noted fall semester, if not graduated; 0 if not enrolled and not graduated. The group of NSL students is set as the reference, or comparison group, so that the odds ratio with values larger than one indicates that SL students have a higher likelihood of graduating or persisting than NSL students. Values less than one indicate a lower likelihood.

Statistical significance is shown at three levels (≥ 0.1 , ≥ 0.05 , and ≥ 0.01) for all tests. Given that there are many factors affecting students' performance that cannot be statistically controlled and that this is an attempt to assess the effects of a program rather than to generalize from a sample to a broader population, significance levels up to 0.1 are used and greater weight is placed on effect size for determination and interpretation of findings.

2. Course Grades Comparison

2.1 Data Preparation

This analysis includes 37 courses in which Service Learning and Non-Service Learning sections were offered in the same semesters, including 705 sections (247 SL sections and 458 NSL sections). The SL sections are further classified into two groups: S-SL sections and NS-SL sections. S-SL sections are designated with an "S" suffix in their catalog number. NS-SL sections include a Service Learning component but are not "S" designated. In some semesters there are no courses with both S-SL and NS-SL sections. Therefore, those semesters are excluded from this portion of the analysis. The total number of grades is 18,596. This includes 708 W and WU grades for calculating the rate of withdrawal.

2.2 Methodologies

2.2.1 Definition of Measures

Course comparisons consist of three measures based on grades: the average grade, the passing rate and the withdrawal rate. The average grade is based on the numerical grade converted from the categorical grade: A=4, B=3, C=2, D=1 and F=0, WU=0. Grades of CR, NC, I, W are excluded in calculating the average grade. The passing rate is the percentage of grades of A, B, C or CR among grades of A, B, C, CR, D, F, I, NC and WU. The withdrawal rate is the percentage of grades of W and WU among all grades of A, B, C, CR, D, F, I, NC, WU and W. WU is an unauthorized withdrawal and is treated as failure for the GPA calculation. However, in determining the withdrawal rate, WU is counted along with W because the intention is to investigate students' course withdrawal behavior and both W and WU are indicators that the student did not continue participating in the class. Descriptive data are shown in the tables as rates and average grade. For the inferential tests, the passing and withdrawal variables are defined below.

2.2.2 Descriptive Comparisons and Statistical Tests

SL sections and NSL sections are compared descriptively to identify how SL sections differ from NSL sections on the three measures in 2.2.1. Additional comparisons are made between S-SL and NS-SL sections on these measures.

To determine the unique effects of SL on course grades, regression analyses were employed utilizing SL as the independent variable of interest. Control variables, or covariates, in the model include student level, new student type at entry, EPT status, ELM status, cumulative GPA, Units earned, gender and ethnicity. Specifically, multiple-way ANOVA is applied to identify the unique effect of SL on the average grade. The dependent variable is the numerical grade. Logistic regression is applied to determine the unique effects of SL on course passing and withdrawal. As the dependent variable, course passing is coded as 1 (if students passed the class with a grade of A or B or C or CR) or 0 (if students did not pass the class). Similarly, course withdrawal is coded as 1 (if students received a grade of W or WU) or 0 (if students received any other grade).

3. NSSE Data Comparison

3.1 Data Preparation

1,187 students who participated in the spring 2007 National Survey of Student Engagement (NSSE) were matched with IRAP databases and classified into two groups; students who took at least one Service Learning class prior to the survey and students who did not participate in a Service Learning class before or during spring 2007. These groups were further subdivided into freshmen and seniors.

3.2 Definition of Measures

Each personal growth and job skills related item in the survey was used as the measures for personal growth or job related skill growth. Wording of the items can be found in Tables 12 and 13. The question stems read: “To what extent has your experience at this institution contributed to your knowledge, skills, and personal development in the following areas” (for institutional contribution items) and “Mark the box that best represents the quality of your relationships with people at your institution” (for quality item). The scales are 1-4 for the institutional contribution items (1=very little, 4=very much) and 1-7 (1=unfriendly, unsupportive, sense of alienation, 7=friendly, supportive, sense of belonging) for the quality item.

3.3 Comparisons and Statistical Tests

Descriptive comparisons and independent T tests are conducted between SL and non-SL groups of students in each personal growth and job skills related item in the survey. Also, the effect size is calculated. Effect size indicates the “practical significance” of the mean difference. It is calculated by dividing the mean difference by the standard deviation of the group with which SL students are being compared. In practice, an effect size of .2 is often considered small, .5 moderate, and .8 large. A positive value indicates that SL students' mean was greater, thus showing a positive effect for SL students.

APPENDIX B

Table 1 Characteristics of Service Learning and Non-Service Learning Students

	SL students						NSL students					
	Fall 2003	Fall 2004	Fall 2005	Fall 2006	Fall 2007	Overall	Fall 2003	Fall 2004	Fall 2005	Fall 2006	Fall 2007	Overall
Total HC	1621	1733	1848	1598	1633	8433	9891	8707	8923	9625	10242	47388
Student level												
Freshmen												
HC	456	533	432	378	435	2234	2162	1792	2085	2699	2904	11642
%	28.1%	30.8%	23.4%	23.7%	26.6%	26.5%	21.9%	20.6%	23.4%	28.0%	28.4%	24.6%
Sophomore												
HC	185	204	167	155	117	828	1395	1270	1062	1158	1408	6293
%	11.4%	11.8%	9.0%	9.7%	7.2%	9.8%	14.1%	14.6%	11.9%	12.0%	13.7%	13.3%
Junior												
HC	389	389	513	455	373	2119	2418	2351	2457	2397	2653	12276
%	24.0%	22.4%	27.8%	28.5%	22.8%	25.1%	24.4%	27.0%	27.5%	24.9%	25.9%	25.9%
Senior												
HC	591	607	736	610	708	3252	3916	3294	3319	3371	3277	17177
%	36.5%	35.0%	39.8%	38.2%	43.4%	38.6%	39.6%	37.8%	37.2%	35.0%	32.0%	36.2%
New student type "at entry"												
First-time freshmen												
HC	896	1000	1052	932	989	4869	4963	4534	4763	5332	5765	25357
%	55.3%	57.7%	56.9%	58.3%	60.6%	57.7%	50.2%	52.1%	53.4%	55.4%	56.3%	53.5%
New transfer												
HC	722	732	795	665	642	3556	4901	4158	4152	4284	4473	21968
%	44.5%	42.2%	43.0%	41.6%	39.3%	42.2%	49.6%	47.8%	46.5%	44.5%	43.7%	46.4%
Unknown												
HC	3	1	1	1	2	8	27	15	8	9	4	63
%	0.2%	0.1%	0.1%	0.1%	0.1%	0.1%	0.3%	0.2%	0.1%	0.1%	0.0%	0.1%
English and Math remediation(percentage of students required English/Math remediation among First-time freshmen at entry)												
EPT_Rem	36.5%	45.4%	46.3%	49.9%	49.1%	45.6%	35.5%	41.5%	47.7%	52.2%	55.9%	47.0%
ELM_Rem	59.8%	58.1%	53.3%	48.5%	46.5%	53.2%	52.2%	50.5%	49.3%	49.2%	48.4%	49.9%
High school GPA and SAT scores												
Average of HS_GPA	3.31	3.33	3.32	3.33	3.34	3.33	3.30	3.33	3.31	3.31	3.30	3.31
Average of SAT_COMP	932	936	928	940	953	938	960	965	958	946	938	952
Average of SAT_VERB	457	458	456	463	469	461	470	473	469	463	459	466
Average of SAT_MATH	474	477	473	477	485	477	490	492	489	482	480	486
Cumulative GPA and Units earned												
Average of Cum_Units	80.7	64.5	72.1	70.1	71.4	71.4	82.0	73.0	70.3	66.2	64.4	70.9
Average of Cum_GPA	2.41	2.38	2.43		2.36	2.40	2.53	2.53	2.45		2.42	2.48
Gender (Female%)												
HC	1100	1162	1235	1095	1055	5647	5181	4525	4626	5072	5588	24992
%	67.9%	67.1%	66.8%	68.5%	64.6%	67.0%	52.4%	52.0%	51.8%	52.7%	54.6%	52.7%
Ethnicity												
AMER IND												
HC	16	12	12	14	17	71	93	75	82	75	101	426
%	1.0%	0.7%	0.6%	0.9%	1.0%	0.8%	0.9%	0.9%	0.9%	0.8%	1.0%	0.9%
ASIAN												
HC	222	246	245	196	217	1126	1166	1062	1216	1344	1526	6314
%	13.7%	14.2%	13.3%	12.3%	13.3%	13.4%	11.8%	12.2%	13.6%	14.0%	14.9%	13.3%
BLACK												
HC	72	100	110	87	80	449	500	411	444	549	617	2521
%	4.4%	5.8%	6.0%	5.4%	4.9%	5.3%	5.1%	4.7%	5.0%	5.7%	6.0%	5.3%
HISP												
HC	478	485	538	487	493	2481	2688	2496	2761	3158	3527	14630
%	29.5%	28.0%	29.1%	30.5%	30.2%	29.4%	27.2%	28.7%	30.9%	32.8%	34.4%	30.9%
International												
HC	19	23	36	18	24	120	377	288	242	192	155	1254
%	1.2%	1.3%	1.9%	1.1%	1.5%	1.4%	3.8%	3.3%	2.7%	2.0%	1.5%	2.6%
UNK												
HC	202	194	200	142	142	880	1429	1146	998	901	811	5285
%	12.5%	11.2%	10.8%	8.9%	8.7%	10.4%	14.4%	13.2%	11.2%	9.4%	7.9%	11.2%
WHITE												
HC	612	673	707	654	660	3306	3638	3229	3180	3406	3505	16958
%	37.8%	38.8%	38.3%	40.9%	40.4%	39.2%	36.8%	37.1%	35.6%	35.4%	34.2%	35.8%

Table 2 Characteristics of Service Learning and Non-Service Learning Freshmen

	SL students						NSL students					
	Fall 2003	Fall 2004	Fall 2005	Fall 2006	Fall 2007	Overall	Fall 2003	Fall 2004	Fall 2005	Fall 2006	Fall 2007	Overall
Total HC	456	533	432	378	435	2234	2162	1792	2085	2699	2904	11642
New student type "at entry"												
First-time freshmen												
HC	437	525	425	370	432	2189	2018	1741	2040	2619	2819	11237
%	95.8%	98.5%	98.4%	97.9%	99.3%	98.0%	93.3%	97.2%	97.8%	97.0%	97.1%	96.5%
New transfer												
HC	19	8	7	8	3	45	141	50	45	80	85	401
%	4.2%	1.5%	1.6%	2.1%	0.7%	2.0%	6.5%	2.8%	2.2%	3.0%	2.9%	3.4%
Unknown												
HC							3	1				4
%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%
English and Math remediation(percentage of students required remediation among First-time freshmen at entry)												
EPT_Rem	40.7%	56.4%	64.5%	60.8%	60.2%	56.3%	47.0%	56.5%	64.8%	64.6%	65.4%	60.4%
ELM_Rem	54.2%	58.9%	59.8%	54.1%	52.3%	56.0%	54.9%	55.2%	55.8%	57.2%	56.5%	56.0%
High school GPA and SAT scores												
Average of HS_GPA	3.28	3.30	3.21	3.23	3.27	3.26	3.24	3.26	3.23	3.25	3.23	3.24
Average of SAT_COMP	941	928	917	929	942	931	936	941	935	916	908	925
Average of SAT_VERB	462	454	452	458	463	458	458	462	457	449	445	453
Average of SAT_MATH	479	474	465	471	481	474	477	479	478	468	465	472
Gender (Female%)												
HC	300	358	284	244	268	1454	1169	953	1120	1507	1690	6439
%	65.8%	67.2%	65.7%	64.6%	61.6%	65.1%	54.1%	53.2%	53.7%	55.8%	58.2%	55.3%
Ethnicity												
AMER IND												
HC	3	4	3	2	6	18	14	9	11	23	27	84
%	0.7%	0.8%	0.7%	0.5%	1.4%	0.8%	0.6%	0.5%	0.5%	0.9%	0.9%	0.7%
ASIAN												
HC	67	103	79	58	71	378	332	293	392	497	583	2097
%	14.7%	19.3%	18.3%	15.3%	16.3%	16.9%	15.4%	16.4%	18.8%	18.4%	20.1%	18.0%
BLACK												
HC	19	26	36	36	37	154	182	127	157	219	257	942
%	4.2%	4.9%	8.3%	9.5%	8.5%	6.9%	8.4%	7.1%	7.5%	8.1%	8.8%	8.1%
HISP												
HC	144	148	149	119	122	682	585	587	728	979	1030	3909
%	31.6%	27.8%	34.5%	31.5%	28.0%	30.5%	27.1%	32.8%	34.9%	36.3%	35.5%	33.6%
International												
HC	3		4		2	9	40	14	12	22	25	113
%	0.7%	0.0%	0.9%	0.0%	0.5%	0.4%	1.9%	0.8%	0.6%	0.8%	0.9%	1.0%
UNK												
HC	44	37	14	15	21	131	232	147	128	161	148	816
%	9.6%	6.9%	3.2%	4.0%	4.8%	5.9%	10.7%	8.2%	6.1%	6.0%	5.1%	7.0%
WHITE												
HC	176	215	147	148	176	862	777	615	657	798	834	3681
%	38.6%	40.3%	34.0%	39.2%	40.5%	38.6%	35.9%	34.3%	31.5%	29.6%	28.7%	31.6%

Table 3 Characteristics of Service Learning and Non-Service Learning Seniors

	SL students						NSL students					
	Fall 2003	Fall 2004	Fall 2005	Fall 2006	Fall 2007	Overall	Fall 2003	Fall 2004	Fall 2005	Fall 2006	Fall 2007	Overall
Total HC	591	607	736	610	708	3252	3916	3294	3319	3371	3277	17177
New student type "at entry"												
First-time freshmen												
HC	169	171	256	217	283	1096	1237	1055	1006	1056	964	5318
%	28.6%	28.2%	34.8%	35.6%	40.0%	33.7%	31.6%	32.0%	30.3%	31.3%	29.4%	31.0%
New transfer												
HC	419	436	479	392	423	2149	2662	2228	2311	2310	2311	11822
%	70.9%	71.8%	65.1%	64.3%	59.7%	66.1%	68.0%	67.6%	69.6%	68.5%	70.5%	68.8%
Unknown												
HC	3		1	1	2	7	17	11	2	5	2	37
%	0.5%	0.0%	0.1%	0.2%	0.3%	0.2%	0.4%	0.3%	0.1%	0.1%	0.1%	0.2%
English and Math remediation(percentage of students required remediation among First-time freshmen at entry)												
EPT_Rem	26.6%	27.5%	23.4%	32.7%	31.8%	28.6%	24.3%	24.4%	26.0%	31.3%	33.8%	27.8%
ELM_Rem	65.7%	61.4%	48.8%	34.6%	39.2%	48.1%	48.7%	45.8%	41.2%	39.3%	35.4%	42.4%
High school GPA and SAT scores												
Average of HS_GPA	3.33	3.38	3.42	3.49	3.42	3.44	3.49	3.60	3.48	3.43	3.41	3.46
Average of SAT_COMP	934	936	938	977	967	953	985	999	999	984	986	990
Average of SAT_VERB	459	455	454	481	473	466	481	490	487	481	483	484
Average of SAT_MATH	475	481	484	496	494	487	504	509	512	503	502	506
Cumulative GPA and Units earned												
Average of Cum_Units	113.9	113.9	115.3	112.9	114.5	114.1	117.5	117.4	115.3	114.8	115.1	116.1
Average of Cum_GPA	2.98	2.95	2.98		2.99	2.98	2.90	2.93	2.94		2.94	2.93
Gender (Female%)												
HC	409	394	474	405	457	2139	1982	1669	1637	1678	1654	8620
%	69.2%	64.9%	64.4%	66.4%	64.5%	65.8%	50.6%	50.7%	49.3%	49.8%	50.5%	50.2%
Ethnicity												
AMER IND												
HC	8	3	5	4	7	27	37	38	43	23	33	174
%	1.4%	0.5%	0.7%	0.7%	1.0%	0.8%	0.9%	1.2%	1.3%	0.7%	1.0%	1.0%
ASIAN												
HC	70	71	94	69	90	394	402	338	376	395	399	1910
%	11.8%	11.7%	12.8%	11.3%	12.7%	12.1%	10.3%	10.3%	11.3%	11.7%	12.2%	11.1%
BLACK												
HC	25	36	39	25	21	146	150	116	129	145	141	681
%	4.2%	5.9%	5.3%	4.1%	3.0%	4.5%	3.8%	3.5%	3.9%	4.3%	4.3%	4.0%
HISP												
HC	161	172	206	172	223	934	1066	874	915	977	1019	4851
%	27.2%	28.3%	28.0%	28.2%	31.5%	28.7%	27.2%	26.5%	27.6%	29.0%	31.1%	28.2%
International												
HC	11	15	16	14	14	70	169	153	118	119	90	649
%	1.9%	2.5%	2.2%	2.3%	2.0%	2.2%	4.3%	4.6%	3.6%	3.5%	2.7%	3.8%
UNK												
HC	88	84	103	71	76	422	625	524	484	413	341	2387
%	14.9%	13.8%	14.0%	11.6%	10.7%	13.0%	16.0%	15.9%	14.6%	12.3%	10.4%	13.9%
WHITE												
HC	228	226	273	255	277	1259	1467	1251	1254	1299	1254	6525
%	38.6%	37.2%	37.1%	41.8%	39.1%	38.7%	37.5%	38.0%	37.8%	38.5%	38.3%	38.0%