Student Leadership and Academic Performance

--A Study of Student Club leaders

Office of Institutional Research

July-October 2011

Introduction

Based upon literature review and an analysis of best practices, it seems almost self-evident that student engagement, including co-curricular activities, has a positive impact on student academic performance. National Survey of Student Engagement (NSSE) reports, for example, have been widely used to study the relationship between student engagement and academic performance (NSSE 2007 & 2008). One recent study on second-year retention showed that "stayers" most likely participated in more co-curricular activities and spent more time on activities such as involvement in student clubs, athletic teams, or other social activities than did "leavers" (Williford & Wadley, 2008). However, another study seemed to suggest that participation in sports, fraternities, and sororities could either enhance or decrease student academic motivation (Van Etten, Pressley, McInerney & Darmanegara, 2008).

Several ground-breaking studies on this topic (Astin, 1985; Tinto, 1993; Pascarella & Terenzini, 2005) suggest that there is a positive correlation between student engagement and student learning and persistence. Astin theorized that student learning is a function of a student's level of academic and social involvement with the institutional environment, whereas Tinto posited that the extent to which students share the values and norms of other individuals in the institution impacts their persistence in college.

The research question of this study is whether students who participated in co-curricular activities during their college career, in this case serving as club leaders and/or student government, achieved higher academic performance than their peers who were not involved in such activities. In other words, universities invest a great deal of money and manpower in support of co-curricular activities in an effort to foster student engagement; therefore, it is also necessary to assess if such intervention actually enhances student academic performance. Furthermore, it is necessary to examine the impact of serving in club leadership and/or student government with regard to retention and graduation more directly, with quantitative measurements, beyond the interpreted results of surveys or self reporting. This study also attempts to address the concern that these types of activities may actually affect student grades and GPAs in a negative manner due to competing time, task and schedule requirements.

With assistance from the Division of Student Affairs, data was recently collected with regard to student participation in club leadership at Sacramento State. Subsequently, the Office of Institutional Research (OIR) conducted a research project derived from this data as relevant to the co-curricular activities and academic performance of these students.

Sample and Methodology

Native freshman cohorts from 2006-2009 (N=10,822) and undergraduate transfer cohorts from 2007-2009 (N=10,376) were selected for use as samples in this study to ensure that the data used was sufficient for retention and academic performance analyses. In addition, native freshmen cohorts from 2003-2004 (N= 4,787) and undergraduate transfer cohorts from 2005-2006 (N=6,386) were also selected since these were the most recent samples which allowed for the calculation and analysis of 6 and 4-year graduation rates.

All students were subsequently divided into two groups: "Club leaders" and "Other" students. Students who served in a leadership position in at least one club at any time during their college career were defined as being club leaders starting from the term(s) in which they initially served. For example, if a student became a club leader during their second year in college they would be defined as being a "club leader" for their second year but as "Other" for their first year. However, this student would also be defined as being a "club leader" in the

following years of their college career even though they may or may not have continued to engage in such activities since they had, at one time, served in a club leadership position.

Three measurements were adopted to compare the academic performances of the two groups: Cumulative GPA by Term, Good Standing rate, and Retention rate during the first three college years. Two additional measurements were used to compare graduation: 6-year or 4-year graduation rate and Cumulative GPA at time of Degree (Degree GPA), which represents both the quantity and quality of graduation of the two groups within this study.

To ensure that the two groups were comparable, background analyses were conducted for both native freshmen and transfers. T-Tests and Chi-Square Tests were conducted to identify any significant differences that might exist between the two groups in relation to their academic backgrounds or demographic characteristics. In relation to this, it is worth noting that the significance level was set at $p<.001$ due to the fact that the population size of "Club leaders" was much smaller than that of "Other" students. In addition, two logistic regression models were developed for native freshmen and transfers which included all background and intervention/activity variables. These regression models demonstrate the prediction power of each variable in relation to graduation.

For native freshmen, two sub-categories were adapted to conduct comparison analyses of the academic performance and retention rates of the two groups during the second and third college year based on analyses of their background characteristics. The categories selected were: students in need of remediation and students who were commuters within the 2006-2009 cohorts. Two additional sub-categories were adopted to compare the graduation rate and degree GPA of Club leaders and "Other" students within 2003-2004 cohorts: students with high school GPAs below 3.0 plus commuters, and students with high school GPAs equal to or above 3.0 plus commuters based on analyses of their background characteristics.

In relation to undergraduate transfers, all transfer students were included in the analyses of retention and academic performance since the background characteristics of Club leaders were similar to those of "Other" students within the 2007-2009 cohorts from the first to third year. However, with respect to comparing the graduation rates of transfer students from among the 2005-2006 transfer cohorts, it was noted that a large number of Club leaders were full-time students during their first term. Therefore, full-time status at first-term was used as a controlling variable in the analysis of transfers.

In addition, a supplemental category was implemented with regard to Under-represented Minority (URM) status for both native freshmen and transfer students in order to review the academic performance of URM Club leaders.

Student Start-times & Service Years in Club Leadership

Data pertaining to student participation in club leadership came from two tracking records: the first file tracks club leaders from 2005-2008 and second file tracks them from 2008-2011. Due to the limited nature of the data available, the student service years in club leadership for the 2003-2004 native freshmen cohorts may not be complete as the supplied record started tracking in 2005. By combining the two tracking files together and merging that data with the native freshmen and transfer cohort files, this study was able to demonstrate the year in which students began their role in club leadership, as well as the number of years in which they served.

According to this analysis, 60% of native freshmen club leaders and 77% of transfer student club leaders started their activity in their second or third year. Additionally, 68% of native freshmen club leaders and 78% of

transfer student club leaders served for just one year during their college career. The trend analysis shows that more and more students served as club leaders and began their activities earlier from 2005 to 2011(See tables below).

Table 1. **Start Year for Club Leaders**

	1st Year	2nd Year	3rd Year	4th Year	5th Year or Later	Total	% Start at 2nd or 3rd year
Native Freshmen							
2006 Cohort	29	67	87	65	31	279	55.2%
2007 Cohort	22	63	71	47	1	204	65.7%
2008 Cohort	17	67	91			175	
2009 Cohort	39	88				127	
Total Club Leader	107	285	249	112	32	785	60.4%
Transfers							
2005 Cohort	12	90	53	7	9	171	83.6%
2006 Cohort	28	87	57	17	14	203	70.9%
2007 Cohort	34	75	61	11		181	
2008 Cohort	23	103	60			186	
2009 Cohort	44	123				167	
Total Club Leader	141	478	231	35	23	908	77.3%

Table 2. **Service Years of Club Leaders**

Cohort	1 year	2 years	3 years	4 years	Total	% Serve 1 Year
Native Freshmen						
2003 Cohort	138	73	11	1	223	65.4%
2004 Cohort	164	67	20	1	252	71.0%
2006 Cohort	162	78	31	8	279	67.5%
2007 Cohort	153	44	6	1	204	
2008 Cohort	144	30	1		175	
2009 Cohort	113	14			127	
Total Club Leader	*874*	*306*	*69*	*11*	*1260*	*68.0%*
Transfers						
2005 Cohort	129	40	2		171	76.3%
2006 Cohort	151	42	10		203	78.2%
2007 Cohort	139	38	4		181	78.5%
2008 Cohort	163	22	1		186	
2009 Cohort	156	11			167	
Total Club Leader	*738*	*153*	*17*		*908*	*77.7%*

The gray areas in Table 1 and Table 2 indicate that students from within those cohorts have not yet reached their 3rd or greater college year. Therefore, averages pertaining to start year or number of service years have only been calculated for those cohorts that have been at the university for at least three years.

Results for Native Freshmen:

Comparative Analyses for Academic Performance during First College Year

When comparing the background characteristics of Club leaders and "Other" students within the 2006-2009 cohorts, the results showed that there were no significant differences between the two groups at the first college year. Consequently, in order to ensure the accuracy of comparative analyses relating to academic performance, only club leaders who started their leadership activities during their first college year were selected. Table 3 (below) displays the background comparison analyses:

Table 3. **First Year: Characteristics of Club Leaders and Other Students (All)**

	Club Leaders			Other				Statistical
2006-2009 Native Freshmen	Count	%	Mean	Count	%	Mean	Gap	Significance
Age (Entering year)	107		17.9	10,715		18.0	0.0	No
Gender								
Female	55	51.4%		6,339	59.2%		-7.8%	No
Male	52	48.6%		4,376	40.8%			
Ethnicity								
URM	46	43.0%		3,438	32.1%		10.9%	No
Other	61	57.0%		7,277	67.9%			
Commuter (first term)	70	65.4%		7,712	72.0%		-6.6%	No
Full-time (first term)	104	97.2%		10,332	96.4%		0.8%	No
HS GPA	107		3.2	10,686		3.2	0.0	No
SAT Score	84		982	8,727		956	26	No
Need Remediation	61	57.0%		6,924	64.6%		-7.6%	No
Total	107			10,715				

T-Test, p<0.001.

When reviewing the start years of Club leaders it becomes apparent that only a very small portion of native freshmen became club leaders during their first college year. Interestingly, those that did become club leaders during their first year came from backgrounds similar to that of "Other" students. As such, their academic performances were comparable. Five measurements were adopted for the comparison, including; the Cumulative GPA of their first and second term, Good Standing rate of first and second term, and 1-year Retention rate. According to the analysis, even though Club leaders performed better than "Other" students in all five measurements, only the 1-year Retention rate of Club leaders was determined to be significantly higher than the rate of "Other" students (See Table 4 next page).

Table 4: **First Year Academic Performance (2006-2009 Native Freshmen Cohort)**

	Club Leaders			Other				
	Count	Rate	Mean	Count	Rate	Mean	Gap	Statistical Significance
Cumulative GPA								
First Term	107		2.8	10,715		2.5	0.3	No
Second Term	106		2.7	9,960		2.6	0.2	No
Good Standing Rate								
First Term	94	87.9%		8,377	78.2%		9.7%	No
Second Term	91	85.8%		7,730	77.6%		8.2%	No
Retention								
1 Year Later	102	95.3%		8,297	77.4%		17.9%	Yes

T-Test, p<0.001. Higher value is highlighted in Yellow.

Comparative Analyses for Academic Performance during Second and Third College Year

Since a greater number of students served as club leaders during their second and third college year, their characteristics were reviewed as well. A larger percentage of Club leaders were full-time students during their first term at the university, and they had higher high school GPAs and SAT scores than "Other" students. In the mean time, a smaller percentage of Club leaders were commuters or needed remediation than "Other" students (See Table 5 below).

Table 5 **2nd and 3rd Year: The Characteristics of Club Leaders and Other Students (All)**

2006-2009 Native Freshmen Cohorts	Club Leaders			Others			Gap	Statistical Significance
	Count	%	Mean	Count	%	Mean		
Second Year								
Gender								
Female	217	55.4%		6,177	59.2%		-3.9%	No
Male	175	44.6%		4,253	40.8%			
Ethnicity								
URM	148	37.8%		3,336	32.0%		5.8%	No
Non-URM	244	62.2%		7,094	68.0%			
Commuter(1st Term)	222	56.6%		7,560	72.5%		-15.9%	Yes
Full-time(1st Term)	387	98.7%		10,049	96.3%		2.4%	Yes
Need Remediation	218	55.6%		6,767	64.9%		-9.3%	Yes
HS GPA	392		3.3	10,401		3.2	0.1	No
SAT Score	314		995	8,497		955	39	Yes
Total	392			10,430				

Third Year

Gender								
Female	295	57.4%		4,327	59.8%		-2.4%	No
Male	219	42.6%		2,905	40.2%			
Ethnicity								
URM	195	37.9%		2,286	31.6%		6.3%	No
Other	319	62.1%		4,946	68.4%			
Commuter (first term)	284	55.3%		5,336	73.8%		-18.5%	Yes
Full-time (first term)	508	98.8%		6,974	96.4%		2.4%	Yes
Need Remediation	279	54.3%		4,763	65.9%		-11.6%	Yes
HS GPA	511		3.3	7,212		3.2	0.1	Yes
SAT Score	406		1001	5,710		954	47	Yes
Total	514			7,232				

T-Test, p<0.001. Higher value is highlighted in yellow.

As noted in Table 5, Club leaders came from better academic background. Thus, it was necessary to include some controlling variables to the analyses in order to compare the academic performance of Club leaders and "Other" students. When controlling for Need for Remediation or Commuter Status, the differences between Club leaders and "Other" students, in relation to such things as high school GPA, SAT score and full-time status at first term, diminished.

Within the sub-category of need for remediation, the characteristics of Club leaders become more similar to those of "Other" students. Only two variables were still significantly different: Commuter status and URM status. These factors should be taken into consideration when comparing the academic performance of Club leaders and "Other" students (See Table 6 below).

Table 6. 2nd and 3rd Year: The Characteristics of Club Leaders and Other Students (Remediation)

2006-2009 Native Freshmen Cohorts	Club Leaders			Others			Gap	Statistical Significance
	Count	%	Mean	Count	%	Mean		
Second Year								
Gender								
Female	129	59.2%		4,212	62.2%		-3.1%	No
Male	89	40.8%		2,555	37.8%			
Ethnicity								
URM	112	51.4%		2,597	38.4%		13.0%	Yes
Other	106	48.6%		4,170	61.6%			
Commuter (first term)	131	60.1%		4,987	73.7%		-13.6%	Yes
Full-time (first term)	214	98.2%		6,514	96.3%		1.9%	No
HS GPA	218		3.2	6,741		3.1	0.1	No
SAT Score	169		881	5,341		874	8	No
Total	218			6,767				

Third Year

Gender								
Female	164	58.8%		2,983	62.6%		-3.8%	No
Male	115	41.2%		1,780	37.4%			
Ethnicity								
URM	137	49.1%		1,791	37.6%		11.5%	Yes
Other	142	50.9%		2,972	62.4%			
Commuter (first term)	163	58.4%		3,567	74.9%		-16.5%	Yes
Full-time (first term)	275	98.6%		4,591	96.4%		2.2%	No
HS GPA	276		3.1	4,745		3.1	0.0	No
SAT Score	209		885	3,628		873	12	No
Total	279			4,763				

T-Test, p<0.001. Higher value is highlighted in Yellow.

In relation to students in need of remediation, Club leaders outperformed "Other" students by a significant margin based on all five measurements at the second year. In relation to academic performance at the third year, however, the only significant difference was the 3-year retention rate (See Table 7 below)

Table 7. **2nd and 3rd Year Academic Performance (Remediation)**

2006-09 Native Freshmen	Club Leaders			Other			Gap	Statistical Significance
	Count	Rate	Mean	Count	Rate	Mean		
Second Year								
Cumulative GPA								
Third Term	214		2.7	5,070		2.6	0.2	Yes
Fourth Term	208		2.7	4,709		2.6	0.1	Yes
Good Standing Rate								
Third Term	196	91.6%		4,237	83.6%		8.0%	Yes
Fourth Term	196	94.2%		4,060	86.2%		8.0%	Yes
Retention								
2 Years Later	140	90.9%		2,995	61.3%		29.6%	Yes
Third Year								
Cumulative GPA								
Fifth Term	264		2.7	2,871		2.7	0.1	No
Sixth Term	255		2.7	2,786		2.7	0.1	No
Good Standing Rate								
Fifth Term	247	93.6%		2,583	90.0%		3.6%	No
Sixth Term	239	93.7%		2,539	91.1%		2.6%	No
Retention								
3 Years Later	171	89.5%		1,714	53.6%		35.9%	Yes

T-Test, p<0.001. Higher value is highlighted in Yellow.

Within the commuter subcategory, the characteristics of Club leaders were similar to those of "Other" students during the second college year. However, three variables were significantly different in the third year, such as; URM status, full-time at first term, and SAT score. Again, these factors should be taken into consideration when comparing the academic performance of Club leaders and "Other" students (See Table 8 below).

Table 8. **2nd and 3rd Year: The Characteristics of Club Leaders and Other Students (Commuters)**

2006-09 Native Freshmen	Club Leaders			Others				
	Count	%	Mean	Count	%	Mean	Gap	Statistical Significance
Second Year								
Gender								
Female	121	54.5%		4,538	60.0%		-5.5%	No
Male	101	45.5%		3,022	40.0%			
Ethnicity								
URM	94	42.3%		2,371	31.4%		11.0%	No
Other	128	57.7%		5,189	68.6%			
Need Remediation	131	59.0%		4,987	66.0%		-7.0%	No
Full-time (first term)	218	98.2%		7,229	95.6%		2.6%	No
HS GPA	222		3.3	7,547		3.2	0.1	No
SAT Score	169		983	6,073		946	37	No
Total	222			7,560				
Third Year								
Gender								
Female	166	58.5%		3,215	60.3%		-1.8%	No
Male	118	41.5%		2,121	39.7%			
Ethnicity								
URM	119	41.9%		1,642	30.8%		11.1%	Yes
Other	165	58.1%		3,694	69.2%			
Need Remediation	163	57.4%		3,567	66.8%		-9.5%	No
Full-time (first term)	280	98.6%		5,105	95.7%		2.9%	Yes
HS GPA	282		3.3	5,328		3.2	0.1	No
SAT Score	212		987	4,152		946	41	Yes
Total	284			5,336				

T-Test, p<0.001. Higher value is highlighted in Yellow.

In relation to the academic performance of students who were commuters, Club leaders once again outperformed "Other" students significantly in all five measurements at the second year. In addition, Club leaders continued to perform well at the third year and maintained a significantly higher cumulative GPA in both the fifth and sixth term, as well as a much higher 3-year retention rate. However, the Good Standing rates for both groups were at similar levels at the third year (See Table 9 on the following page).

Table 9: **2nd and 3rd Year Academic Performance (Commuters)**

2006-09 Native Freshmen	Club Leaders			Other			Gap	Statistical Significance
	Count	Rate	Mean	Count	Rate	Mean		
Second Year								
Cumulative GPA								
Third Term	218		2.9	5,799		2.7	0.2	Yes
Fourth Term	212		2.9	5,435		2.7	0.2	Yes
Good Standing Rate								
Third Term	203	93.1%		5,008	86.4%		6.8%	Yes
Fourth Term	201	94.8%		4,810	88.5%		6.3%	Yes
Retention								
2 Years Later	134	89.9%		3,483	63.7%		26.3%	Yes
Third Year								
Cumulative GPA								
Fifth Term	268		2.9	3,349		2.8	0.1	Yes
Sixth Term	259		2.9	3,260		2.8	0.1	Yes
Good Standing Rate								
Fifth Term	255	95.1%		3,074	91.8%		3.4%	No
Sixth Term	246	95.0%		3,028	92.9%		2.1%	No
Retention								
3 Years Later	169	90.9%		2,002	56.7%		34.2%	Yes

T-Test, p<0.001. Higher value is highlighted in Yellow.

With respect to the underrepresented minority subset of students, URM Club leaders achieved significantly higher levels of academic performance than "Other" URM students in terms of Cumulative GPA, Good Standing rate and 2-year retention rate at the second college year. This gap became narrower at the third year: Club leaders continued to gain a higher Cumulative GPA and 3-year retention rate than "Other" URM students, but their Good Standing rate was similar to that of "Other" URM students.

It is worth noting, however, that URM club leaders had higher high school GPAs than "Other" URM students and URM club leaders were also more likely to be full-time students at their first term. As such, those factors should be taken into consideration when comparing the academic performance of URM Club leaders and "Other" URM students (See Table 10 on the following page).

Table 10. **2nd and 3rd Year Academic Performance (Underrepresented Minority)**

2006-09 Native Freshmen	Club Leaders			Others				
	Count	%	Mean	Count	%	Mean	Gap	Statistical Significance
Second Year								
Cumulative GPA								
Third Term	146		2.8	2,440		2.5	0.2	Yes
Fourth Term	144		2.8	2,262		2.6	0.2	Yes
Good Standing Rate								
Third Term	136	91.6%		1,995	81.8%		9.8%	Yes
Fourth Term	136	94.4%		1,926	85.1%		9.3%	Yes
Retention								
2 Years Later	98	94.2%		1,387	58.4%		35.9%	Yes
Third Year								
Cumulative GPA								
Fifth Term	188		2.8	1,297		2.6	0.15	Yes
Sixth Term	181		2.8	1,265		2.7	0.13	No
Good Standing Rate								
Fifth Term	175	93.1%		1,153	88.9%		4.2%	No
Sixth Term	170	93.9%		1,151	91.0%		2.9%	No
Retention								
3 Years Later	111	91.7%		751	51.6%		40.2%	Yes

T-Test, p<0.001. Higher value is highlighted in Yellow.

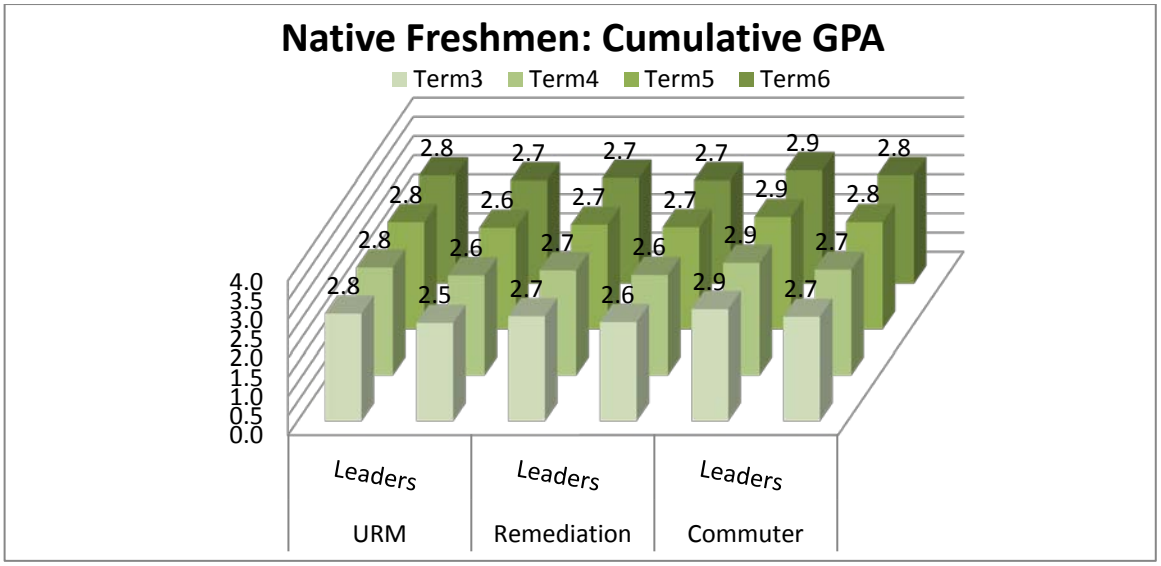
Summation of 3-year Trend Analysis

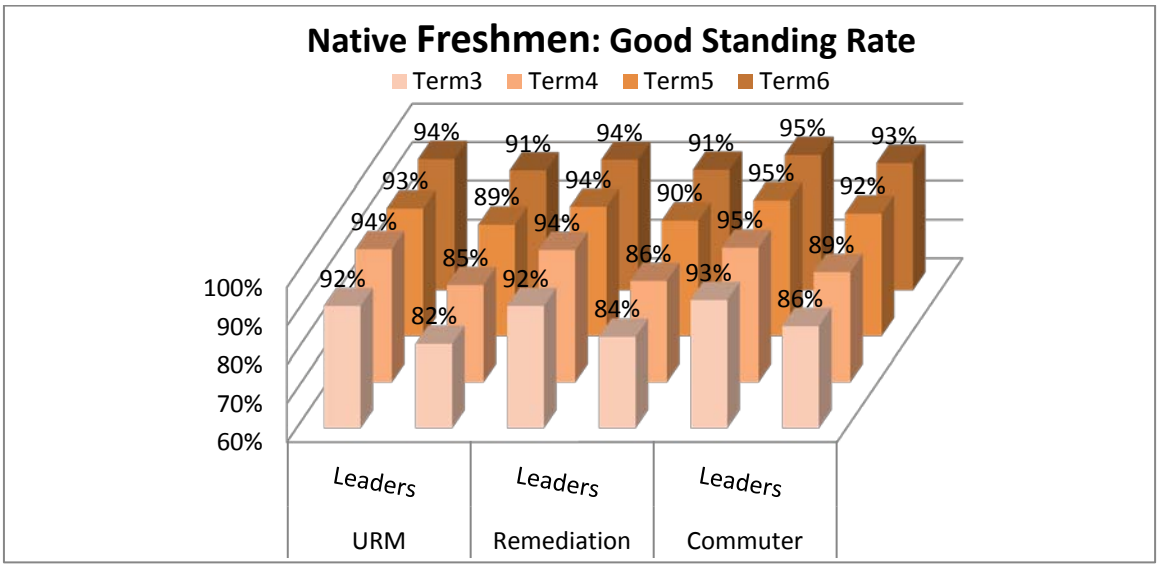
- The 1, 2 and 3-year retention rates for Club leaders were much higher than those of "Other" students. The retention gap between these two groups ranged from 26% to 40% across all three sub-categories, including; underrepresented minority, students in need of remediation and commuters.

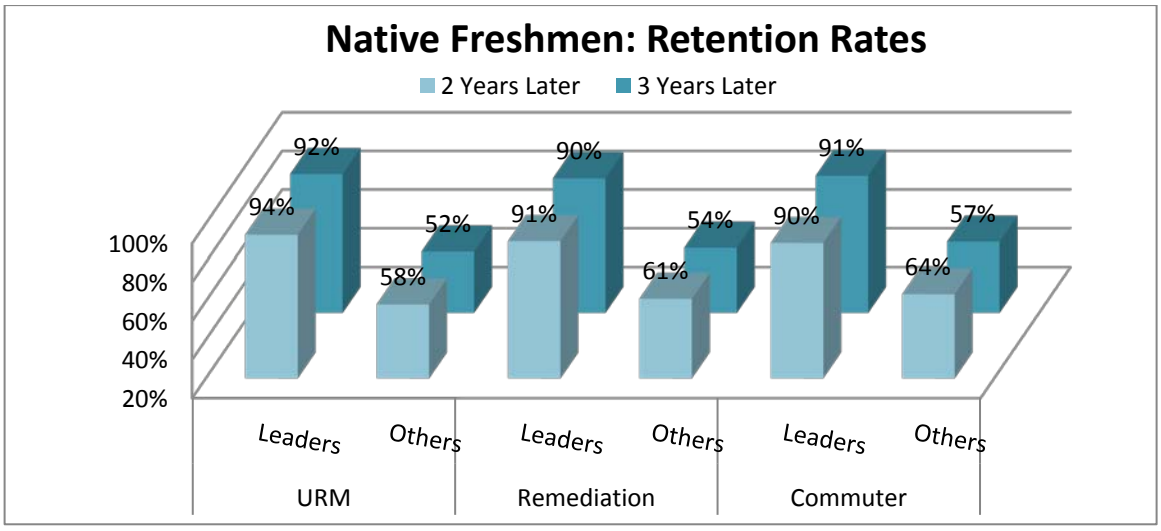
- The first-year cumulative GPA of Club leaders was similar to that of "Other" students. However, the cumulative GPAs of Club leaders were significantly higher than "Other" students in the second year for students in need of remediation. However, that gap vanished by the third year. Club leaders also maintained significantly higher GPAs at both the second and third year within the commuter subgroup, as well as in the third, fourth, and fifth term for URM students.

- The Good Standing rate for Club leaders at their first year was also similar to that of "Other" students. Yet, Club leaders achieved significantly higher Good Standing rates across all three sub-categories at the second year (with a gap of 6%-10% higher). However, the gap between Club leaders and "Other" students narrowed at the third year across all sub-categories.

The following graphs illustrate the comparisons and trends for the three sub-categories:







Comparative Analyses for Graduation Rates of Native Freshmen

2003-2004 freshmen cohorts were selected for graduation analyses since they were the most recent sample which allowed for the calculation of a 6-year graduation rate. When comparing backgrounds, Club leaders had a significantly higher average high school GPA, and a much smaller proportion of them were commuters. However, these two groups became more similar, and therefore more apt for comparison, after the students were divided into two sub-categories: HS GPA Equal or Above 3.0 plus Commuter and HS GPA Below 3.0 plus Commuter (See Table 11 below).

Table 11: **All Students: Characteristics of Club Leaders and Other Students**

2003-2004 Native Freshmen Cohorts	Club Leaders			Other			Gap	Statistical Significance
	Count	%	Mean	Count	%	Mean		
Age (Entering year)	475		17.9	4,312		18.0	0.0	No
Gender								
Female	264	55.6%		2,607	60.5%		-4.9%	No
Male	211	44.4%		1,705	39.5%			
Ethnicity					0.00%			
URM	165	34.7%		1,214	28.2%		6.6%	No
Other	310	65.3%		3,098	71.8%			
Commuter (first term)	280	58.9%		3,023	70.1%		-11.2%	Yes
Need Remediation	270	56.8%		2,592	60.1%		-3.3%	No
Full-time (first term)	464	97.7%		4,146	96.2%		1.5%	No
HS GPA	473		3.3	4,301		3.2	0.1	Yes
SAT Score	393		984	3,654		963	21	No
Total	475			4,312				

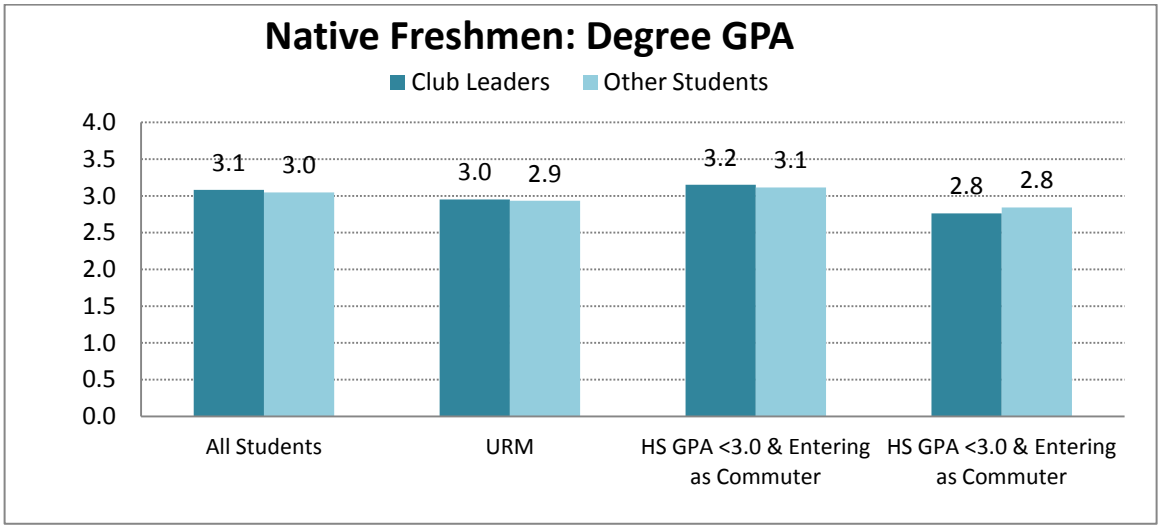
T-Test, p<0.001. Higher value is highlighted in Yellow.

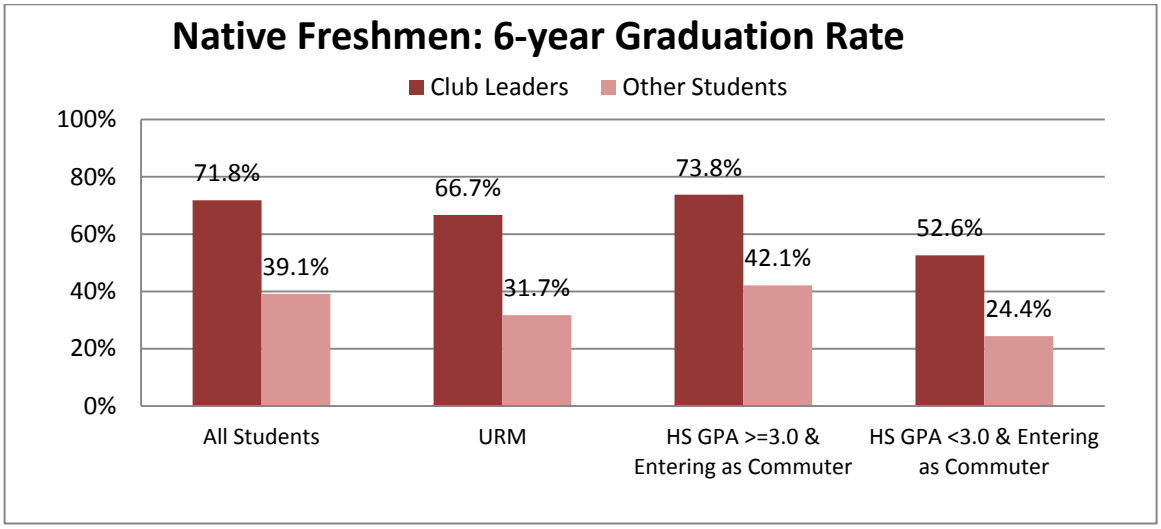
Two measurements were adopted for graduation comparison: 6-year graduation rate and degree GPA. The results of this analysis show that Club leaders achieved a significantly higher graduation rate than "Other" students while maintaining a remarkable similar degree GPA, regardless of their high school GPA levels. The 6-year graduation rate of Club leaders was often double that of "Other" students within the 2003-2004 cohorts, as well as across all three sub-categories. In addition, underrepresented minority students who served as Club leaders also achieved higher graduation rates than "Other" URM students who did not. 13 students were excluded from this comparison since they did not submit their high school GPAs (See Table 12 and two graphs on next page).

Table 12 **6- Year Graduation (2003 & 2004 Native Freshmen Cohort)**

	Club Leaders			Other				
	Count	Rate	Mean	Count	Rate	Mean	Gap	Statistical Significance
Graduation Rate								
All Students	341	71.8%		1,688	39.1%		32.6%	Yes
HS GPA >=3.0 & Entering as Commuters	163	73.8%		916	42.1%		31.6%	Yes
HS GPA <3.0 & Entering as Commuters	30	52.6%		206	24.4%		28.2%	Yes
Underrepresented Minority	110	66.7%		385	31.7%		35.0%	Yes
Degree GPA								
All Students	341		3.1	1,688		3.0	0.04	No
HS GPA >=3.0 & Entering as Commuters	163		3.2	916		3.1	0.04	No
HS GPA <3.0 & Entering as Commuters	30		2.8	206		2.8	-0.08	No
Underrepresented Minority	110		3.0	385		2.9	0.02	No

T-Test, p<0.001. Higher value is highlighted in Yellow.





A logistic regression model was developed to examine the prediction power that being a club leader has on graduation. In this model, the 6-year graduation rate was the dependent variable while eight factors relating to student backgrounds and intervention/activities were selected for independent variables. Ultimately, some of the variables were eliminated during development as they didn't show a significant impact on graduation. According this model, being a club leader was the strongest predictor among the eight. When taking all predictors into account, club leaders were 4 times more likely to graduate within 6 years than non-club leaders (See Table 13 below).

Table 13. **Logistic Regression Model for Graduation (Native Freshmen)**

Predict Variables	B	S.E.	Wald	df	Sig.	Exp(B)	Odds Ratio	Rank
Commuter(1)	.336	.069	23.473	1	.000	1.399	1.4	4
Gender(1)	-.141	.065	4.716	1	.030	.869	1.2	7
High School GPA	1.115	.079	198.631	1	.000	3.050	3.0	2
URM(1)	.244	.071	11.699	1	.001	1.277	1.3	5
Athlete(1)	-.439	.154	8.070	1	.005	.645	1.6	3
Freshman Seminar(1)	-.134	.070	3.687	1	.055	.875		
Learning Community(1)	-.283	.088	10.360	1	.001	.753	1.3	5
Club Leader(1)	-1.375	.111	152.989	1	.000	.253	4.0	1
Constant	-2.135	.329	42.181	1	.000	.118		
Model Indicators								
Baseline P*	42.4%		Chi-Square (df)		506.848(8)			
Model N	4,785		Pseudo R^2		.101-.135			
-2log L	5997.053		% Correctly predicted		63.6%			

* Refers to the 6-year graduation rate of 2003-2004 native freshmen cohorts

Results for Transfer Students:

Comparative Analyses for Academic Performance during First College Year

When comparing the background characteristics of Club leaders and "Other" students within the 2007-2009 transfer cohorts, no significant differences were found to exist between the two groups at the first year. Please note, however, that transfer GPAs for the 2007 cohort were incomplete due to the CMS conversion (See Table 14 on next page).

Table 14. **First Year: Characteristics of Club Leaders and Other Students**

	Club Leaders			Other				Statistical
2007-2009 Transfers Cohorts	Count	%	Mean	Count	%	Mean	Gap	Significance
Age (Entering year)	101		23.6	10,275		24.1	-0.5	No
Gender								
Female	46	45.5%		5,873	57.2%		-11.6%	No
Male	55	54.5%		4,402	42.8%			
Ethnicity								
URM	28	27.7%		2,155	21.0%		6.7%	No
Other	73	72.3%		8,120	79.0%			
Class level								
Lower Division	12	11.9%		1,381	13.4%		-1.6%	No
Upper Division	89	88.1%		8,894	86.6%			
From Community Colleges	43	42.6%		5,328	51.9%		-9.3%	No
Transfer GPA	61		3.0	6,084		3.0	0.0	No
Total	101			10,275				

T-Test, p<0.001.

As with native freshmen; five measurements were adopted for comparing the academic performance of transfer students, including Cumulative GPA of first and second term, Good Standing rate of first and second term, and 1-year Retention rate. Like the results for native freshmen, the differences found between transfer Club leaders and "Other" students in relation to academic performance at the first year were not statistically significant. Unlike native freshmen, the 1-year retention rate of transfer Club leaders was not significantly higher than the rate of "Other" students (See Table 15 below).

Table 15. **First Year Academic Performance (2007-2009 Transfer Cohort)**

	Club Leaders			Other				Statistical
	Count	%	Mean	Count	%	Mean	Gap	Significance
Cumulative GPA								
First Term	101		2.9	10,275		2.8	0.1	No
Second Term	95		3.1	9,317		2.9	0.1	No
Good Standing Rate								
First Term	92	91.1%		9,403	91.5%		-0.4%	No
Second Term	90	94.7%		9,075	97.4%		-2.7%	No
Retention								
1 Year Later	93	92.1%		8,497	82.7%		9.4%	No

T-Test, p<0.001.

Comparative Analyses for Academic Performance during Second and Third College Year

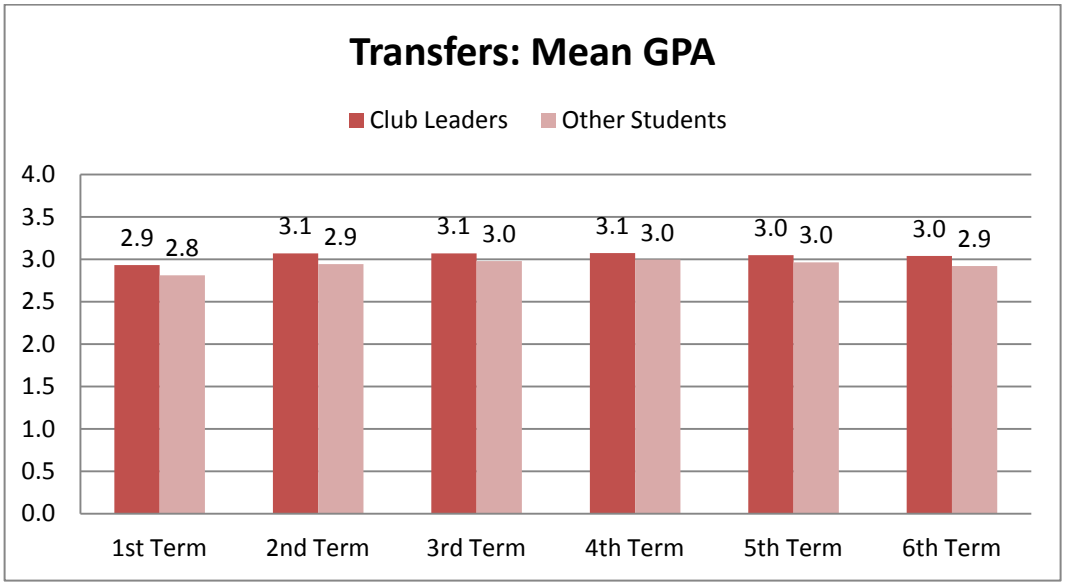
The characteristics of transfer student Club leaders and "Other" transfer students did not change much at second or third year, although the number of Club leaders increased dramatically from the first year to the second and third.

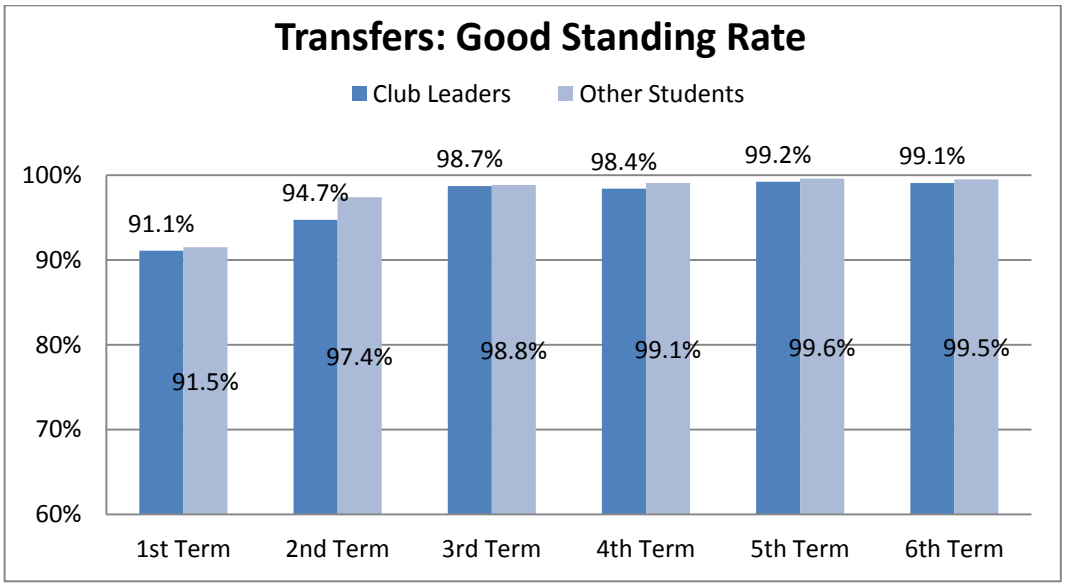
The results indicate that club leaders achieved significantly higher 2 and 3-year retention rates than "Other" students. Their GPAs were also higher at the third and the sixth term. However, the Good Standing rate between Club leaders and "Other" students remained similar to one another in both the 2nd and 3rd year (See Table 16 below and graphs on next pages).

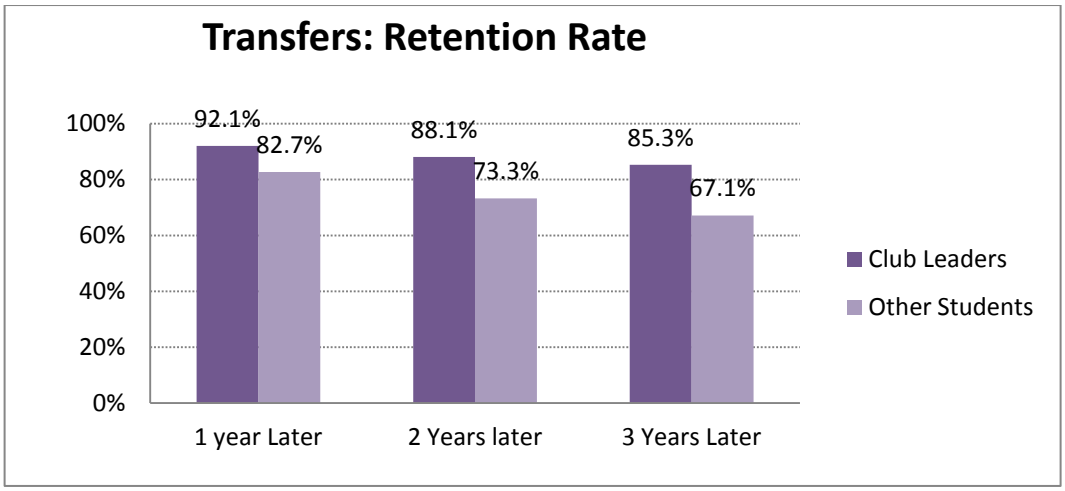
Table 16. **2nd and 3rd Year Academic Performance (2007-2009 Transfer Cohort)**

	Club Leaders			Others				
	Count	%	Mean	Count	%	Mean	Gap	Statistical Significance
Second Year								
Cumulative GPA								
Third Term	390		3.1	8,145		3.0	0.1	Yes
Fourth Term	379		3.1	7,615		3.0	0.1	No
Good Standing Rate								
Third Term	385	98.7%		8,051	98.8%		-0.1%	No
Fourth Term	373	98.4%		7,544	99.1%		-0.7%	No
Retention								
2 Years Later	207	88.1%		4,629	73.3%		14.8%	Yes
Third year								
Cumulative GPA								
Fifth Term	259		3.0	3,267		3.0	0.1	No
Sixth Term	216		3.0	2,411		2.9	0.1	Yes
Good Standing Rate								
Fifth Term	257	99.2%		3,254	99.6%		-0.4%	No
Sixth Term	214	99.1%		2,399	99.5%		-0.4%	No
Retention								
3 Years Later	145	85.3%		2,170	67.1%		18.2%	Yes

T-Test, p<0.001. Higher value is highlighted in yellow.


Transfers: Mean GPA
Club Leaders
Other Students
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
2.9
2.8
3.1
2.9
3.1
3.0
3.1
3.0
3.0
3.0
3.0
2.9
1st Term
2nd Term
3rd Term
4th Term
5th Term
6th Term


Transfers: Good Standing Rate
Club Leaders
Other Students
100%
90%
80%
70%
60%
91.1%
91.5%
94.7%
97.4%
98.7%
98.8%
98.4%
99.1%
99.2%
99.6%
99.1%
99.5%
1st Term
2nd Term
3rd Term
4th Term
5th Term
6th Term


Transfers: Retention Rate
100%
80%
60%
40%
20%
0%
92.1%
82.7%
88.1%
73.3%
85.3%
67.1%
1 year Later
2 Years later
3 Years Later
Club Leaders
Other Students

Comparative Analyses for Graduation Rates of Transfer Students

The 2005-2006 transfer cohorts were selected for graduation analyses since these were the most recent available which allowed for the calculation of 4-year graduation rates. The same two measurements used for native freshmen were also used for transfer students: graduation rate and degree GPA. When reviewing the background characteristics of Club leaders and "Other" students from with the 2005-2006 transfer cohorts, it was revealed that a significantly larger proportion of Club leaders were full-time students during their first term (See Table 17 below).

Table 17: **Characteristics of Club Leaders and Other Students**

	Club Leaders			Other				
2005-2006 Transfer Cohorts	Count	%	Mean	Count	%	Mean	Gap	Statistical Significance
Age	374		23.1	6,012		24.1	-1.0	No
Gender								
Female	188	50.3%		3,494	58.1%		-7.8%	No
Male	186	49.7%		2,518	41.9%			
Ethnicity								
URM	81	21.7%		1,266	21.1%		0.6%	No
Other	293	78.3%		4,746	78.9%			
Class Level								
Lower Division	53	14.2%		683	11.4%			
Upper Division	321	85.8%		5,329	88.6%		-2.8%	No
Full-time (first-term)	320	85.6%		4,473	74.4%		11.2%	Yes
Transfer From CC	317	84.8%		5,141	85.5%		-0.8%	No
Transfer GPA	96		3.3	1,416		3.2	0.1	No
Total	374			6,012				

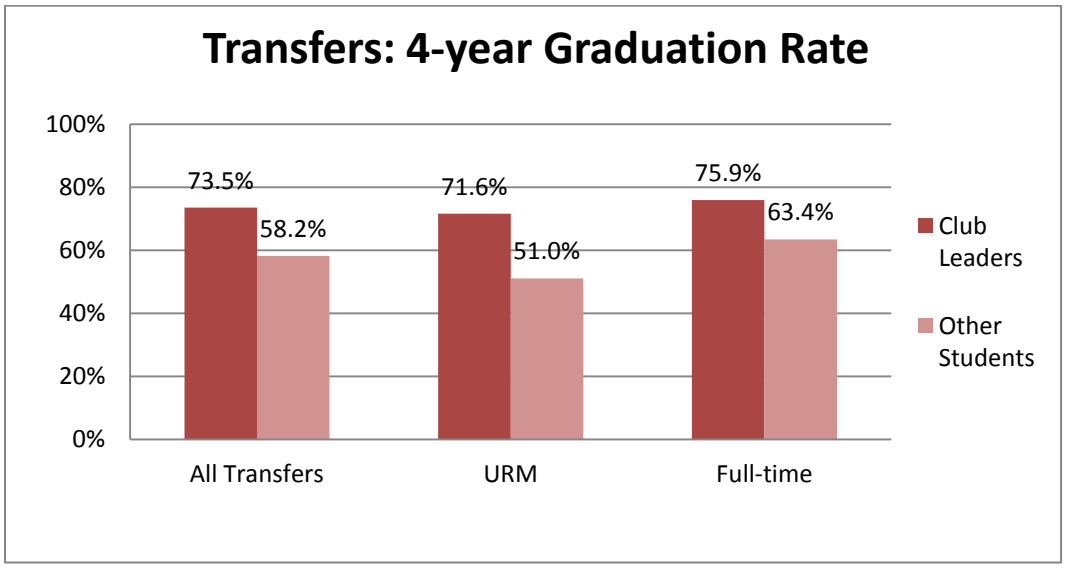
T-Test, p<0.001. Higher value is highlighted in yellow.

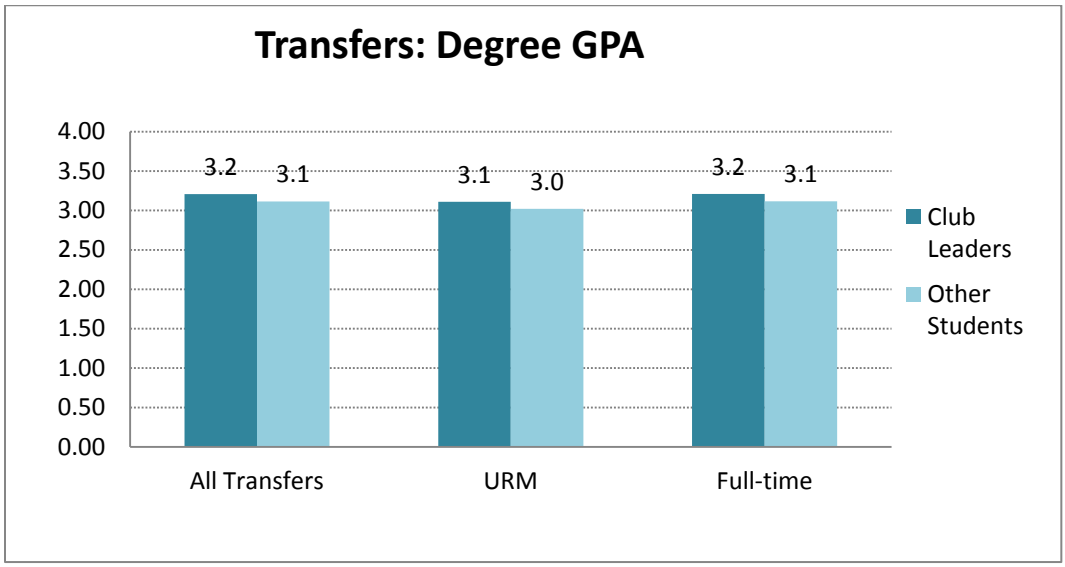
By controlling for the factor of being full-time at the first term, a sub-group was created for comparing the 4-year graduation rate and degree GPA of Club leaders and "Other" students who were transfers. In addition, URM students were also selected for use as a sub-group. According to the results of the analyses performed, Club leaders achieved a significantly higher 4-year graduation rate and degree GPA than "Other" students. The results were the same for the full-time at first-term sub-group. URM club leaders achieved a significantly higher 4-year graduation rate than URM non-club leaders, while maintaining a similar level of degree GPA as URM students who were not involved in club leadership activities (See Table 18 and graphs below and on following page).

Table 18 **4- Year Graduation Rate (2005 & 2006 Transfers)**

	Club Leaders			Other				
	Count	Rate	Mean	Count	Rate	Mean	Gap	Statistical Significance
Graduation Rate								
All Transfer	275	73.5%		3,499	58.2%		15.3%	Yes
URM	58	71.6%		646	51.0%		20.6%	Yes
Full-time (first- term)	243	75.9%		2,837	63.4%		12.5%	Yes
Degree GPA								
All Transfer	275		3.2	3,499		3.1	0.1	Yes
URM	58		3.1	646		3.0	0.1	No
Full-time (first- term)	243		3.2	2,837		3.1	0.1	Yes

T-Test, p<0.001. Higher value is highlighted in yellow.





Another logistic regression model was developed to examine the prediction power that being a club leader has on graduation for transfer students. For this model, the 4-year graduation rate was the dependent variable while nine factors relating to student backgrounds and intervention/activities were selected as independent variables. Unlike native freshmen, there are limited intervention/activities recorded for transfers. Thus, serving as a club leader is the sole activity factor for this model. Accordingly, when taking all other predictors into account, club leaders were 1.8 times more likely to graduate within 4 years than non-club leaders. However, transfer GPA and full-time status were the strongest predictors for 4-year graduation for transfers (See Table 19 below).

Table 19. Logistic Regression Model for Graduation (Transfers)

Predict Variables	B	S.E.	Wald	df	Sig.	Exp(B)	Odds Ratio	Rank
Gender(1)	.099	.113	.762	1	.383	1.104		
Age	-.022	.010	4.983	1	.026	.978	1.0	
URM(1)	.262	.139	3.577	1	.059	1.300		
Transfer GPA	.836	.113	54.448	1	.000	2.306	2.3	1
Transfer Units	.020	.004	23.772	1	.000	1.020	1.0	
Community College(1)	.155	.181	.732	1	.392	1.168		
Full-time at first term(1)	.842	.134	39.557	1	.000	2.321	2.3	1
College size	.000	.000	18.643	1	.000	1.000	1.0	
Club Leaders(1)	-.568	.261	4.737	1	.030	.566	1.8	3
Constant	-3.909	.595	43.134	1	.000	.020		

Model Indicators			
Baseline P*	60.0%	Chi-Square (df)	159.235(9)
Model N	6,389	Pseudo R^2	.100 -.136
-2log L	1836.954	% Correctly predicted	64.9%

* Refers to 4-year graduation rate of 2005-2006 transfer cohorts

Analyses and Recommendations

Within the selected native freshmen and transfer cohorts, a majority of those students (60% and 77%, respectively) who chose to be club leaders started their activities in either their second or third year. In addition, club leaders from both cohorts were likely to serve in their leadership position for just one year during their college careers (68% of native freshmen and 78% of transfers). However, this study demonstrated that serving as a club leader, no matter how many terms served, had lasting impact and was a positive contributing factor in relation to student academic performance, especially with regard to facilitating graduation.

Only 107 native freshmen and 101 transfers within the selected cohorts became club leaders during their first year at college, which is a very small group compared to the over 10,000 students who were non-club leaders within the native freshmen or transfer cohorts. It was interesting, however, to find that first-year club leaders actually came from similar academic backgrounds and had similar characteristics as non-club leader first-year students. The only variant worthy of note, when comparing academic performance at first year, was that native freshmen club leaders achieved a higher 1-year retention rate than non-club leader first-year students while transfer club leaders did not. Based upon these findings, the evidence suggests that serving as a club leader had positive impact on the 1-year retention of native freshmen. Nevertheless, both native freshmen and transfer

student club leaders maintained similar levels of cumulative GPA and Good Standing as non-club leaders during the first college year.

In a particularly noteworthy finding, the number of students who served as club leaders increased dramatically during students' second and third college years: the number of native freshmen serving as club leaders increased from 107 in the first year to 514 in the third year within the 2006-2009 cohort; while the number of transfer students serving as club leaders increased from 101 in the first year to 390 in the second year. However, in relation to the second year and third year, the student characteristics of native freshmen club leaders differed significantly from those of non-club leaders within the same cohort in terms of need for remediation, commuter status, full-time status at first term, SAT score, and high school GPA. Therefore, two sub-categories were employed to better compare the academic performance of club leaders and non-club leaders.

The first sub-group was comprised of students in need of remediation. The need for remediation is generally characterized as college-level students lacking the skills necessary to perform college-level work in reading, writing, or mathematics. About 65% of the selected freshmen had to take at least one remedial course in English, Math, or both. Based upon previous research performed by the Office of Institutional Research (OIR), remedial students at Sacramento State tend to have high attrition rates and lower GPAs than non-remedial students. This study revealed that remedial students who served as club leaders outperformed non-club leader remedial students in terms of retention rate, GPA and Good Standing rate at the second year. Remedial student club leaders continued to maintain a significantly higher 3-year retention rate than non-club leader remedial students while maintaining levels of GPA and Good Standing that were similar to that of non-club leader remedial students at the third year.

The second sub-group was made up of students who were commuters to the campus. Based upon a previous OIR study, commuters at Sacramento State generally have lower retention rates than non-commuters. However, the results of this study clearly show that commuters who served as club leaders achieved significantly higher retention rate than non-club leader commuter students at both the second and third year. In addition, club leaders who were commuters continued to outperform non-club leader commuter students in terms of GPA from the 4^{th} to 6^{th} term.

In relation to the 2007-2009 undergraduate transfer cohort, the background characteristics of transfer students who were club leaders and those who were not were very similar. Nonetheless, when comparing the academic performance of transfer student club leaders and non-club leader transfer students, club leaders achieved significantly higher 2 and 3-year retention rates than non-club leader transfers. Club leaders also achieved significantly higher GPAs at the third term and sixth term. Please note, however, that transfer student retention rates include students who returned in the beginning of the second or third year as well as those who graduated by the end of second or third year

Regarding retention, the 3-year trend analysis employed in this study indicated that native freshmen and transfers students who served as club leaders were more persistent at college than non-club leaders from the first to third year (with the single exception of 1-year retention for transfers). One reason behind this high level of retention is that club leaders generally are more engaged and have a greater sense of belonging to the campus community, which in turn supports and enforces their college commitment.

Club leaders maintained GPAs and rates of Good Standing which were similar to non-club leaders during the first year but proceeded to outperform non-club leaders at the second year. However, the performance gap between club leaders and non-club leaders became narrower during the third year. More importantly, serving as a club leader did not negatively impact student academic performance even though club leadership activities

often require extra time and may create competing schedules between the time requirements of club activities and time needed for study.

With regard to graduation, both native freshmen and transfer student club leaders achieved remarkably higher rates of graduation than non-club leaders. For native freshmen, the 6-year graduation rate of club leaders was 33% higher than that of non-club leaders. In order to provide a more meaningful analysis, the 2003-2004 native freshmen cohort was divided into two sub-categories; high school GPA equal or above 3.0 plus commuter and high school GPA below 3.0 plus commuter. In relation to these sub-groups, the 6-year graduation rate of club leaders was 28% to 33% higher than that of their non-club leader peers. For transfer students, the 4-year graduation rate of club leaders was 15% higher than that of non-club leaders. By controlling for the variable of being full-time at the first term, a sub-category of transfer students was developed to better gauge the impact of participation in student leadership on graduation. In relation to this sub-group, transfer students who were club leaders achieved a graduation rate that was 13% higher than that of non-club leader transfers. These findings provide further evidence in support of the notion that serving as club leader has long lasting impact and effect on graduation for both native freshmen and transfer students.

When taking into account other factors which also had impact on graduation, serving as a club leader was either the most powerful predictor in terms of the logistic regression model for native freshmen, or the third most powerful predictor in the logistic regression model for transfers. According to these two regression models, club leaders were 4 times more likely to graduate within 6 years than non-club leaders for native freshmen and 1.8 times more likely to graduate within 4 years than non-club leaders for transfers.

This influence was especially positive in relation to underrepresented minorities; URM club leaders achieved remarkably higher retention and graduation rates than their peers who were non-club leaders. The performance gap between the graduation rate of URM club leaders and URM non-club leaders was 35% for native freshmen and 21% for transfers, in spite of the fact that they both came from similar academic backgrounds. In summary, the positive influences of serving as a club leader seem to be robust no matter the dimension of the group examined or compared.

Based upon the results of this study, the following actions are recommended:

1. Invest more resources in support of student club activities in order to increase the reach and impact of these programs as participation in club leadership appears to be an effective contributing factor toward improving academic performance, enhancing retention, and facilitating graduation.

2. Improve recruiting efforts in order to increase and broaden the number and scope of students serving as club leaders, especially during their first year in college. Since club activity has been shown to have a long and lasting impact, students should be encouraged to participate, and to serve at least one year as a club leader. The key to success in this regard is to increase student engagement in campus activities through club participation; the more connected a student feels to the college the better they generally do.

3. Diversify recruiting efforts to target and attract more underrepresented minority to serve as club leaders; within the scope of this study, participation in club leadership activities appeared to have an extremely positive influence on these types of students.

4. Track all club members annually, rather than just tracking club leaders. Comparing the academic performance of club members, club leaders, and non-club participants will serve to develop a fuller and more complete picture regarding the impact that club activities has on student academic performance, retention and graduation.