



SF State Six-Year Student Outcomes by Declaration Status and Change of Major

November
2014

Fall 2007 First-Time Freshmen

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Introduction

Conventional wisdom has led many to believe that students who wait to declare a major, or who change their major, may be at increased risk of dropping out or prolonging their time to graduation. Of the first-time freshmen who entered SF State in Fall 2007, 21% did not have a declared major. That is double the 10% CSU mean for all undergraduates enrolled in Fall 2007. Researchers have examined the effects of undeclared and changing majors on six-year graduation rates. Recent findings by academic institutional researchers at Sacramento State University, Western Kentucky University, and the University of South Florida have challenged the conventional wisdom. Initially-undeclared students who declared a major by the end of their second year were found to have higher six-year graduation rates than did initially-declared students or initially-*undeclared* students who declared a major *after* their second year. It was also found that changing majors does not appear to result in lower graduation rates. Nor does changing majors (including declaring one *after* matriculation) appear to have a significant impact on the total number of units earned for a degree. These points and others were explored among SF State’s Fall 2007 first-time freshmen.

Approach

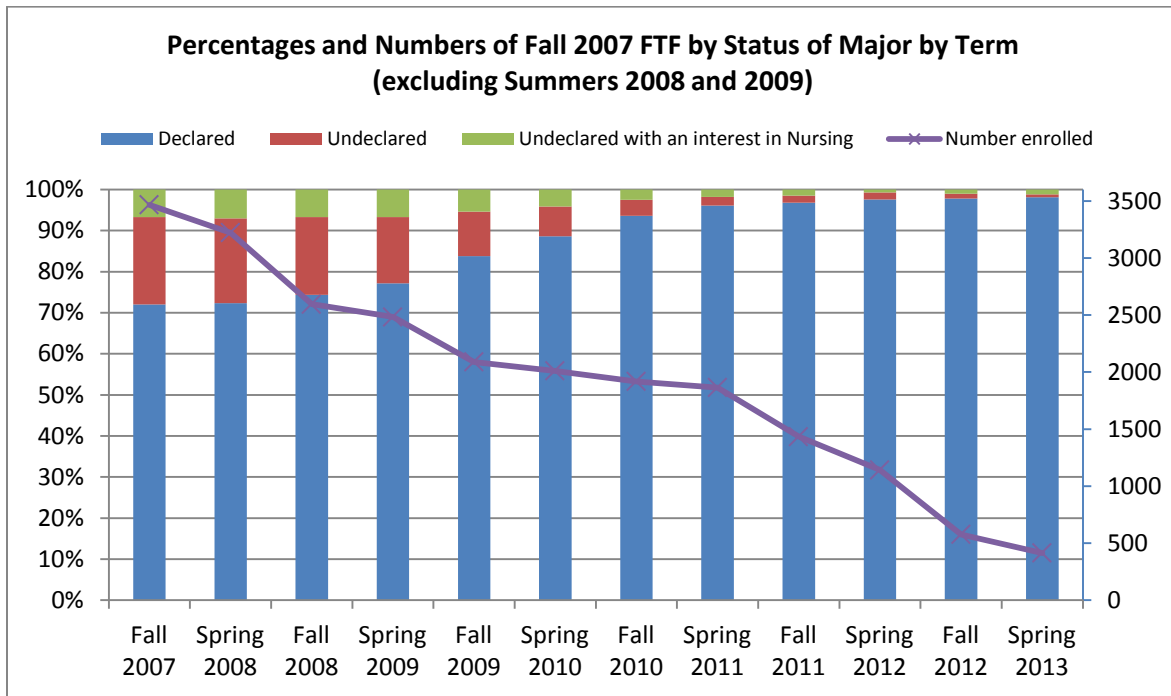
Declaration status of major

The Term 1 majors of the 3,466 incoming Fall 2007 first-time freshmen (FTF) fell into one of three mutually-exclusive **major-status** categories:

- Declared
- Undeclared
- Undeclared with an interest in Nursing (the only “undeclared with an interest in” category in Fall 2007)

Status of Major	Frequency	Percent
Declared	2498	72%
Undeclared	737	21%
Undeclared with an interest in Nursing	231	7%
Total	3466	100%

As shown in the chart below, the percentages of students in each **major-status** category changed each term as students changed the *status* of their major, graduated, or left SF State without graduating. Changing from one declared major to another declared major does not constitute a change in the “declared” *status* of the major. The *numbers* of enrolled students decreased over time as students graduated or left SF State without graduating, as indicated in the chart below by the line sloping across the bars and its corresponding secondary (right-hand) vertical axis. Please note that Summers 2008 and 2009 are not included. There were no other Summer sessions during the six-year timeframe of this study.



Major status over the duration of SF State enrollment did not change among 82% of the cohort (n=2,849). Changes in major status were made at least once within six years by 617 (18%) of the 3,466 students in the study cohort.

- One change by 557 students (16%)
- Two changes by 58 students (<2%)
- Three changes by only two students

Because so few students changed major status more than once, this study focuses on the **first change** made in the status of the student’s major. The table below shows, in descending order of frequency, the major-status groups for the cohort.

First Status or First Change of Status of Major	Frequency	Percent
Always declared (no change)	2424	70%
Changed from undeclared to declared (“Later declared”)	416	12%
Never declared (no change)	306	9%
Never changed from undeclared with interest in Nursing	119	3%
Changed from undeclared with interest in Nursing to declared	103	3%
Changed from declared to undeclared	57	2%
Changed from declared to undeclared with interest in Nursing	17	<1%
Changed from undeclared to undeclared with interest in Nursing	15	<1%
Changed from undeclared with interest in Nursing to undeclared	9	<1%
Total	3466	100%

The students in the three largest groups (**bold** in the chart above) are the focus of this study.

Student outcomes

Three mutually-exclusive **student outcomes** were examined at six years after Fall 2007 matriculation:

- **Graduated** within six years
- **Left** without graduating within six years
- **Still enrolled** after six years

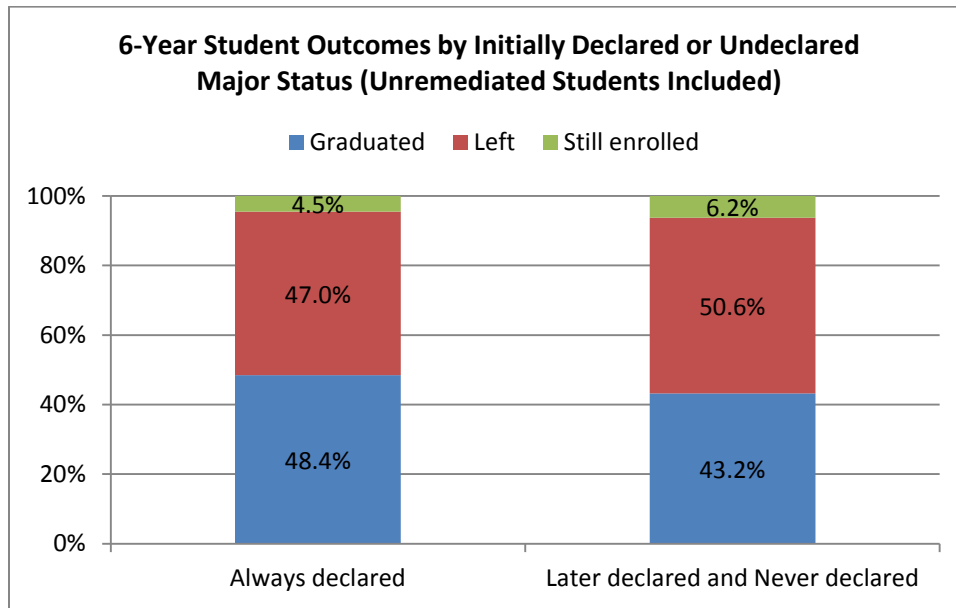
The six-year student outcomes of the 416 students (12%) whose major was undeclared at matriculation but declared later and the 306 students (9%) who never declared a major were compared to those of the 2,424 students (70%) who matriculated with a declared major and remained declared in that or any other major.

In determining the six-year outcome for each student, intermittent enrollment was disregarded. In other words, students in any of the outcome categories may have skipped one or more terms, but that did not affect outcome categorization. Students who graduated before Fall 2013 were categorized as graduates regardless of any missed terms. The last term attended by students who did not graduate within six years and who were not enrolled in the first term of the seventh year (Fall 2013) was considered the last enrollment of a “leaver.” Students who did not graduate before Fall 2013 and were enrolled in that term were considered to be “still enrolled.”

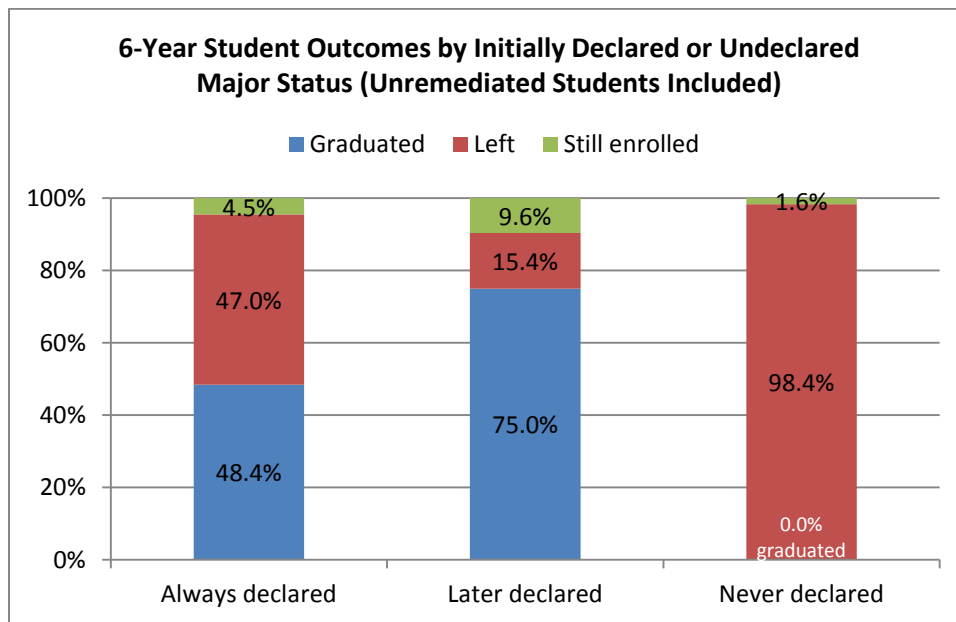
Findings

The three largest major-status change groups

Six-year student outcomes for the three largest **major-status change** groups were compared. Recall that the majors of the students in the largest group, the “always declared,” were initially declared, while the majors of the students in the next two groups (the “later-declared” and “never-declared”) were initially undeclared.



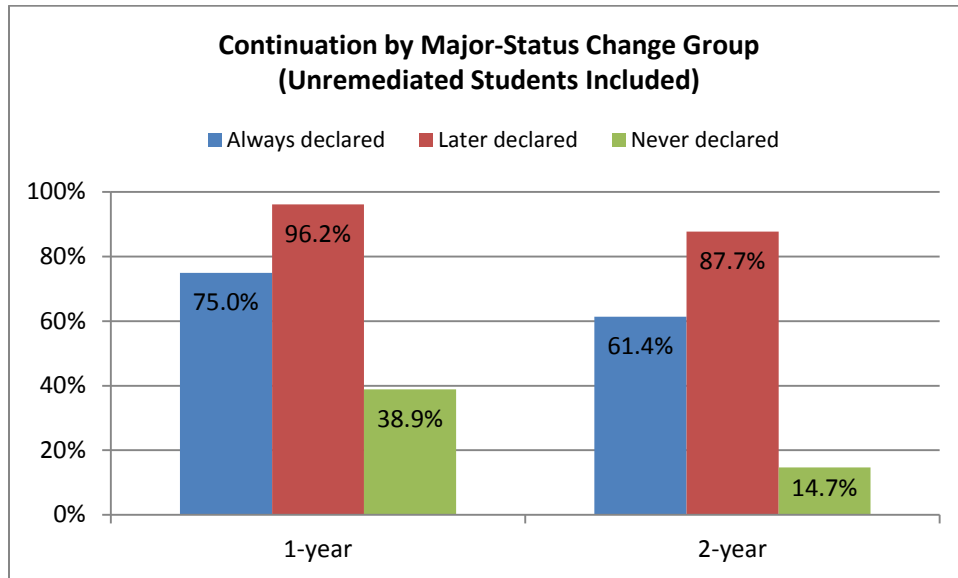
The results of this simple comparison suggest that students whose major is declared in Term 1 and remains declared graduate at higher six-year rates than do students whose major is declared later or never declared. When the two initially-undeclared groups are considered separately, however, a very different picture emerges, as shown below.



The six-year graduation rate of the later-declared students was much higher (75%) than that of the students whose major was always declared (48%), and the attrition rate was much lower (15% vs. 47%). The students who never declared a major did not graduate, and 98.4% left in their first year.

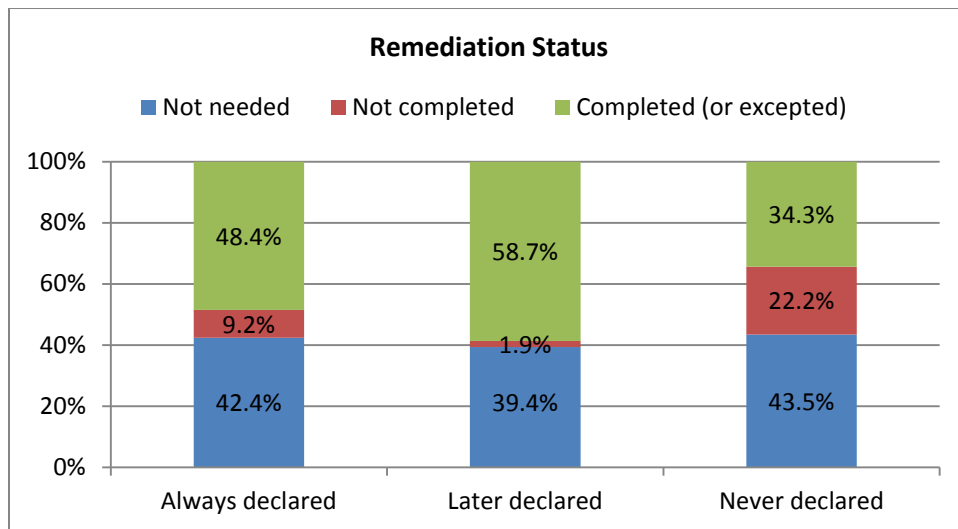
One- and two-year continuation:

The later-declared students were significantly more likely than were the always- or never-declared students to continue their SF State enrollment one and two years from matriculation.

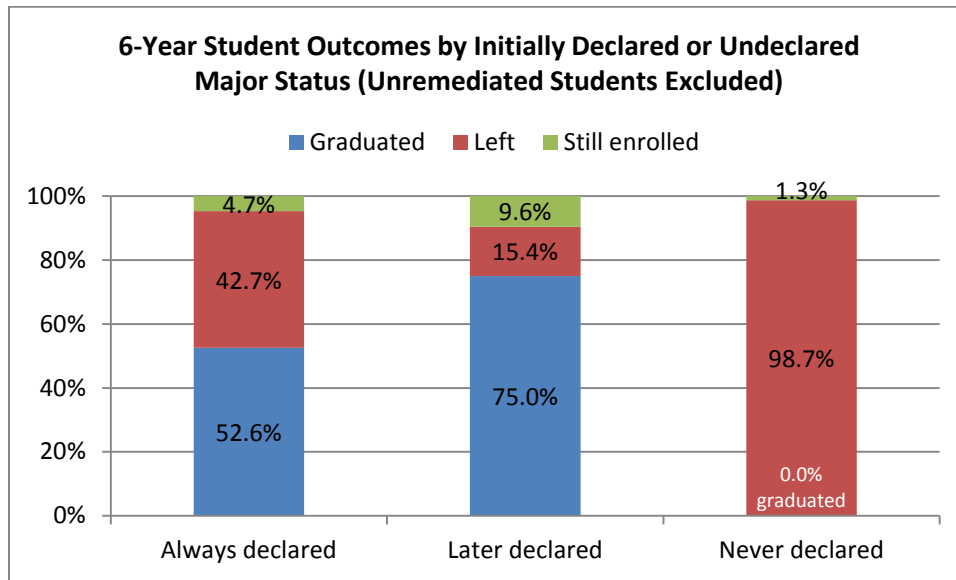


Remediation:

Remediation was needed by roughly 60% of the students in each of the top three major-status change groups. Yet, the later-declared students were significantly more likely than were the always- or never-declared students to complete remediation, as shown below. Students who did not complete the remediation they needed were not permitted to continue their enrollment beyond their first year (although they could return to SF State after completing remediation elsewhere).



The failure to complete needed remediation compelled the early departure of only 22% of the never-declared students. In other words, this was not the primary reason for their attrition. (Among the always-declared students, 9% were unremediated, as were only 2% of the later-declared students.) Because the impact of incomplete remediation was relatively small, and to eliminate the issue from the analysis, **“unremediated” students (ineligible to continue their enrollment) are not included in further analyses in this report.** As shown below, six-year student outcomes changed little with the exclusion of the unremediated students.



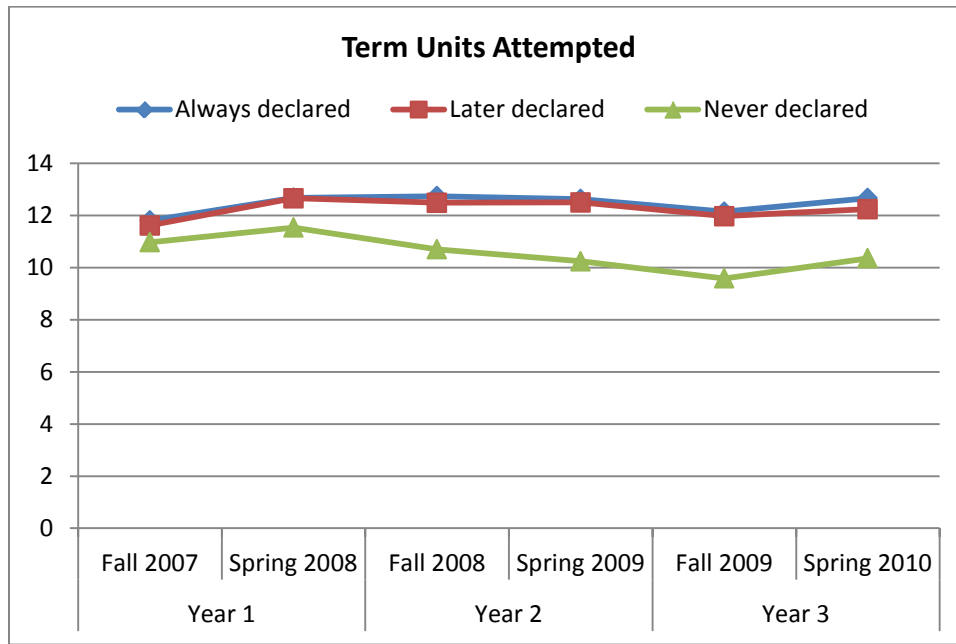
Students matriculating with undeclared majors are at greater risk of dropping out according to conventional wisdom. Yet outcomes for initially-undeclared students sharply differ by whether they remain undeclared or not. As reiterated in the chart above, the six-year graduation rate of later-declared students was significantly higher than that of the always-declared students. In contrast, never-declared students do not graduate.

Characteristics of the three largest major-status change groups

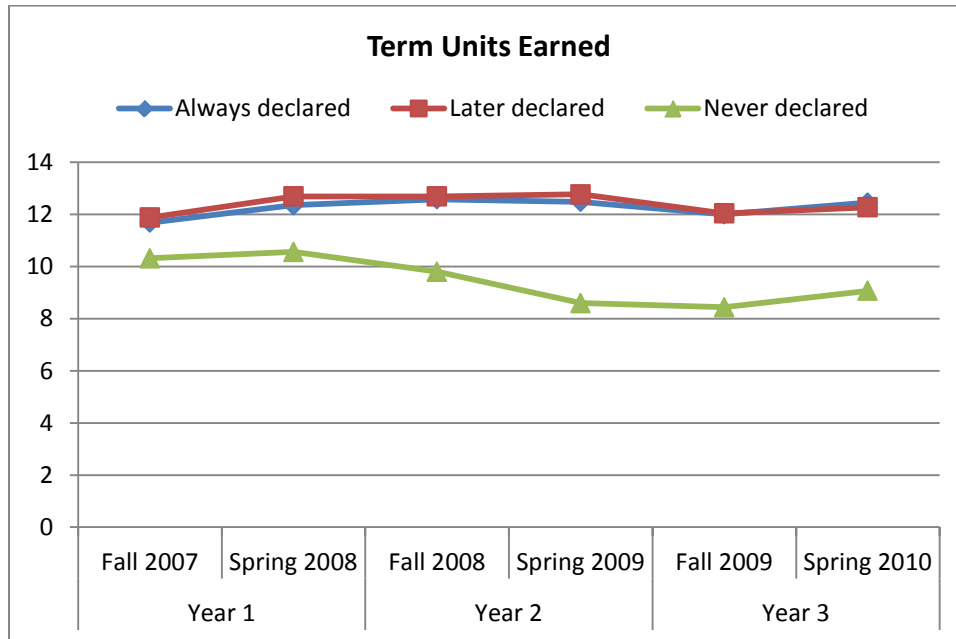
The always-declared, later-declared, and never-declared groups of students were compared on several indicators of SF State academic progress and performance and on demographic characteristics.

Academic progress and performance at SF State:

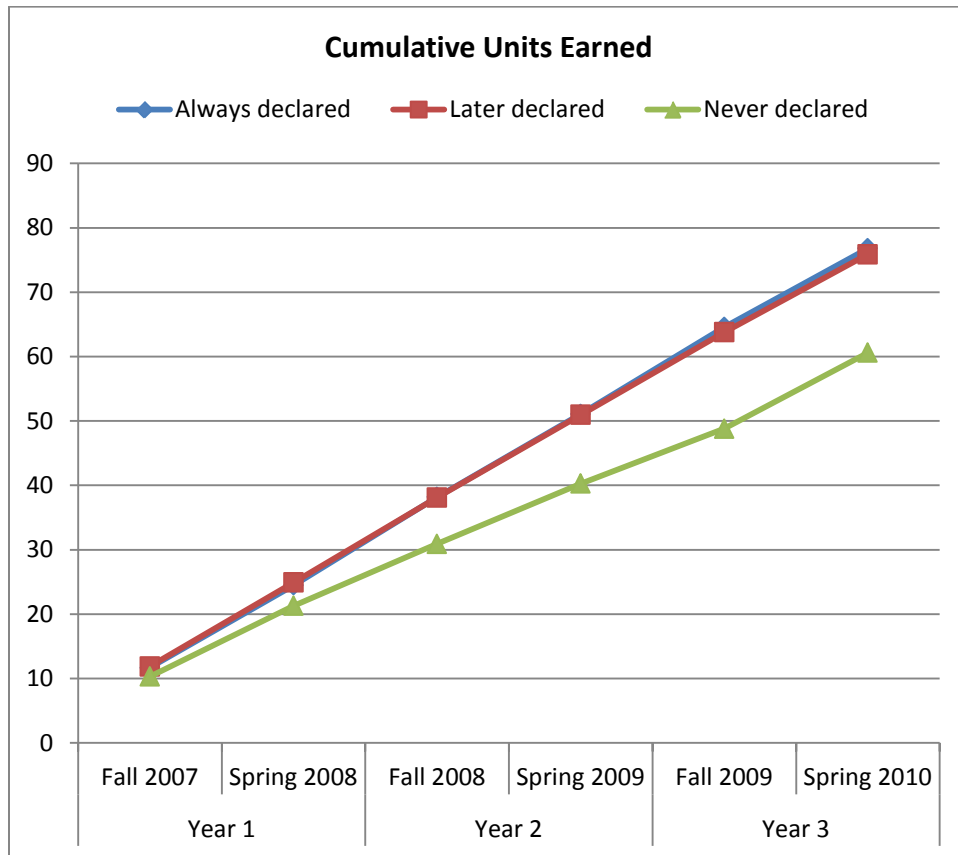
Mean term units attempted and earned and mean campus (cumulative) units earned in the first three years by the three largest **major-status change** groups were compared, as were mean campus (cumulative) GPA. Never-declared students attempted significantly fewer mean units per term in the first three years than did the always-declared or later-declared students. There was little difference, however, between the always- and later-declared students in mean term units attempted.



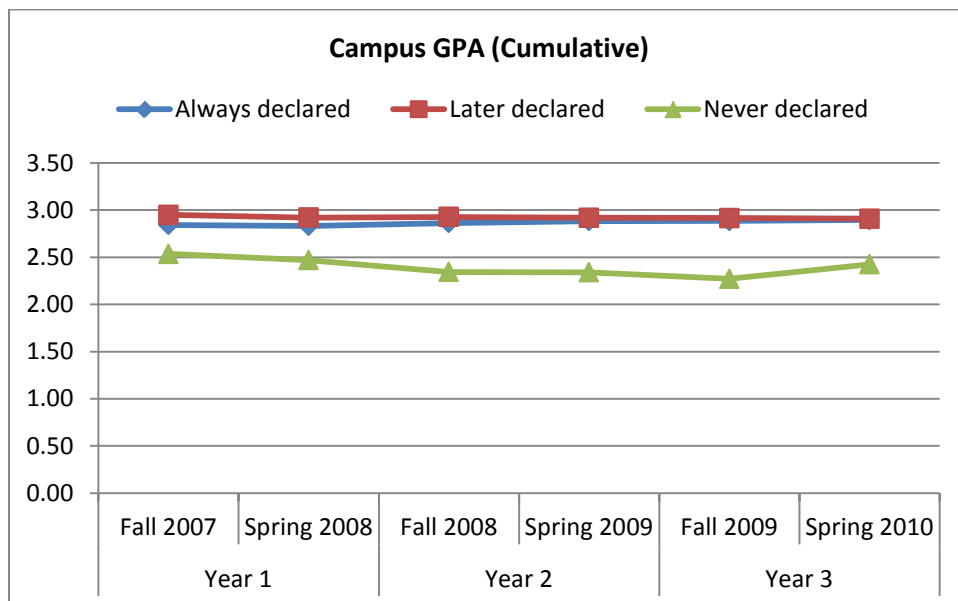
Similarly, never-declared students *earned* significantly fewer mean units per term in the first three years than did the always-declared or later-declared students. Again, there was little difference between the always- and later-declared students in mean term units earned.



Never-declared students earned significantly fewer mean *cumulative* units in the first three years than did the always-declared or later-declared students whose means were nearly identical, as shown below. The mean cumulative units earned by the always- and later-declared students were nearly identical to each other.

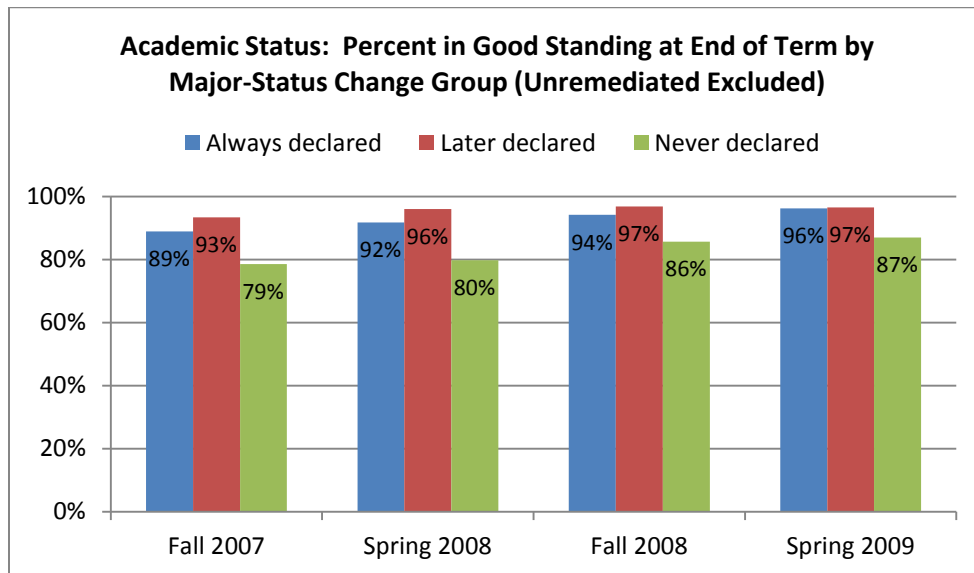


Never-declared students achieved a significantly lower mean campus (cumulative) GPA in the first three years than did the always-declared or later-declared students. It should also be noted that the mean campus GPA of the later-declared students was significantly *higher* than that of the always-declared students at the end of Terms 1 and 2, although the means were not significantly different in subsequent terms.



The academic progress and performance of the later-declared students was not significantly different from that of the always-declared students, as shown in the charts above, with the exception of their *higher* mean campus GPAs for the first two terms.

As shown below, academic status differed significantly by major-status change group. The *never*-declared students were significantly more likely than were the later- and always-declared students to be on probation, subject to disqualification, or disqualified in their first two years. The differences between the percentages of always-declared and later-declared students who were in good standing were *not* statistically significant and were small, although there were higher percentages of *later*-declared than of always-declared students in good standing.



Demographic characteristics:

The never-declared, later-declared, and always-declared students differed significantly from each other by demographic characteristics. Never-declared students were significantly more likely than were later- or always-declared students to be White (45% vs. 29% of later- and 36% of always-declared students), as opposed to any other race/ethnicity.

Later-declared students were significantly more likely than were never- or always-declared students to be local, Pell eligible, enrollees in EOP, or Latino.

Percentages of Later-, Never-, and Always-Declared Students in the Demographic Category

Demographic	Declared		
	Later	Never	Always
Local	57%	46%	43%
Pell eligible	34%	22%	26%
EOP enrollee	14%	7%	7%
Latino	23%	16%	17%

The never-declared students were significantly more likely than were later- or always-declared students to need no remediation (56% vs. 40% and 47%, respectively). They also had the highest mean SAT verbal score of the three groups, significantly higher than that of the later-declared. Yet they had a mean high school GPA significantly *lower* than that of the later- or always-declared.

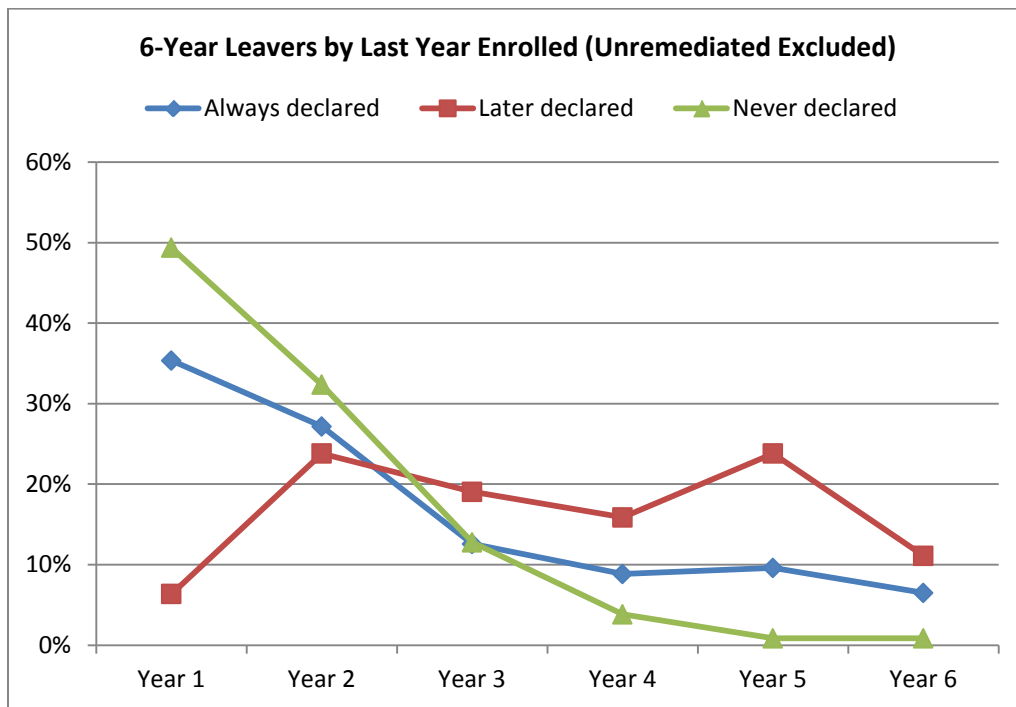
The *later*-declared students differed significantly from the never- or always-declared students. They were more likely than those students to need remediation in both English and math (29% vs. 21% and 23%, respectively) as opposed to either alone or none at all. They had a mean SAT verbal score significantly lower than those of the never- and always-declared students and a mean SAT math score significantly lower than that of the always-declared students.

The never-declared students resemble those of the early leavers identified in the 2012 SF State Attrition Study (which is not surprising considering 59% of never-declared students in the present study left in their first year), while the *later*-declared students are similar to the students in the Attrition Study who either left in later terms or were still enrolled at the end of six years. More specifically, the never-declared students in the present study had demographic and some academic characteristics that do not correspond to student populations typically considered “at risk,” although their mean high school GPA was significantly lower than that of the later- and always-declared students. The never-declared students attempted and earned significantly fewer units than did the later- and always-declared students in each term of the first three years at SF State. By the end of Year 2, the never-declared students were, on average, more than 10 units behind. In every term of the first three years, before the numbers of never-declared enrollees in the present study’s Fall 2007 cohort dwindled to ten or fewer, the mean end-of-term campus GPA of the never-declared students was significantly lower than that of the later- and always-declared students.

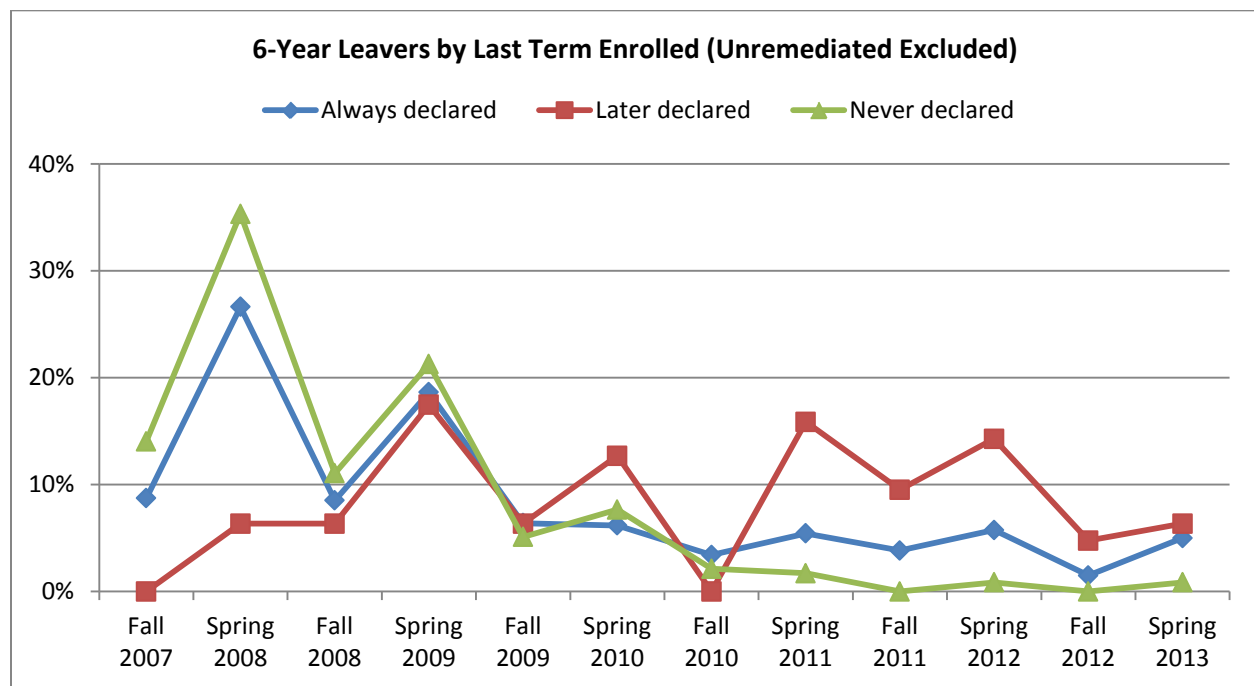
Is it possible that the failure of the never-declared students to declare a major and graduate in a timely manner is more a general attrition issue than an undeclared-major issue? Is it possible that these students do not make sufficient progress in the first few terms to persist long enough to declare a major?

Timing of departure among only leavers

Not only were the academic performance and progress indicators for never-declared students weaker than were those for the always- and later-declared students, but, among only the six-year *leavers*, the never-declared students were significantly more likely than were the later- and always-declared students to leave SF State before their second year, as shown below. Significantly greater percentages of later-declared students left SF State during and after their *fourth* year.

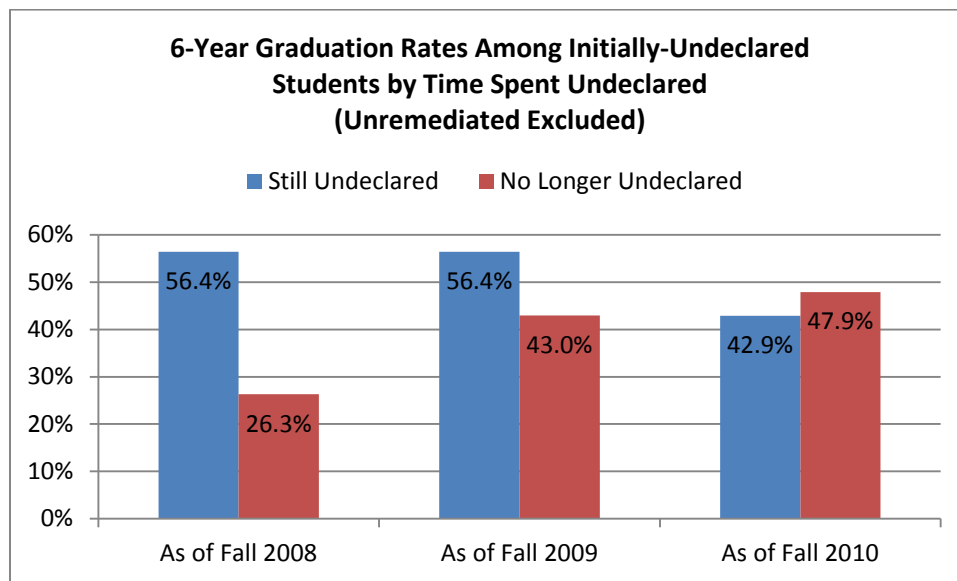


As shown below, there was a spike in the percentages of never- and always-declared students who did not return after their second term. This corresponds to the general pattern of attrition seen in the 2012 SF State Attrition Study of the Fall 2005 full-time first-time freshman cohort. It is interesting to note that the later-declared students, however, did not conform to this pattern but were significantly *less* likely than were the never- and always-declared students to leave after Term 1 or 2.



Time spent undeclared among only the initially undeclared

Initially-undeclared students (excluding the unremediated) were considered, regardless of whether they eventually declared a major or left SF State without ever declaring one, in terms of whether they declared a major by the one-, two-, or three-year points or not. Students who were still undeclared as of the one- and two-year marks (Fall 2008 and Fall 2009, respectively) had significantly *higher* six-year graduation rates than did the initially-undeclared students who declared a major by those points in time. At the three-year mark, the trend changed, with still-undeclared students having a (non-significantly) *lower* six-year graduation rate than that of the initially-undeclared students who declared a major by then.

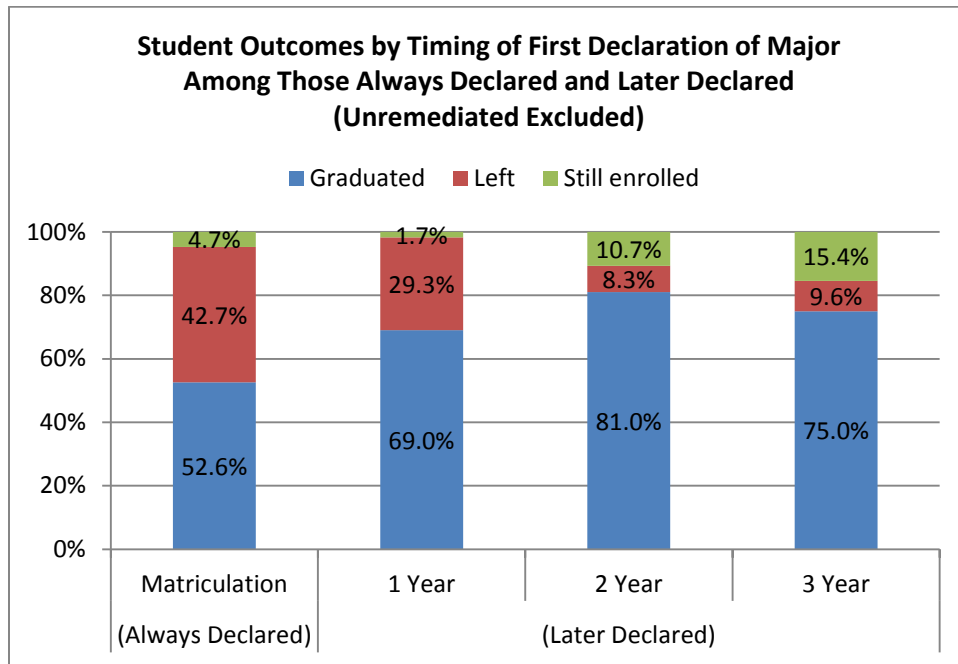


Recall that the six-year graduation rate for the always-declared students was 52.6%. This is lower than the six-year graduation rates shown above for the initially-undeclared students who were still undeclared at the end of their first or second year. These results suggest that waiting to declare a major until after the two-year mark does not have an obvious negative consequence, at least when six-year graduation rates are the measure of success.

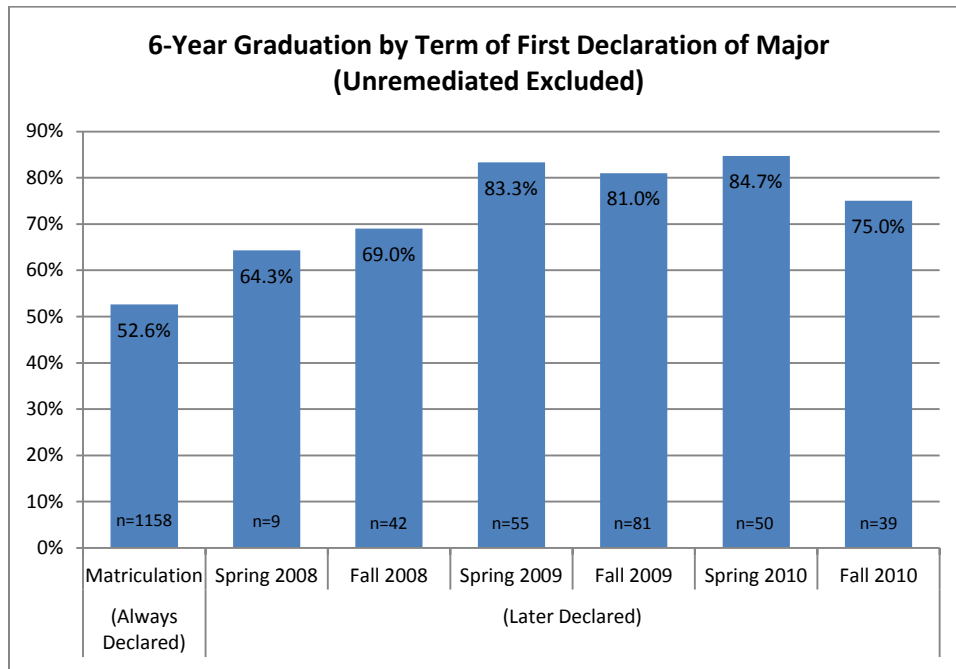
The disparity in graduation rates by length of time spent undeclared may be explained by the fact that the greatest numbers of the eventual “leavers” depart in the first two years. The remaining students are those who are less likely to leave without graduating. As shown in the 2012 SF State Attrition Study, 20% of the Fall 2005 full-time first-time freshmen left in Year 1, followed by an additional 11% in Year 2. Among only the students who did not graduate in six years, 57% left by the end of Year 2. This at least partially explains the low graduation rate of students who declare a major by Fall 2008 (26%) compared to those who declared a major by Fall 2009 and Fall 2010 (43% and 48%, respectively).

Six-year outcomes by timing of declaration of major

Six-year graduation rates were compared by the timing of major declaration among the always-declared (declared at matriculation) and the later-declared students. It should be noted that **this approach, by definition, does not include any of the never-declared students.** Students first declaring a major at the two- or three-year points were significantly more likely to graduate within, or still be enrolled after, six years (vs. leaving) than were those who matriculated with a declared major or who declared a major at the one-year point.



Looking in greater detail at each term, the graduation rates of the later-declared students were higher than were those of the always-declared students, significantly so for those first declaring a major in Spring 2009, Fall 2009, or Spring 2010.

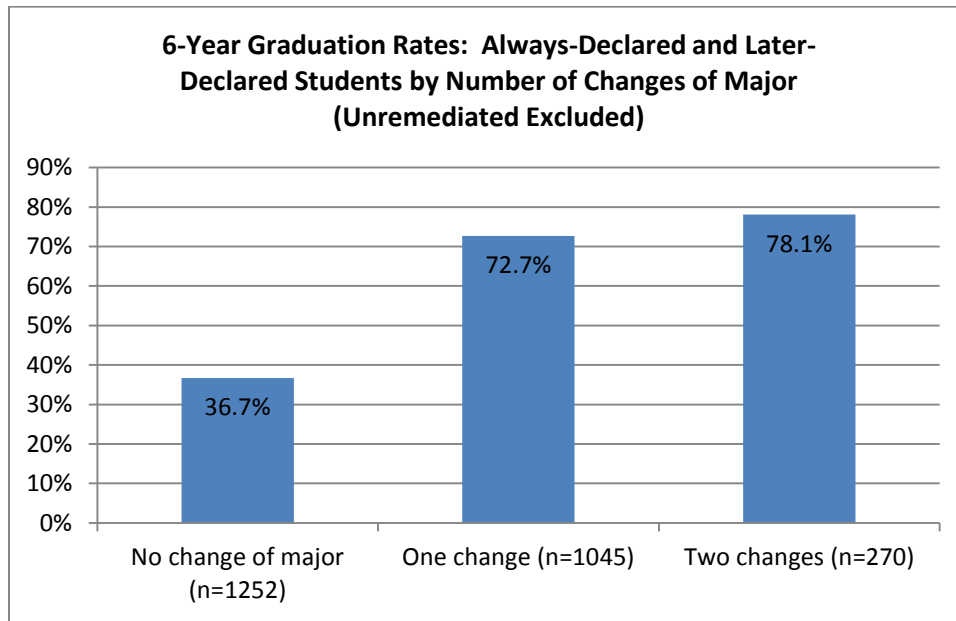


Again, these results do not recommend a point at which a student should declare a major but indicate that delaying the declaration of a major does not necessarily reduce the likelihood of graduating.

Change of or delayed declaration of major

Diverging briefly from this study’s focus on the declaration status of the major and looking only at the 2,201 students whose major was always declared and the 408 students whose major was declared later, the number of **changes of the student’s major** (as opposed to major *status*) was explored. Nearly half of the students (48%) did not change their declared major during the six-year timeframe of the study. Four in ten (40%) changed their major once, **including declaring one after matriculating undeclared**. Only 10% changed their major twice, 2% changed three times, and only three individual students changed their major four times. In sum, it is uncommon for students to change their major more than once.

Six-year graduation rates are compared below by the number of changes of major. Those who never changed their declared major had a significantly *lower* graduation rate than did those who changed their major once or twice (counting as one change the declaration of a major after matriculating undeclared). The chart below does not include the six-year graduation rates of those who changed majors three or four times because there were so few cases.



One explanation of these perhaps unexpected results might be that students who change their major (or declare one after matriculating undeclared) are more engaged in their educational experience and in exploring their interests and options than are those who enter with a declared major. These results do not argue in *favor* of changes of major, but there do not appear to be negative consequences associated with one or two changes of major, at least in terms of six-year graduation rates.

Time to degree

Returning to the major-status focus of this study, mean time to degree (calendar time from first term to last, regardless of any skipped terms, counted in number of terms) was compared between the always-declared and the later-declared students. Mean time to degree for the later-declared (regardless of when they declared a major) was only slightly longer than for the always-declared (9.7 vs. 9.5 terms) but was statistically significantly longer.

Time to degree differed, however, by term of first declaration of major, as shown below. For some declaration terms, mean time to degree for the always-declared students was *greater than* (Spring 2008 and Fall 2009) or the same (Spring 2009) as it was for students who declared a major one term or two years after matriculation.

Period of declaration	Always Declared	Later-Declared Students									
	Fall 2007	Spring 2008	Fall 2008	Spring 2009	Fall 2009	Spring 2010	Fall 2010	Spring 2011	Fall 2011	Spring 2012	Fall 2012
Terms to degree	9.5	8.6	9.7	9.5	9.3	9.7	10.5	10.8	10.0	11.0	11.0
Number of graduates	1158	11	40	68	68	50	39	20	4	5	1

It might be assumed that delaying the declaration of a major also delays graduation. This could be the case if a student takes courses while undeclared that do not fulfill the curriculum requirements for graduation in the student's eventual major. The results shown above, however, suggest that there is no appreciably longer time required to graduate for students who wait until as late as the end of their third year to declare a major compared to those who matriculate with a major declared. And, although their numbers were relatively small, the students who waited until their second term to declare a major graduated nearly one term earlier than did the initially-declared students.

The mean number of units earned for the degree did not differ significantly by always- or later-declared status (134.4 vs. 134.1). Nor did it differ significantly by the period in which the student's major was declared. Similarly, the mean number of units earned for the degree did not differ significantly by the number of times the student's major changed (counting the declaration of a major by an initially-undeclared student as a change of major).

Delayed declaration or multiple declarations of a major did not appear to have a consistently detrimental effect on student success as measured by time to degree or total units earned for the degree.

Summary

The results of this study challenge the conventional wisdom that waiting to declare a major or changing a declared major may increase students' likelihood of leaving without graduating or taking longer to graduate. Six-year outcomes were compared for Fall 2007 first-time freshmen (FTF) who matriculated with a declared major, matriculated with an undeclared major but declared one later, or matriculated with an undeclared major and left SF State before declaring one. Perhaps unexpectedly it was found that the highest six-year graduation rate was among those who entered with an undeclared major but declared one later (75%). Only half of the Fall 2007 FTF who matriculated with a declared major graduated within six years. By definition, none of the students who never declared a major graduated. One problem in considering policy solutions for the never-declared students is that they cannot be identified as such until after they have left SF State.

- The early academic progress and performance of the students who left before declaring a major was significantly lower than that of the always-declared and later-declared students as measured by mean term units attempted and earned, cumulative units earned, and campus (cumulative) GPA in the first three years. More interesting is the finding that the academic progress and performance of the later-declared students was not significantly different from that of the always-declared students, except that the mean campus GPA of the later-declared students was significantly *higher* than that of the always-declared students at the end of Terms 1 and 2.

- Similarly, academic status differed significantly between the groups in question. The *never*-declared students were significantly more likely than were the always- and later-declared students to be on probation, subject to disqualification, or disqualified in their first two years.
- Students who never declared a major before leaving SF State were significantly more likely than were always- or later-declared leavers to drop out before beginning their second year. This departure pattern resembles the findings of the 2012 SF State Attrition Study. Furthermore, the always-declared leavers' departure pattern was similar to that of the never-declared leavers, while the *later*-declared leavers were significantly *less* likely to make their first year their last.
- Time spent undeclared was examined. Students who were still undeclared as of the one- and two-year marks had significantly *higher* six-year graduation rates than did the initially-undeclared students who declared a major by those points in time.
- Timing of declaration of major was also examined. Students first declaring a major at the two- or three-year points were significantly more likely to graduate within, or still be enrolled after, six years (vs. leaving) than were those who matriculated with a declared major or who declared a major at the one-year point.
- Six-year outcomes were compared by the number of changes of major. Only 12% of students changed their major (including the declaration of one after matriculating undeclared) more than once. Those who never changed their initially-declared major had a significantly *lower* graduation rate than did those who changed their major once or twice.
- Additionally, delayed declaration or multiple declarations of a major did not appear to have a consistently detrimental effect on student success as measured by time to degree or total units earned for the degree.

These findings do not prescribe the declaration of a major at matriculation or, if declared later, the point at which a major should be declared. They do, however, suggest that waiting to declare a major is not necessarily associated with negative consequences. Matriculating as a first-time freshman with a *declared* major may not be as advantageous as generally assumed, although the results of this study do not allow that claim to be made conclusively. Perhaps, in advising first-year freshmen who have not declared a major, a focus on what can be done to help them remain enrolled long enough to declare a suitable major might yield better results than a focus on removing them from undeclared major status as soon as possible.