



## **Change Your Major and Double Your Graduation Chances**

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## Abstract

Stimulated by Murphy's (2000) finding that each major change increased a student's graduation probabilities by 40%, this study investigated changing major and graduation for seven fall FTIC cohorts at USF. Because a student must enroll at least two semesters to change majors, analysis was limited to only those students who returned for their second year. The study supports Murphy's findings, as major changers in every cohort and every college show substantially greater graduation rates than those who did not change majors (about double the rate for earlier cohorts, with an increasing absolute advantage over time).

## Introduction

Based upon research (Murphy, 2000; Micceri, 1996) indicating that students who change their majors have higher graduation rates than those who don't, this study sought to determine specifically what relationship degree changes have with graduation among historical FTIC cohorts. The study was conducted using data from the University of South Florida (USF). USF is a large (35,000 student) public metropolitan institution located in Tampa, Florida. An inherent confound with this question ties to the fact that in order to show a major change, a student must be retained at least two semesters. We know from many researches that the greatest attrition occurs during the first year. Therefore, this study was limited to only freshman who returned for their second year at USF. The overall 6-year USF graduation rate for such students is above 60%.

## Methods

This study sought to answer the following research question:

- Do different graduation rates associate with student major changes?

Although prior research suggests that changing majors has a positive relationship with graduation, a confounding issue is the fact that students must be retained at least two semesters to show any degree change, and we know from several researches that the greatest attrition occurs during the first year. To reduce the influence of this confound, this study was limited to only students who returned for their second year at USF.

Another issue relating to this study is time-to-degree. Given the increasing tendency to penalize students who take more than four years to graduate, and the probability that major changes may associate with more time to graduation, analysis of this was included.

These analyses use the BOR retention database definition of degree change. A change from undecided to a degree was not counted as a degree change. Only after declaring a major (not an intended major) could a degree change occur.

In an attempt to identify other possible confounds, analyses were run both with and without non-graduated transfers to other SUS institutions, and both with and without students who were listed as undecided (as to major).

Data sources: BOR Retention Databases 1998/99, USF Student Data Course Files, and USF Admissions Files

## Limitations

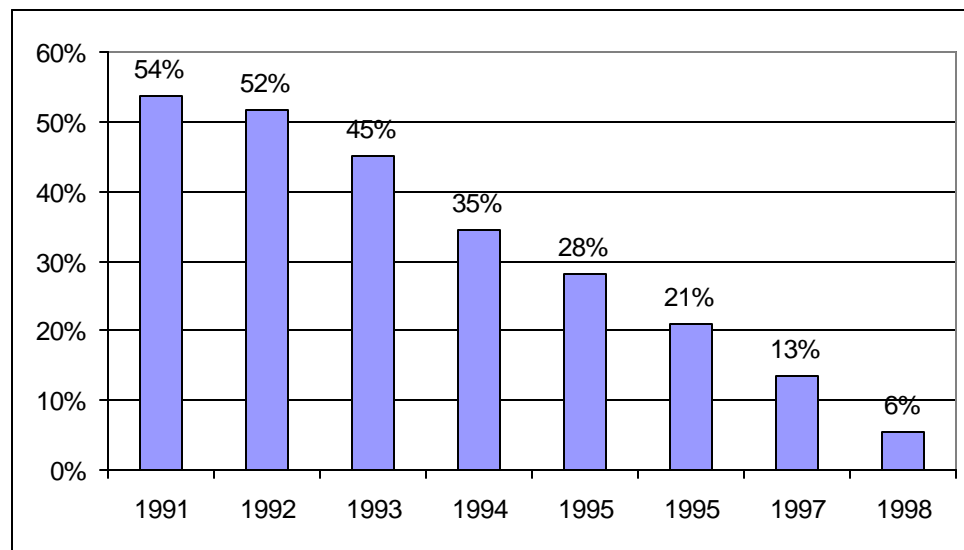
This study does not provide an in-depth look at the flow from major to major and what influence this may have on graduation rates. Because majors were defined as of a student's first semester intention, these may or may not well reflect actual major choices once a student was accepted into a major.

Because the BOR retention database used for this study was 1998/99, only the 1991/92 and 1992/93 cohorts had six or more years at the institution for computing graduation rates. For fall cohorts, since the BOR starts with summer, the last year is only partial. Respectively, the number of years at USF were 93 – 5.7, 94 – 4.7, 95 – 3.7, 96 – 2.7, and 97 – 1.7.

## Results and Discussion

### Findings

Figure 1 shows that for earlier cohorts, approximately half of the students change majors at least once. The percentage drops steadily for more recent cohorts. We may assume this relates to less time having elapsed for later cohorts. However, this assumption may be fallacious, and it is possible that pressures such as those put on by the legislature regarding excess credit hours may influence students to change majors less now than in earlier years.

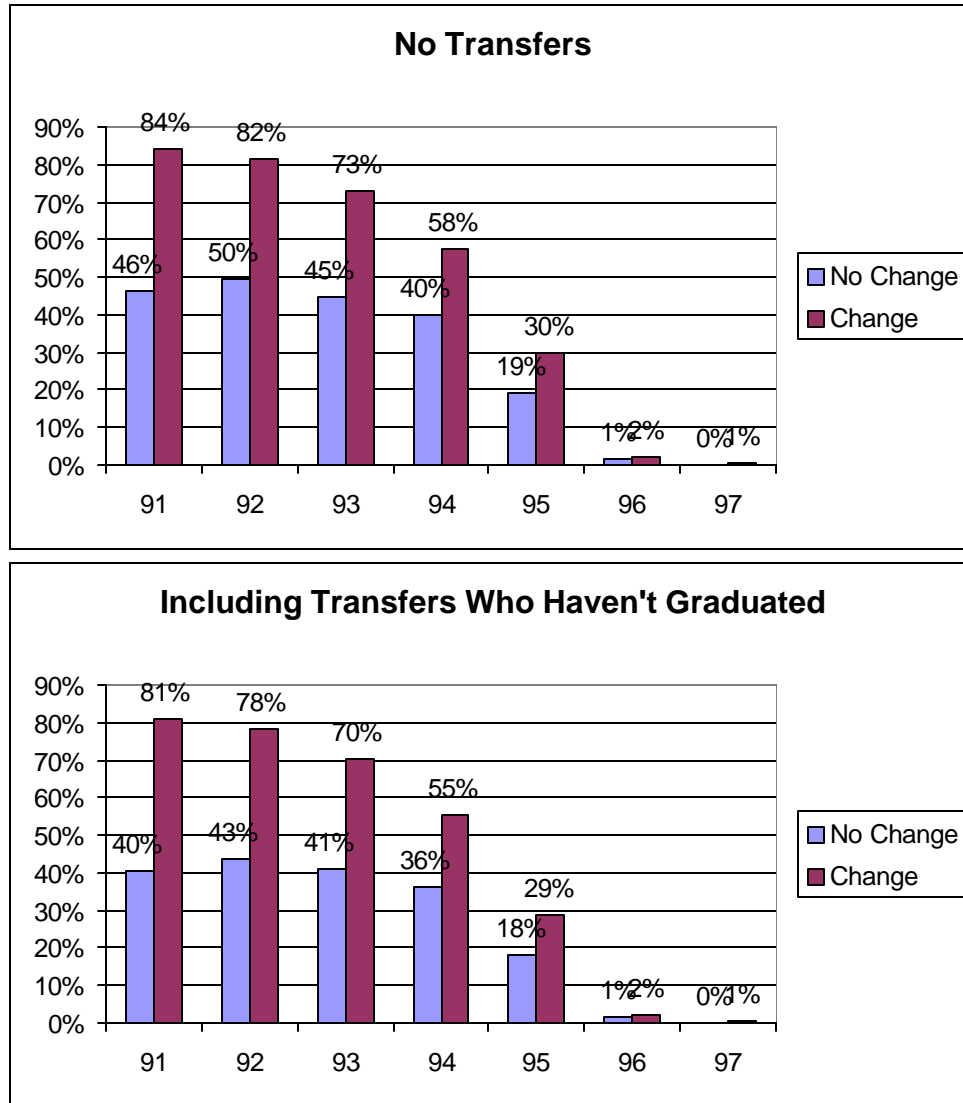


**Figure 1**

Percentage of Cohort Having at Least One Major Change

Figure 2 shows that graduation percentage differences are amazingly consistent between those who change majors at least once, and those who do not change their majors. Overall 6-year graduation rates for students retained to their second year are above 60% (above 65% if one eliminates non-graduated transfers to other SUS institutions). Those changing majors show almost twice the graduation rate of those who don't change among the earlier cohorts. This is a rather surprising and massive gap. Obviously, for later cohorts, the probability of graduation is considerably smaller because they have had successively less time to complete their degrees (for example, the 1995 cohort shows 3-year graduation rates). Possibly because it takes longer to complete a degree when changing majors, the gaps reduce for more recent cohorts. For example, the gaps are respectively for cohorts 1991

to 1995: 38%, 32%, 28%, 18% and 11%, although the comparative percentage of no-change graduates remains at between 55% and 65% of the major change graduates. Because the BOR retention database includes degrees granted from other institutions as well as from USF, it is most appropriate to use the percentages including students who transferred but haven't graduated. These are included in the percentages of all following analyses.



**Figure 2**

Graduation Rates for Those Changing Majors and not Changing Majors, Cohorts with and without non-Graduated Transfers to Other SUS Institutions – 1991 to 1997

Table 1 suggests it is possible that the greater the number of major changes, the greater the chance of obtaining a degree. However, these data do not suggest that a greater number of major changes substantially increase the time-to-degree. Although the comparative percentage of no-change graduates remains at between 55% and 65% of the major change graduates, only the 1991 (7 years) and 1992 (6 years) cohorts had at least six years to graduate. The fact that for the 1991 cohort, as the number of changes increases, the degree percentage increases suggests that greater numbers of major changes associate with a greater chance of degree attainment. It is true that those having two degree changes in 1992 showed a slightly lower graduation rate than those with only one change, but again, those

with three or more showed higher graduation rates. In successive years, when less time was available, those having more changes show lower graduation rates. The following years show lower graduation rates after the first major change, but it is not until the 1995 cohort (3-year graduation rates) that these rates fall below those having no major changes.

**Table 1**

Graduation Rates and Transfers by Number of Major Changes – 1991 to 1998

Cohort <sup>1</sup>	N Major Changes	All	Transferred	Degreed	Percent Graduated	
					Transfers	No Transfers
1991	All Students	1,316	111	807	61.3%	67.0%
7.7 years	1 or more	682	26	552	80.9%	84.1%
	0	634	85	255	40.2%	46.4%
	1	551	21	443	80.4%	83.6%
	2	109	4	90	82.6%	85.7%
	3 or more	22	1	19	86.4%	90.5%
1992	All Students	1,627	131	989	60.8%	66.1%
6.7 years	1 or more	806	31	632	78.4%	81.5%
	0	821	100	357	43.5%	49.5%
	1	615	23	486	79.0%	82.1%
	2	159	7	120	75.5%	78.9%
	3 or more	32	1	26	81.3%	83.9%
1993	All Students	1,383	83	756	54.7%	58.2%
5.7 years	1 or more	646	24	454	70.3%	73.0%
	0	737	59	302	41.0%	44.5%
	1	507	18	356	70.2%	72.8%
	2	113	5	82	72.6%	75.9%
	3 or more	26	1	16	61.5%	64.0%
1994	All Students	1,388	92	602	43.4%	46.5%
4.7 years	1 or more	511	19	283	55.4%	57.5%
	0	877	73	319	36.4%	39.7%
	1	417	17	232	55.6%	58.0%
	2	77	1	42	54.5%	55.3%
	3 or more	17	1	9	52.9%	56.3%
1995	All Students	1,572	67	337	21.4%	22.4%
3.7 years	1 or more	467	19	134	28.7%	29.9%
	0	1,105	48	203	18.4%	19.2%
	1	410	15	126	30.7%	31.9%
	2	48	3	7	14.6%	15.6%
	3 or more	9	1	1	11.1%	12.5%
1996	All Students	1,824	57	28	1.5%	1.6%
2.7 years	1 or more	402	3	9	2.2%	2.3%
	0	1,422	54	19	1.3%	1.4%
	1	362	2	8	2.2%	2.2%
	2	37	1	1	2.7%	2.8%

<sup>1</sup> The year numbers associating with cohorts are for fall matriculants about 85% of every cohort.

Cohort <sup>1</sup>	N Major Changes	All	Transferred	Degreed	Percent Graduated	
					Transfers	No Transfers
	3 or more	3	0	0	0.0%	0.0%
1997	All Students	1,917	12	3	0.2%	0.2%
1.7 year	1 or more	268	1	2	0.7%	0.7%
	0	1,649	11	1	0.1%	0.1%
	1	252	1	1	0.4%	0.4%
	2	15	0	1	6.7%	6.7%
	3 or more	1	0	0	0.0%	0.0%
1998	All Students	2,159	3	0	0.0%	0.0%
0.7 year	1 or more	107	1	0	0.0%	0.0%
	0	2,052	2	0	0.0%	0.0%
	1	104	1	0	0.0%	0.0%
	2	3	0	0	0.0%	0.0%

Table 2 shows that those who change majors exhibit similar advantages over their former colleagues who fail to change majors no matter what field the change occurs (individual majors having about 50 or more members in 1991 to 1995 cohorts). Note that these are intended majors for most students since they are derived from a student's first semester at USF. It is interesting to note how close the percentages are for Engineering and English. The only major showing much difference from the comparatively consistent gaps that occur is Zoology, where those not changing majors show a 50% graduation rate. Among majors having smaller numbers of students, only two (Geology and Social Work – 13 each) showed a greater graduation rate among those who did not change major than among those who did.

**Table 2**  
Graduation Percentages across Large Enrollment Majors – 1991 to 1995 Cohorts

	N	% Receiving Degrees		
		All	No change	Change
Area & Ethnic Studies	193	64%	4%	86%
Biology, General	875	36%	26%	52%
Business Management	1,054	37%	14%	61%
Chemistry	138	41%	29%	53%
Communications	740	45%	19%	59%
Criminal Justice	171	27%	18%	52%
Dance	49	29%	31%	14%
Dramatic Arts	106	41%	33%	67%
Education, Other	564	51%	17%	70%
Engineering, General	1,050	30%	10%	51%
English, General	82	27%	17%	55%
Mass Comm	324	41%	29%	60%
Music Performance	193	27%	20%	45%
Psychology, General	471	42%	34%	58%
Social Sciences, General	93	38%	24%	56%
Visual Art, General	106	40%	30%	69%
Zoology	62	63%	50%	72%

Some might argue that students who initially enroll as undecided may confound these results, however, Table 3 shows that the presence or absence of students who were initially undecided has almost no influence on the graduation percentage differences.

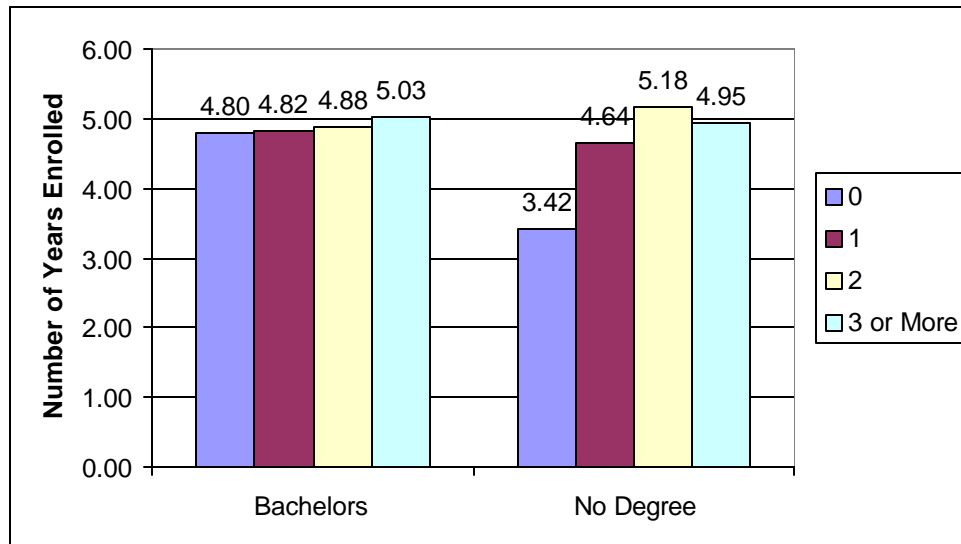
**Table 3**

Graduation Percentages by Major Changes for Cohorts Having No Undecided Students

Cohort	N	N of Major Changes			
		0	1	2	3 or More
1991	1,316	40%	80%	83%	86%
1992	1,627	43%	79%	75%	81%
1993	1,383	41%	70%	73%	62%
1994	1,388	36%	56%	55%	53%
1995	1,572	18%	31%	15%	11%
1996	1,824	1%	2%	3%	0%
1997	1,917	0%	0%	7%	0%
1998	2,159	0%	0%	0%	

### Effects Related to Time to Degree

Figure 3 (1991 and 1992 cohorts only) indicates that among those who have already earned a degree, changing majors does not appear to influence the time taken to earn that degree. For example, those having no major changes take an average of 4.8 years, while those who have three or more take only 5.03 years. Among those who have not earned a degree yet, those who did not change majors show a substantially fewer number of years enrolled. This suggests that changing majors may relate to interest in attaining a degree, or at least, continued enrollment at USF.



**Figure 3**

Number of Years Enrolled Broken Out by Number of Major Changes Among Those Earning and Not Earning a Bachelor's Degree – 1991 & 1992 Cohorts

## Conclusions and Recommendations

The findings of this study clearly support a student changing their major and fail to support attempts to make students make major choices early in their university career (note that undeclared first year students for the first year had a graduation advantage of 15% over those who declared but failed to change majors – this contradicts research reported to me that indicates that those who declare a major early and therefore link with a department do better than those who fail to declare a major). As Table 1 indicates, it is possible that more major changes actually increase a student's chances of graduation, supporting Murphy's (2000) findings. Overall, these data suggest that students who decide to change majors considerably increase their chance of attaining a degree. Therefore, if the purpose of the institution is to provide students with opportunities to attain a degree, then it appears unwise to advise against changing majors.

None of the possible anticipated confounds appeared to alter the percentage gap between major changers and non-major changers. This proved true for students who were initially undecided regarding their majors during their first semester, and for students who transferred to other SUS institutions without graduating.

## References

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- Murphy, M, (2000). *Predicting Graduation: Are Test Score and High School Performance Adequate*. Paper presented at the AIR Annual Forum, Cincinnati, OH, May 21-24, 2000.