De Anza College Office of Institutional Research and Planning

To: First Year Experience (FYE) Program Coordinators

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Date: 7/27/2017

Subject: FYE Participation on Students' Academic Outcomes – Spring 2016

This analysis compares the characteristics of students who participated in the First Year Experience (FYE) program to non-FYE students and compares their longer-term academic outcomes including persistence, units taken, GPA, and remedial course sequence completion. FYE students were identified as a student who enrolled in a FYE section in their first or second term of their first year of enrollment[1] between 2012-13 and 2015-16. A multiple regression analysis was used to control for potentially confounding background characteristics.[2] Since FYE enrolls almost no students who identify as white, the control group includes only Asian, Latino/a, and African American students who did not participate in the FYE program. The analysis included 263 FYE students and 28,958 non-FYE students.

As part of our ongoing equity work it is important to understand differences in outcomes for students within a particular program compared to those not enrolled in the program. This information may help the college improve the program as well as transfer particular aspects that are working for one group to other programs to provide the greatest benefit to students.

Important highlights include:

This report resulted in some interesting findings when compared to similar analyses for the LinC and Puente programs in that FYE students generally take more classes, are equally likely to persist from term to term and year to year, and enroll in higher level English courses than non-FYE students, but exhibit lower outcomes in overall course passage rates, have a lower cumulative GPA and are less likely to complete higher-level math courses than non-FYE students.

Student Demographics and Enrollment Characteristics

- FYE students are more likely to be younger, female, first generation college students, identify as Latino/a, and declare a goal of transfer than non-FYE students.
- FYE students had a high rate of completing the matriculation steps, though one area that did not have full participation was completing an education plan.

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[1] Roughly 80% of all students enrolled in FYE courses did so in their first or second term. The remaining 20% are classified as FYE "outliers" and are not used in the main analyses.

[2] Multiple analytic methods were explored including propensity score matching and coarsened exact matching techniques, but all results were essentially identical. For simplicity of presentation only results from the multiple regression analysis were included.

Important highlights continued:

Academic Outcomes - English:
FYE students were more likely to place into lower levels of basic skills English courses than non-FYE students but were more likely to pass EWRT200 or 211 than non-FYE students.
- FYE students were also more likely to take and pass EWRT1A and were more likely to pass EWRT1A or higher if they started in either EWRT200 or EWRT211

Academic Outcomes – Math:
FYE students were equally likely to take any level math course but less likely to pass any level math courses and FYE students were more likely to start in the lowest level basic skills math courses and less likely to take transfer-level math courses.
- FYE students are more likely to pass MATH210 or 212 but less likely to pass a transfer-level math course and less likely to pass MATH10 or higher if they started in basic skills math.
- FYE students also took 2.5 additional terms to take and pass Math10 or higher if they started in a lower level math course.

Descriptive Analysis of FYE and Non-FYE Participants

Table 1 examines demographic and initial academic differences between FYE and non-FYE participants. The first two columns provide descriptive statistics (general information about the student), the third column provides the difference between the two groups, and the last column contains an asterisk if the difference between FYE and non-FYE participants is statistically different from zero (that the difference between the variables can be attributed to something other than random chance).

Student Demographics
- FYE students are more likely to be younger (18.8 vs 25.2 years old), Latino/a (81% vs 24%), with the remaining FYE students identifying as either Asian (10%) or African American (8%)
- FYE students are more likely to be female (60% vs. 49%)
- FYE students are more likely to be a first-generation college student (59% vs. 26%)
- There is no statistical difference in the likelihood that FYE students are low-income

Enrollment Characteristics
- FYE students were more likely to list their academic goal as transfer (85% vs. 63%)
- FYE students were much more likely to be first-time students (78% vs. 26%), rather than continuing, returning, or transfer students.

Table 1. Descriptive Statistics, FYE vs. Non-FYE students

	FYE	Non-FYE	Difference	
Sample Size	263	28,958		
Demographics				
Age	18.8	25.2	-6.4	*
Asian	9.6%	47.3%	-37.7%	*
Black	8.1%	4.6%	3.5%	*
Latino/a	81.3%	24.2%	57.1%	*
White	0.6%	21.7%	-21.1%	*
Female	60.2%	49.0%	11.2%	*
Low-income	23.5%	21.6%	1.9%	
Highest Ed. Level: HS/Equivalent	95.8%	74.6%	21.2%	*
First-generation	59.0%	25.5%	33.5%	*
Enrollment Characteristics				
Academic Goal				
Degree	5.1%	7.4%	-2.3%	
Transfer	84.9%	63.3%	21.6%	*
Other (incl. Certificate)	9.9%	29.2%	-19.3%	*
Student Type				
Continuing	6.3%	25.5%	-19.2%	*
Transfer	13.6%	31.6%	-18.0%	*
First-time	77.7%	25.9%	51.8%	*
Returning	2.4%	16.7%	-14.3%	*
First-Term Outcomes				
GPA	3.3	3.1	0.2	
No GPA available	2.4%	10.3%	-7.9%	*
Number of Courses Taken	2.8	2.3	0.5	*
Took Placement Test	88.0%	45.8%	42.2%	*
Attended Orientation	83.7%	37.9%	45.8%	*
Applied for Financial Aid	90.7%	51.6%	39.1%	*
Completed an Education Plan	66.9%	29.0%	37.9%	*
Took an online course	14.5%	25.1%	-10.6%	*

Column 1 describes FYE students who enrolled in the program within their first or second term from initial enrollment. Column 2 includes all non-FYE students who were enrolled at De Anza for at least two terms. Column 3 shows differences between FYE and non-FYE students, with a test of statistical significance between these groups in column 4, where an asterisk (*) indicates a p-value of less than 0.01.

- Within their first term of attending De Anza, FYE students:
  - Took about the same number of courses (2.8 vs. 2.3 courses) but fewer FYE students took any courses online (15% vs 25%)
  - Had a term GPA that was very similar to non-FYE students (3.3 vs. 3.1)
  - Were more likely to complete the full range of matriculation steps associated with positive outcomes: taking a placement exam (88% vs. 46%); attending orientation (84% vs. 38%); applying for financial aid (91% vs. 52%).
    - The one area where FYE students did not have full participation was in completing an education plan, though they were still more likely to have done so than the general population (67% vs. 29%)

Academic Outcomes

FYE students generally exhibit stronger academic outcomes than non-FYE students in a number of key areas including total courses taken and taking higher-level English courses, but exhibit lower outcomes in course passage rates and completing higher-level math courses. All results are based on regression analysis that controls for differences in background demographic and first-term enrollment characteristics (controls for differences in student's background and enrollment characteristics to make them as similar as possible).[3] Baseline values are reported for non-FYE students to compare FYE students to.

Table 2 shows the regression-adjusted differences in student persistence, units and courses taken, GPA and success rate, and various basic skills course outcomes:
- FYE students were equally likely to persist into their second term and second year than non-FYE students.
- On average, FYE students attend 0.9 more terms (baseline=5.8), attempt 15 more units (baseline=62 units attempted), and take 6.6 more courses (baseline=15). The additional courses taken by FYE students (6.0 course increase) were degree or transfer applicable opposed to basic skills or vocational courses.
- FYE students attempt a much higher number of units (15 percentage points from a baseline of 62) and take 7 additional degree or transfer applicable courses (baseline=15), however, they successfully earn only 3.9 more units than non-FYE students. The high number of units attempted for FYE students and the relatively low amount of units earned is likely a result of FYE students being 6 percentage points less likely to pass their courses (baseline=70%). As a result, their GPA was 0.4 points lower (baseline=2.6).

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3 The regression model includes the following demographic controls: age, ethnicity, gender, low-income status, first-generation status, parent education level, individual variables for their first term of enrollment, academic goal (transfer, degree, or other), and student type (first-time, continuing, returning, transfer). Academic controls are all based on a student's first enrolled term, and include: GPA, whether GPA was missing (to include students who might have taken courses pass/no pass), the number of courses taken, whether a student participated in the matriculation process (placement exam, orientation, financial aid application, and education plan), and whether they took a course online.

English Outcomes

- FYE participants performed significantly better in English coursework, as they were:
    - 15 percentage points more likely to take any English course (baseline=53%)
    - 20 percentage points more likely to pass any English course (baseline=46%)
- FYE students were more likely to place into lower levels of basic skills English courses than non-FYE students, as they were:
    - Much more likely to take EWRT200 (27 percentage points) and EWRT211 (24 percentage points), but also much more likely to pass EWRT200 (28 percentage points) and pass EWRT211 (23 percentage points)
- FYE students were more likely to take EWRT1A or higher (17 percentage point increase from a baseline of 46%), and more likely to pass EWRT1A or higher (14 percentage point increase from a baseline of 41%)
- FYE students were 10 percentage points more likely to pass EWRT1A or higher if they started in either EWRT200 or EWRT211 (baseline=60%), and they passed EWRT1A in 1.5 fewer terms (baseline=4.8).

Math Outcomes

- FYE participants performed better in lower-level math coursework but underperformed in higher-level courses, as they were:
    - Equally likely to take any level math course but 8 percentage points less likely to pass any level math courses
- FYE students were more likely to start in the lowest level basic skills math courses (21 percentage point increase from a baseline of 24%) and less likely to take transfer-level math courses (-11 percentage points from a baseline of 44%).
    - However, they are more likely to pass MATH210/212 (11 percentage point increase from a baseline of 18%).
    - Though less likely to pass a transfer-level math course (12 percentage point increase from a baseline of 36%).
- FYE students who started in basic skills math classes were 11 percentage points less likely (baseline=46%) to take MATH10 or higher, and were 11 percentage points less likely to pass MATH10 or higher.
- FYE students also took 2.5 additional terms to take and pass MATH10 or higher if they started in a lower level math course.

Table 2. Impact of FYE Participation on Student Outcomes

	Baseline value for non-FYE students	Impact of FYE participation	
Persistence			
Persisted to 2nd year	73.2%	0.6%	
Persisted beyond 2nd year	90.8%	-0.8%	
Course-Taking			
Number of terms attended	5.8	0.9	*
Number of units attempted	61.9	14.7	*
Number of units earned	45.8	3.9	*
Number of courses taken	15.3	6.6	*
Number of courses taken: Degree/Transfer	11.0	6.0	*
Number of courses taken: Vocational	2.9	-0.9	*
Number of courses taken: Basic Skills	1.5	1.5	*
Course Performance			
Success rate	70.5%	-5.9%	*
GPA	2.62	-0.39	*
Math and English Remediation			
<u>English Courses</u>			
Took English	53.2%	15.4%	*
Passed English	46.2%	19.5%	*
Took EWRT200	6.1%	27.2%	*
Took EWRT211	25.6%	24.0%	*
Took EWRT1A or higher	45.8%	17.0%	*
Passed EWRT200	5.2%	27.7%	*
Passed EWRT211	22.4%	22.9%	*
Passed EWRT1A or higher	40.6%	14.4%	*
Took EWRT1A or higher if started in 200 or 211	66.8%	9.6%	*
Passed EWRT1A or higher if started in 200 or 211	60.4%	9.5%	*
Terms to taking EWRT1A or higher if started below	4.7	-1.5	*
Terms to passing EWRT1A or higher if started below	4.8	-1.5	*
<u>Math Courses</u>			
Took Math	63.6%	-0.6%	
Passed Math	51.8%	-8.1%	*
Took Math210 or 212	23.7%	20.6%	*
Took Math114 or 217	25.7%	4.7%	
Took Math10 or higher	44.4%	-10.8%	*
Passed Math210 or 212	18.2%	11.1%	*
Passed Math114 or 217	20.3%	3.0%	
Passed Math10 or higher	36.4%	-11.7%	*
Took Math Level 3 if started in Level 1 or 2	46.4%	-10.7%	*
Passed Math Level 3 if started in Level 1 or 2	36.2%	-10.6%	*
Terms to Taking Math10 or higher if started below	5.1	2.5	*
Terms to Passing Math10 or higher if started below	5.6	2.5	*

Column 1 shows baseline values from non-FYE students, column 2 provides the academic outcomes of FYE student who enrolled in the program within their first or second term from initial enrollment, compared to demographically and academically similar non-FYE students. Column 3 shows a test of statistical significance from zero, where an asterisk (*) indicates a p-value of less than 0.01. Column 4.

Outcomes: Subgroup Differences

Table 3 replicates the outcome results from Table 2, but does so separately by key subgroups of interest: males and females and low- and high-income students. In general, all groups of students appear to benefit from FYE participation, though individual results vary.

Gender:

- Females who participated in FYE compared to females who did not participate, attempted 19 more units and took 8 more course while males attempted 6 additional units and 4 additional courses.
- Females exhibited lower course outcomes than males. For example, female FYE students had lower course passage rates (8%) when compared to females not in the FYE program and a lower GPA (-0.04), whereas males showed negative (3.5%) but statistically insignificant impacts in course success.
- Female FYE students took and passed English courses at a higher rate than female students not in FYE, 14 percentage points and 20 percentage point difference, while males had a 17 and 18 percentage point difference.
- Females exhibited a slightly higher passage rate of EWRT1A than males with a 19 percentage point increase compared to a 13 percentage point increase.
- Participation in FYE did not significantly impact whether the student took a math course, however, for males there was a 15 percentage point decrease in their passing any math course compared to males not in FYE. This was not significant for females.
- Male and female FYE students were much more likely to take the lowest level math course, but females were the only group significantly more likely to pass those courses.
- Male and female FYE students were both less likely to take and pass Math10 or higher if they started in a lower level, at an 11 percentage point decrease from non FYE males and females.

Income:

- There were few large differences between low- and high-income students who participated in FYE. The only large difference was in units attempted, where high-income students who participated in FYE took an additional 16 units, relative to non-FYE high-income students; the similar figure for low-income students was a statistically insignificant 4 units.

Table 3. Impact of FYE Participation on Student Outcomes, by Subgroups

	Female		Male		Low-income		High-income	
Persistence								
Persisted to 2nd year	1.8%		-2.2%		9.4%		-1.2%	
Persisted beyond 2nd year	0.9%		-3.3%		0.5%		-1.1%	
Course-Taking								
Number of terms attended	1.2	*	0.4		0.2		1.0	*
Number of units attempted	19.1	*	6.6		4.4		16.3	*
Number of units earned	5.0	*	0.9		-3.5		4.8	*
Number of courses taken	7.9	*	4.3	*	3.9	*	7.0	*
Number of courses taken: Degree/Transfer	6.9	*	4.4	*	3.2	*	6.4	*
Number of courses taken: Vocational	-0.6	*	-1.4	*	-1.6	*	-0.8	*
Number of courses taken: Basic Skills	1.6	*	1.3	*	2.3	*	1.4	*
Course Performance								
Success rate	-7.6%	*	-3.5%		-4.0%		-6.1%	*
GPA	-0.4	*	-0.3	*	-0.3	*	-0.4	*
Math and English Remediation								
<u>English Courses</u>								
Took English	14.3%	*	16.5%	*	27.1%	*	13.0%	*
Passed English	20.0%	*	17.9%	*	26.5%	*	18.0%	*
Took EWRT200	27.9%	*	25.9%	*	50.5%	*	22.5%	*
Took EWRT211	22.8%	*	25.4%	*	36.5%	*	21.2%	*
Took EWRT1A or higher	18.8%	*	12.8%	*	19.8%	*	16.3%	*
Passed EWRT200	29.0%	*	25.2%	*	48.3%	*	23.6%	*
Passed EWRT211	22.9%	*	21.9%	*	31.2%	*	20.9%	*
Passed EWRT1A or higher	15.1%	*	11.9%	*	16.6%	*	13.7%	*
Took EWRT1A or higher if started in 200 or 211	11.5%	*	6.0%		10.2%		9.7%	*
Passed EWRT1A or higher if started in 200 or 211	9.5%	*	8.5%		9.4%		9.3%	*
Terms to taking EWRT1A or higher if started below	-1.3	*	-1.7	*	-1.1	*	-1.6	*
Terms to passing EWRT1A or higher if started below	-1.4	*	-1.5	*	-1.1	*	-1.5	*

Table 3. Impact of FYE Participation on Student Outcomes, by Subgroups - Continued

<u>Math Courses</u>

Took Math	0.8%		-4.0%		3.9%		-1.6%	
Passed Math	-4.8%		-14.5%	*	-24.3%	*	-4.8%	
Took Math210 or 212	21.5%	*	18.5%	*	26.9%	*	19.4%	*
Took Math114 or 217	5.4%		3.3%		-10.2%		7.7%	*
Took Math10 or higher	-10.0%	*	-13.7%	*	-17.5%	*	-9.8%	*
Passed Math210 or 212	14.0%	*	5.0%		-3.3%		14.3%	*
Passed Math114 or 217	1.1%		5.3%		-9.5%		5.3%	*
Passed Math10 or higher	-11.5%	*	-12.6%	*	-16.7%	*	-11.2%	*
Took Math10 or higher if started in Level 1 or 2	-10.6%	*	-11.6%	*	-15.3%	*	-10.1%	*
Passed Math10 or higher if started in Level 1 or 2	-10.4%	*	-11.0%	*	-13.3%		-10.6%	*
Terms to Taking Math10 or higher if started below	2.8	*	1.9	*	1.3		2.7	*
Terms to Passing Math10 or higher if started below	3.0	*	1.4	*	-0.4		2.7	*

Each column provides the academic outcomes of FYE students who enrolled in the program within their first or second term from initial enrollment, compared to demographically and academically similar non-FYE students. Asterisks (*) indicate that a test of statistical significance from zero has high likelihood, with a p-value of less than 0.01.