

Leaver Research Brief #2

How Entering Student Characteristics and Program Interventions Effect Long-Term Student Outcomes

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In considering the long-term outcomes (including successful outcomes) of students, two questions emerge. **First, what effect do entering characteristics of students have on long-range goal attainment?** These characteristics may be background characteristics such as age and ethnicity or they may be entering student ability levels in English and Mathematics. **Second, what effect, if any, do special College programs have on student outcomes?** These interventions may be tutoring, counseling, summer-bridge or other programs targeted at specific groups of students.

In order to answer these questions, we collected and analyzed the records of 72,220 students who left CCSF between 1997/98 and 2000/01. We defined leavers as students who were not enrolled from Summer 2001 through Spring 2002 (the last semester available at the time of the study) and only looked at these students. We also did not consider students who had enrolled in summer-only terms.

We were able to match this group of leavers by social security number, in addition to first and last name, with the National Student Clearinghouse (NSC) which maintains a database of students nationwide for financial aid purposes. The NSC maintains a record for each student attending a U.S. college or university over the past 10 years. Through this service, we were able to match students who exited CCSF with their subsequent academic institution.

We also were able to identify students in our CCSF database who received a certificate or degree. We labeled this **award achievement** and did not further distinguish between degree and certificate recipients. As a consequence, we identified two aspects of student success, award (degree/certificate) receipt and four-year transfer following CCSF enrollment. National Student Clearinghouse data also provided us with information regarding student transfer to other two-year colleges. We included this data in this report even though it does not typically represent a success outcome.

We also collected data on student performance at CCSF. That is, we were able to identify their first and last English/ESL or Mathematics course and their background characteristics such as age and ethnicity. Moreover, our database identified the special services and programs with which a student was associated such that we could examine these associations with transfer and award outcomes.

Background Characteristics and Student Success

English and ESL

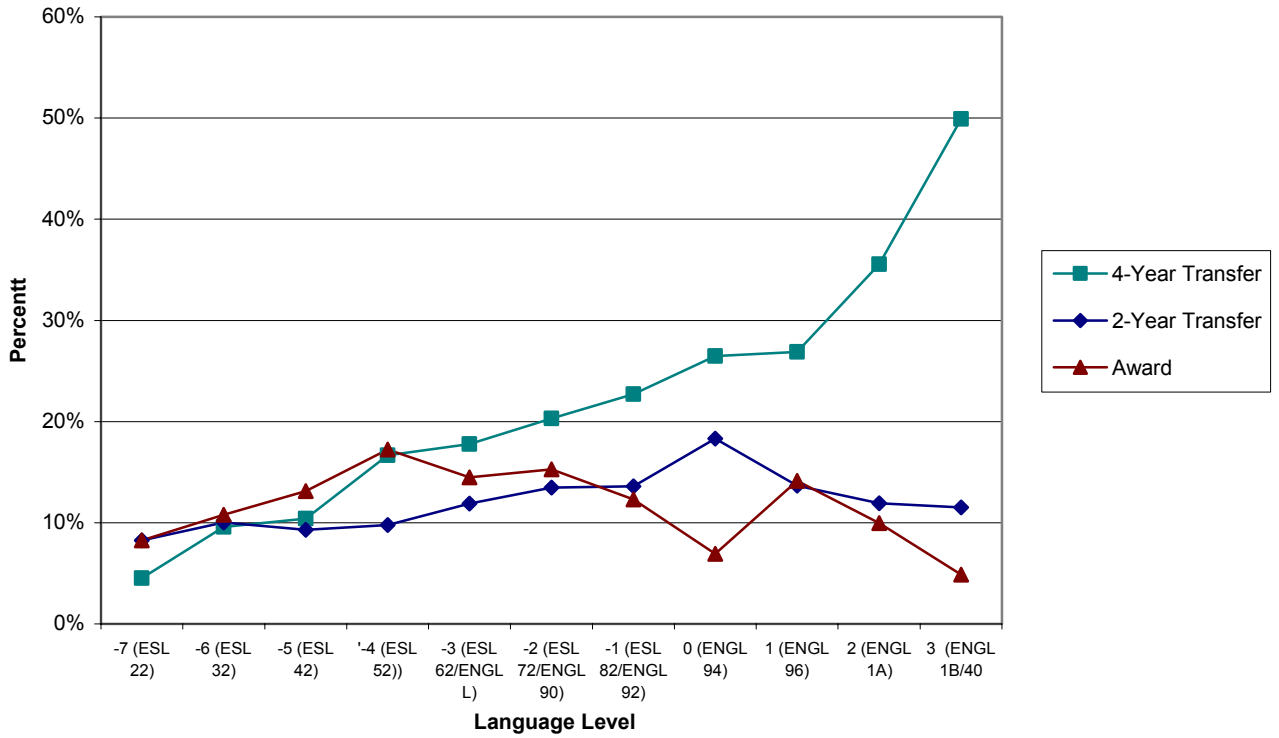
We first looked at the students' entering ability levels and how they were related to the transfer or attainment of an award (degrees or certificates). Ability levels can be operationally defined in two ways. They can be defined by the placement test results of students upon entering college or they can be defined by the first course a student takes. We decided to use the latter method. We chose this definition because, while courses and course sequences have been in existence at CCSF for quite a long time, placement (whether mandatory or recommended) is a more recent feature. We could not be sure that students either took the placement test or if they did, whether they subsequently followed its advice. Due to these factors, we chose to define entering ability by a students' first English or Mathematics class.

We then ranked classes in the sequence from low to high with zero (0) indicating the first **transfer** level class. For the language sequence, we included both English and ESL (with ESL levels being either overlapping or lower than English levels). At CCSF, ESL and English course sequences merge at English 94. English 94 is a course that transfers to San Francisco State University only. Generally, UC schools require English 1B to transfer. Other CSU (California State University) schools require English 1A. We ranked ESL and English courses in the sequence from the lowest entry ESL class (22) through the highest English class (English 1B or 40). There were 11 levels, seven in ESL and seven in English with three overlapping. We then plotted these against the percent of students who started at each level and their transfer or attainment of a degree/certificate. Graph 1 below presents that relationship.

Graph 1 shows both unexpected and expected relationships between entering English ability and educational outcome. First it shows, as expected, that four-year university transfer increases significantly with entering English ability level. Of the students who started at an English 1A level, 36% transferred to a four-year college compared to 18% of those who started at the lowest English level (English L or equivalently ESL 62). The graph also shows an interesting relationship to award achievement. **Entering ability does not seem to be related to the achievement of an award.** Those students who started at the basic skills levels in English (L, 90, 92) or ESL (22, 32, 42) were as likely or somewhat more likely to get an award as those students who placed much higher. Finally, the graph shows that 10% to 15% of students at all levels were equally likely to enroll in another two-year institution at a later date.

According to the data, starting level is only important for four-year transfer. Starting at a low English level does not disadvantage students transferring to other two-year colleges or getting a degree or certificate. This is particularly true for English students who start at most three levels below a transfer-level English course.

Graph 1
Transfer Achievement by Students' first Language Level at CCSF

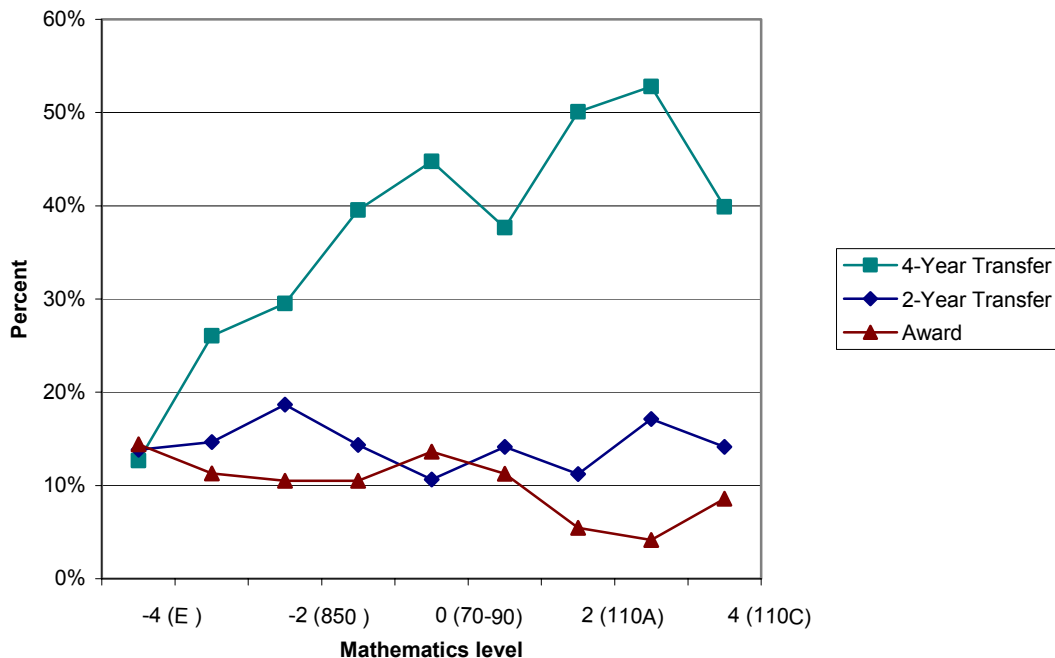


Mathematics Ability

We also examined entering Mathematics ability and educational outcome. Graph 2 presents this relationship. Basically, it shows the same relationship as does Graph 1. Mathematics E is basic skills arithmetic. Mathematics 70, 75, 80 and 90 are college-level algebra or equivalent finite Math classes that meet the general education transfer requirement. The calculus sequence starts with 100A (business) and 110A (science and engineering). Once again, Mathematics level is not related to two-year transfer, is probably related inversely to the achievement of a degree or certificate, but is strongly related to four-year transfer.

The similarities between Graphs 1 and 2 send a clear message. The message articulates to our feeder (high school) institutions. The level of preparation and ability with which students enroll at CCSF strongly influences their performance and achievement after attending CCSF. When students place at the most remedial levels in English and Mathematics, their chances of four-year transfer are seriously constrained. The good news is that students' chance of getting a degree or certificate does not decline according to entering ability.

Graph 2
Transfer Achievement by Students' First Math Level

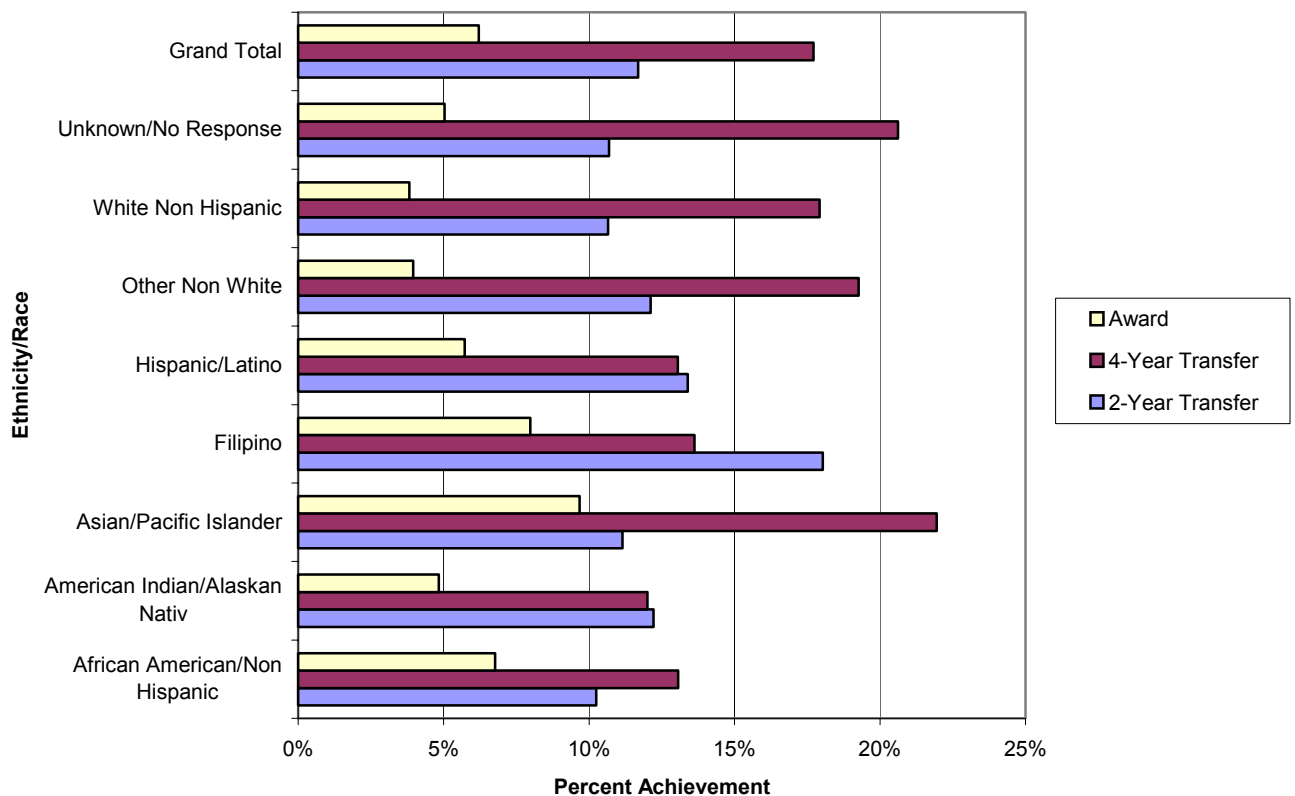


Other Background Characteristics

Race/Ethnicity

Graph 3 presents the educational outcome of students exiting CCSF by their race/ethnicity. Perhaps most surprising is the lack of significant differences in award achievement and transfer. Some differences do indeed exist. For example, 13% of Latino/a and African American students transfer to four-year institutions versus 18% of white and 22% of Asian students. In addition, 7% of African American, 6% of Latino/a versus 4% of white and 10% of Asian students achieve a degree or certificate. All in all, these differences are relatively small given the sizeable differences in outcome found in other variables.

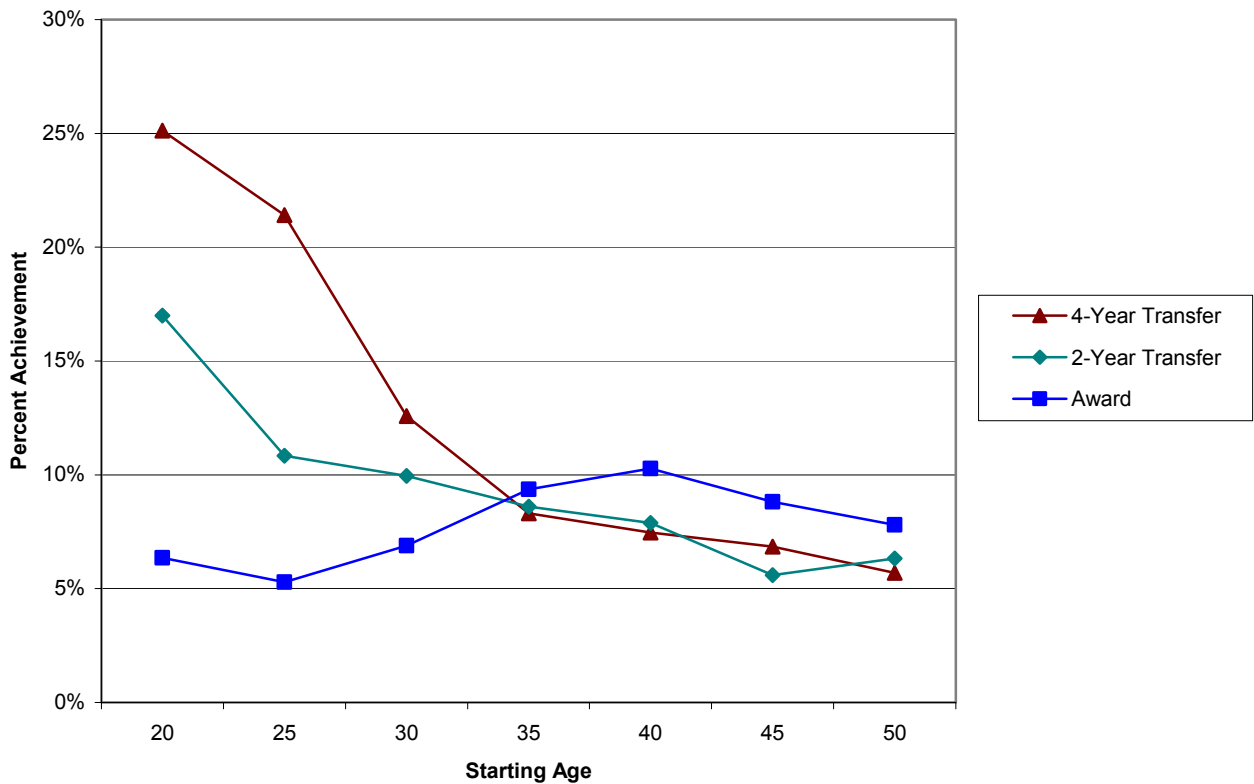
Graph 3
Transfer and Award Achievement by Ethnicity



Age

Graph 4 presents educational outcome by age. Age is much more related to educational outcome than other background variables (gender is not presented because it was not significant). Students in the 19-20 year-old cohort are the most likely to transfer to a four-year college. As age increases, four-year transfer becomes more and more unlikely. Interestingly, two-year transfer follows the same pattern but it is not as strongly related to age. What is most interesting is that award achievement follows a completely different pattern. Award achievement is steady to slightly increasing as age increases.

Graph 4
Transfer and Award Achievement by Starting Age at CCSF



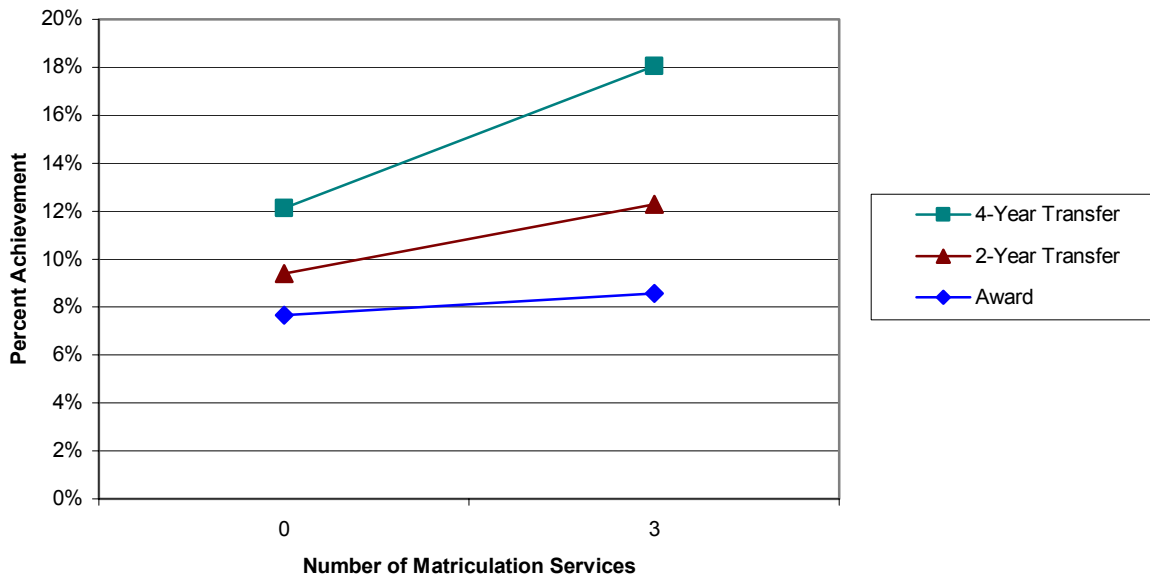
Support Services and their Effect on Educational Outcomes

The state of California spends a great deal of money providing support services to students in community colleges. However, there is little research on the effect of these services. At CCSF, we have been keenly interested in seeing what effect a large group of interventions and services have on student success. In this case, success is defined as award achievement or transfer to a four-year college. Services fall into various categories. These are (1) matriculation services, (2) interventions or programs targeting specific populations and (3) interventions or programs targeting the general college-going population.

Matriculation Services

Some leavers receive matriculation services upon entrance to the College. These services include intake counseling, orientation and placement. In Graph 5 below, the percent of students who transferred or received an award is presented for those students who received no services and three services. Across all measures, those students who received three services had higher percentages transferring or receiving an award than those students who received no services.

Graph 5
Transfer and Award Achievement as a
Function of the Number of Matriculation Services Received



It is questionable whether the association between matriculation services and transfer or award outcome is a cause and effect relationship for a number of reasons. First, students receiving matriculation services are most likely full-time at the College or seeking to enter English and Mathematics courses with the goal of transferring or obtaining a degree/certificate. Whether these services made a significant difference in a student's outcome is remote; the likelihood is that they were part of a set of enabling factors for the student to achieve a successful outcome.

Program Interventions

Table 1 below presents the percent of students and the total cohort number of students who either transferred or received an award for each of 11 special programs or interventions. These programs run the gamut from programs targeting specific student groups (African American Achievement, Latino Retention) to general academic support (LERN T). In general, 18% of the 72,220 students in our sample transferred to a baccalaureate institution. Nearly all students associated with programs transferred to four-year institutions in greater percentages. For example, 29% of LERN T (tutoring), Latino Retention, and Math Bridge students transferred. Only students associated with African American Retention and Disabled Student Program (DSPS) had an equivalent or lower percentage of four-year transfers.

The issue with award receipt is somewhat different. Six percent of the sample received a degree or certificate, but 10% of students in Writing Success, and 12% of EOPS students achieved an award of some type. If one singles out those programs with above-average transfer and award rates, then of particular interest are Writing Success, Math Bridge, LERN T, and EOPS. In general, though, a similar theme plays out. Interventions tend to be associated with higher levels of degree achievement and transfer.

Table 1
Transfer and Award Achievement by Special Program at CCSF

Program	2-Year Transfer	4-Year Transfer	Award	Number
African-American Achievement Program	14%	19%	4%	259
Disabled Student Program (DSPS)	12%	14%	9%	871
EOPS	9%	33%	12%	1,260
Latino Retention (LATN)	14%	29%	7%	1,298
LERN T (Tutoring)	12%	29%	9%	12,250
Math Bridge	21%	29%	4%	48
Puente Program	14%	32%	7%	71
Latino/African American Retention (RETN)	15%	14%	1%	316
Summer Bridge	14%	26%	3%	95
Writing Success	15%	37%	10%	326
All Students	12%	18%	6%	72,220

Tutoring Services

What effect do tutoring services have on student success? Table 1 presents the transfer and graduation rates of students who participated in LERN T, an open-ended tutoring class. These rates were higher than in the general population.

Another question is how the intensity of tutoring (e.g., the number of hours) affects transfer and graduation rates. In this case, the greater the number of tutoring hours per term, the greater the level of transfer and degree attainment. At the highest hours per term of 70 hours, the four-year transfer rate is over 50%. Greater use of tutoring is associated with four-year transfer.

Graph 6
Transfer and Award Achievement as a Function of LERN T (Tutoring) Hours

