

**CARP Tutoring at San Francisco State University:
Testing the Impact of CARP on Student Retention**

Academic Institutional Research Office

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The following analysis by the Academic Institutional Research (AIR) office at SF State compares the retention of students who received CARP tutoring for particular courses to those who did not. It might be expected that those who seek tutoring do so either because they fear they will find a course difficult or they are already experiencing difficulty. As such, without tutoring, it might also be expected that they are less likely to be retained.

Case control matching, a feature now available in the SPSS statistical analysis software used by AIR, makes it possible to hold constant some of the key student characteristics that have been shown to be related to student outcomes in previous analyses. Holding these characteristics constant removes them as possible contributors to the outcomes being investigated, thereby increasing the likelihood that the independent variable being investigated (in this case, CARP tutoring) is contributing to the outcome (retention/persistence). Matches were made on the following characteristics:

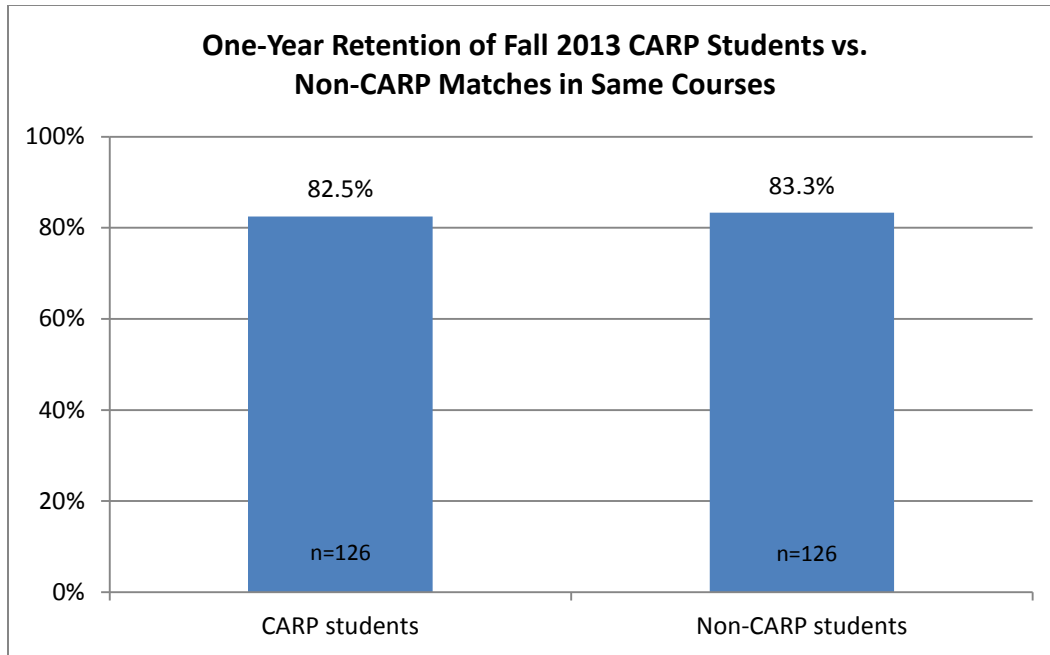
- Course
- Age, under 25 vs. over 24
- Gender
- Race/ethnicity
- Underrepresented minority classification (URM), used when it was not possible to obtain an exact match on race/ethnicity
- Student level (freshmen, sophomores, etc.), with an exact match preferred but one class level higher or lower permitted
- GPA, preferably an exact match but allowed leeway of +/- .3, using these GPA variables in the following order, skipping to the next one if data for one was missing: campus GPA, high school GPA, transfer GPA, campus GPA at the end of the semester for the group being examined (Fall 2013 or Fall 2014)

CARP students getting tutoring for the following courses were compared to non-CARP students in the same courses:

- MATH 60
- MATH 70
- MATH and DS 110 (combined because there were only three CARP students in DS 110)
- MATH 124
- DS 212

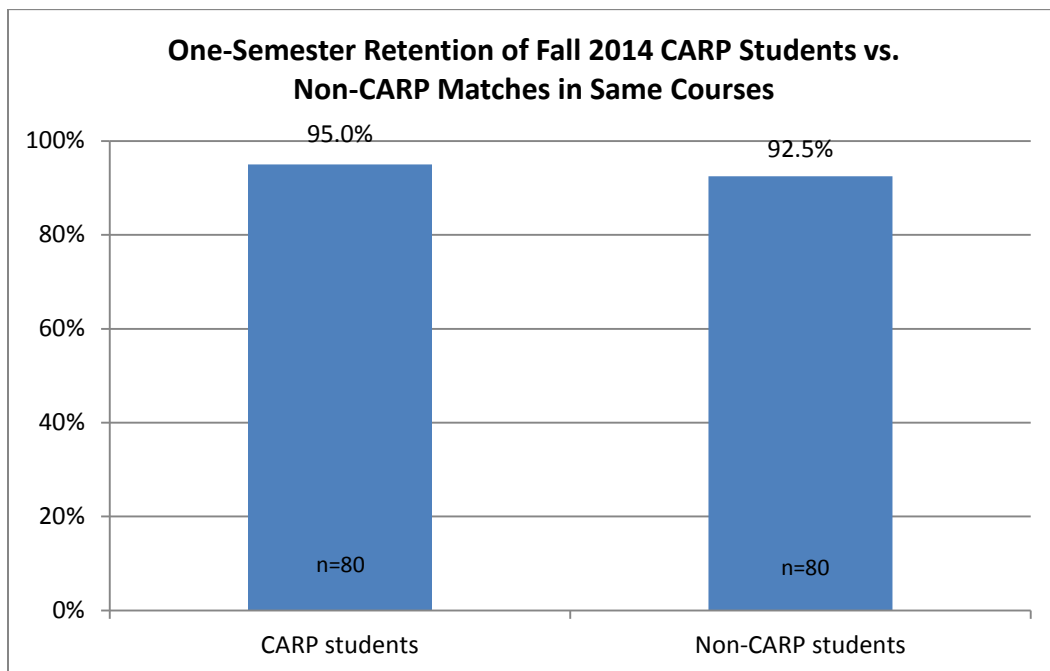
Results for the Fall 2013 CARP students (one-year retention, Fall 2013 to Fall 2014):

- Three CARP students could not be matched well enough to non-CARP students, so they were not included in the analysis.
- Regardless of whether CARP students were matched to non-CARP students or simply compared to all non-CARP students, there was no significant difference between the two groups in likelihood of one-year retention (including graduation). CARP students were just as likely to be retained as were non-CARP students.



Results for the Fall 2014 CARP students (one-semester retention, Fall 2014 to Spring 2015):

- Regardless of whether CARP students were matched to non-CARP students or simply compared to all non-CARP students, there was no significant difference between the two groups in likelihood of one-semester continuation. CARP students were just as likely to be retained as were non-CARP students.



Summary:

There were no statistically significant differences in the retention rates of CARP-tutored and non-CARP students who were matched on key characteristics such as age, gender, race/ethnicity, student class level, and GPA. As mentioned earlier, it might be expected that those who seek tutoring do so because they fear they will have, or are already experiencing, difficulty in their coursework. It might further be expected that these students who are facing academic challenges are more vulnerable to attrition than are those who are not seeking tutoring help from CARP. This analysis, however, shows that students who take advantage of the tutoring services through CARP are successfully retained at the same rate as students who do not receive CARP tutoring. In fact, the one-semester retention rate of the Fall 2014 CARP student cohort was greater than that of their non-CARP counterparts (although the differences were not statistically significant). By controlling for factors such as age, gender, race/ethnicity, student level, and academic performance, these factors are excluded as explanations for variations in retention rates. With this in mind, the absence of significant differences in retention rates between CARP and non-CARP students suggests that CARP tutoring is related to improved retention.

It should be noted that non-CARP comparison students may have had non-CARP tutoring.