



**COSUMNES  
RIVER COLLEGE**

OFFICE OF RESEARCH & EQUITY

**Evaluation of Supplemental Instruction in Online English Composition  
Courses at CRC**

**Research and Equity**

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## Executive Summary

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### Background

In Spring 2026, the Research and Equity Office at Cosumnes River College sought to evaluate the impact of supplemental instruction in online English composition courses. In these courses, supplemental instruction takes the form of a *Student Assistant* (SA) who is both familiar with the specific course content and is available to provide assistance to students during the term. Between Spring 2024 and Fall 2025, a total of 41 asynchronous online English composition courses were assigned a student assistant. This evaluation sought to identify and describe the impact of a student assistant on course success in the online environment. Here “course success” is defined as earning an A, B, C, or P in a course.

### Summary of Findings

- 1) Students in courses with an SA did not have a significantly higher chance of course success compared to matched control students without an SA ( $p = 0.074$ ). The relative risk ratio – the success rate for SA students divided by the success rate for non-SA students – was estimated to be 1.09. This means, for example, if the success rate for non-SA students was 50%, the success rate for SA students would be 54.5% (or  $1.09 \times 50\%$ ). This difference, nevertheless, did not reach the level of statistical significance, and therefore we can’t differentiate it from chance variation.
- 2) SA did not improve success differentially for student groups found to be disproportionately impacted in English composition – specifically, Hispanic/Latino(a), Black/African American, and/or low-income students.

### Conclusions and Recommendations

Due to the limitations of this research (section below), it is difficult to draw strong conclusions and/or make recommendations. However, future research should gather some quantitative data on the number of students who interacted with/were helped by the SA assigned to a course. This may help us draw stronger conclusions.

### Caveats and Limitations

The research described here is fundamentally correlational, and other factors may explain the differences between SA and non-SA courses (or lack thereof). For example, some instructors reward their students with extra credit for getting assistance from the SA. This could explain a difference in success – unrelated to the actual assistance of the SA. Furthermore, it is difficult to draw strong conclusions without a measure of how frequently the SA helped students in the course. We don’t know how often students went to the SA for help and/or how the SA sought to help students. That is to say, just because an SA was assigned to help students does not mean that students received help.

The level of analysis must also be considered. It is possible for an SA to improve the chance of succeeding without an observed increase in success relative to other courses. For example, suppose two instructors have differences in teaching methods. The instructor with lower success rates may be more inclined to request an SA. Ultimately, although an SA may have raised success rates for this instructor, their course success may still not be higher relative to other courses/instructors.



## Background and Methodology

### Method

#### *Data Gathering and Student Demographics*

This study sought to determine the impact of supplemental instruction on course success in online English composition courses at CRC. Data were gathered on enrollments in online English composition courses at CRC in Spring 2024, Fall 2024, and Spring 2025. Courses with an assigned SA were identified via a list provided by the CRC English department. Student grades were then coded as successful if an A, B, C, IP, or P was earned (unsuccessful otherwise). The analysis described here sought to compare the success of students in SA online courses to those in non-SA online courses. Furthermore, analysis sought to uncover additional increases in success for disproportionately impacted student groups – Black/African American, Hispanic/Latino(a), and low-income/below-poverty income students.

A strict comparison between students in SA-assigned courses and non-SA-assigned courses would nevertheless be very difficult to interpret. Differences in demographics might explain why students with SA are more or less successful. For example, suppose there were proportionately more students with above average high school GPAs in the SA courses, then a difference could be explained by the presence of “better” students in SA courses and not necessarily the assistance from the SA. To that end, several demographic variables were gathered that have previously documented correlations with course success – income, working status (full-time, part-time, unemployed, or unknown employment), Black/African American status (e.g. if they selected a Black/African American race/ethnicity on their application to CRC), Hispanic/Latino(x) status, enrollment status (new, returning, transfer, special admit, or continuing student), and high school GPA.

One alternative explanation for a benefit of supplemental instruction is student motivation. That is, students who seek help from an SA may simply be more motivated, and this motivation explains why they are more successful – not necessarily the assistance from the SA. Data were therefore gathered on student use of collegewide resources. With this data, it was possible to compare students who have a similar propensity to use and take advantage of resources – at least partially controlling for “motivation” as an explanation for the benefit of a student assistant. Data were gathered on advisement (the number of times a student saw a counselor, went to the welcome center, or went to the transfer center), EOPS/CARE/CalWORKs (the number of times a student went to the EOPS center), special programs (the number of times a student went to a special program location like MESA, APIDA, Mi CASA, UMOJA, TRIO, Veterans Services, the Center for Inclusion, or Puente), and basic needs (the number of times a student went to the Nest or the Hawk CARES center). Ultimately, special program and EOPS/CARE/CalWORKs visits were not included in the analysis because they did not correlate with course success.

For the purposes of analysis, only the first attempt of English composition was used for each student during the three-term period. This ensured that each student contributed exactly one record to the analysis. Additionally, one student took two English courses during the same term (a full-term and second eight-week course), and they were excluded from analysis. A total of 2700 records were used for analysis. A demographic breakdown of students can be found in *Table 1* and *Table 2* on the next page.



*Table 1. Demographic description of students in SA and non-SA courses.*

| Variable                  | SA          |            | No SA       |            |
|---------------------------|-------------|------------|-------------|------------|
|                           | Count       | % of Total | Count       | % of Total |
| Black/AA                  | 200         | 19.1%      | 294         | 17.8%      |
| Not Black/AA              | 846         | 80.9%      | 1360        | 82.2%      |
| Hispanic                  | 339         | 32.4%      | 540         | 32.6%      |
| Not Hispanic              | 707         | 67.6%      | 1114        | 67.4%      |
| Below Poverty Income      | 262         | 25.0%      | 428         | 25.9%      |
| Low Income                | 281         | 26.9%      | 390         | 23.6%      |
| Middle And Above Income   | 360         | 34.4%      | 621         | 37.5%      |
| Unknown Income            | 143         | 13.7%      | 215         | 13.0%      |
| Enrolled in Spring 2024   | 404         | 38.6%      | 380         | 23.0%      |
| Enrolled in Fall 2024     | 327         | 31.3%      | 754         | 45.6%      |
| Enrolled in Spring 2025   | 315         | 30.1%      | 520         | 31.4%      |
| ng                        | 417         | 39.9%      | 613         | 37.1%      |
| New                       | 391         | 37.4%      | 632         | 38.2%      |
| Returning                 | 109         | 10.4%      | 166         | 10.0%      |
| Special Admit             | 31          | 3.0%       | 62          | 3.7%       |
| Transfer                  | 97          | 9.3%       | 181         | 10.9%      |
| Unknown Enrollment Status | 1           | 0.1%       |             |            |
| Full-Time Employed        | 131         | 12.5%      | 224         | 13.5%      |
| Part-Time Employed        | 468         | 44.7%      | 713         | 43.1%      |
| Unemployed                | 446         | 42.6%      | 717         | 43.3%      |
| Unknown Employment        | 1           | 0.1%       |             |            |
| DSPS Visit                | 46          | 4.4%       | 40          | 2.4%       |
| No DSPS Visit             | 1000        | 95.6%      | 1614        | 97.6%      |
| Advising Visit            | 408         | 39.0%      | 583         | 35.2%      |
| No Advising Visit         | 638         | 61.0%      | 1071        | 64.8%      |
| <b>Total</b>              | <b>1046</b> |            | <b>1654</b> |            |

*Table 2. Demographic description of students in SA and non-SA courses (Continued)*

| Variable          | SA   |      | No SA |      |
|-------------------|------|------|-------|------|
|                   | Mean | SD   | Mean  | SD   |
| High School GPA   | 3.09 | 0.59 | 3.18  | 0.52 |
| Advisement Visits | 0.68 | 1.14 | 0.61  | 1.08 |
| DSPS Visits       | 0.12 | 0.66 | 0.07  | 0.61 |



## Findings and Analysis

Success rates in SA/Non-SA courses can be found in *Table 3* below. Denominators for the success rates in *Table 3* can be found in *Table 1*. The analysis described here used propensity score matching to help remove possible demographic/confounding interpretations of success in SA and non-SA courses. With propensity score matching each student in the SA group is matched to another student or set of students not in the SA group with similar demographic characteristics, a.k.a., similar “propensities” to participate in an SA course. Then their outcomes are compared. Because the comparison students have similar demographics, one may be more certain that the effect of the intervention (supplemental instruction) is not attributable to simple demographic differences (e.g. like high school GPA). What follows in the next paragraph is information necessary for replication of statistical methodology.

*Table 3. Course Success Rates in SA vs. No-SA Courses*

| Variable                  | SA           | No SA        |
|---------------------------|--------------|--------------|
| Black/AA                  | 48.0%        | 48.6%        |
| Not Black/AA              | 63.4%        | 62.7%        |
| Hispanic                  | 56.3%        | 53.9%        |
| Not Hispanic              | 62.4%        | 63.3%        |
| Below Poverty Income      | 56.5%        | 54.0%        |
| Low Income                | 60.5%        | 60.5%        |
| Middle And Above Income   | 65.3%        | 63.3%        |
| Unknown Income            | 55.2%        | 63.3%        |
| Spring 2024               | 54.5%        | 52.1%        |
| Fall 2024                 | 66.4%        | 67.4%        |
| Spring 2025               | 61.9%        | 55.8%        |
| Continuing                | 60.7%        | 56.0%        |
| New                       | 61.4%        | 64.9%        |
| Returning                 | 56.0%        | 50.0%        |
| Special Admit             | 74.2%        | 80.6%        |
| Transfer                  | 56.7%        | 60.8%        |
| Unknown Enrollment Status | 0.0%         |              |
| Full-Time Employed        | 62.6%        | 56.7%        |
| Part-Time Employed        | 56.4%        | 59.0%        |
| Unemployed                | 64.1%        | 62.5%        |
| Unknown Employment        | 0.0%         |              |
| DSPS Visit                | 47.8%        | 62.5%        |
| No DSPS Visit             | 61.0%        | 60.2%        |
| Advising Visit            | 69.6%        | 67.9%        |
| No Advising Visit         | 54.5%        | 56.0%        |
| <b>Total</b>              | <b>60.4%</b> | <b>60.2%</b> |



Denominators for these success rates can be found in *Table 1* in the count column.

Students were propensity score matched in order to estimate both marginal and stratified/moderation effects. Full propensity score matching was used for the covariates: high school GPA, advisement visits, income, term of enrollment, Hispanic/Latino(A) status, Black/African American status, and enrollment status. Exact matches were required for Black/African American status, Hispanic Latino(a) status, income level, and term of enrollment in English composition. Propensity score was estimated with logistic regression. This matching specification resulted in strong balance. A summary of the samples before and after matching can be found in *Table 4 (below)* and *Table 5 (next page)*. The strong match is evidenced in *Table 4* by the absolute value of the standardized differences all having values less than 0.1.

*Table 4. Initial Match Standard Mean Differences and Variance Ratios*

| Variable                    | Means Treated | Means Control | Std. Mean Diff. | Var. Ratio |
|-----------------------------|---------------|---------------|-----------------|------------|
| Logistic Propensity Score   | 0.4150        | 0.3710        | 0.4361          | 1.0146     |
| High School GPA             | 3.0949        | 3.1824        | -0.1491         | 1.2835     |
| Advisement Visits           | 0.6734        | 0.5986        | 0.0671          | 1.1371     |
| Below Poverty Income        | 0.2365        | 0.2436        | -0.0167         |            |
| Low Income                  | 0.2725        | 0.2343        | 0.0859          |            |
| Middle Income               | 0.3536        | 0.3879        | -0.0716         |            |
| Income Unknown              | 0.1374        | 0.1343        | 0.0090          |            |
| Spring 2024                 | 0.3773        | 0.2279        | 0.3082          |            |
| Fall 2024                   | 0.3277        | 0.4700        | -0.3032         |            |
| Spring 2025                 | 0.2950        | 0.3021        | -0.0156         |            |
| Black/AA Students           | 0.1881        | 0.1736        | 0.0371          |            |
| Hispanic/Latino(a) Students | 0.3378        | 0.3400        | -0.0046         |            |
| Continuing Student          | 0.3851        | 0.3529        | 0.0663          |            |
| New Student                 | 0.4077        | 0.4179        | -0.0208         |            |
| Returning Student           | 0.0980        | 0.0900        | 0.0268          |            |
| Special Admit Student       | 0.0282        | 0.0343        | -0.0371         |            |
| Transfer Student            | 0.0811        | 0.1050        | -0.0876         |            |
| Full-Time Employed          | 0.1025        | 0.1050        | -0.0083         |            |
| Part-Time Employed          | 0.4628        | 0.4443        | 0.0372          |            |
| Unemployed                  | 0.4347        | 0.4507        | -0.0323         |            |
| DSPS Visits                 | 0.1171        | 0.0707        | 0.0707          | 1.2290     |



Table 5. After Match Standard Mean Differences and Variance Ratios

| Variable                    | Means Treated | Means Control | Std. Mean Diff. | Var. Ratio |
|-----------------------------|---------------|---------------|-----------------|------------|
| Logistic Propensity Score   | 0.4150        | 0.4128        | 0.0219          | 0.9789     |
| High School GPA             | 3.0949        | 3.0805        | 0.0245          | 1.0922     |
| Advisement Visits           | 0.6734        | 0.6705        | 0.0026          | 0.9176     |
| Below Poverty Income        | 0.2365        | 0.2365        | 0.0000          |            |
| Low Income                  | 0.2725        | 0.2725        | 0.0000          |            |
| Middle Income               | 0.3536        | 0.3536        | 0.0000          |            |
| Income Unknown              | 0.1374        | 0.1374        | 0.0000          |            |
| Spring 2024                 | 0.3773        | 0.3773        | 0.0000          |            |
| Fall 2024                   | 0.3277        | 0.3277        | 0.0000          |            |
| Spring 2025                 | 0.2950        | 0.2950        | 0.0000          |            |
| Black/AA Students           | 0.1881        | 0.1881        | 0.0000          |            |
| Hispanic/Latino(a) Students | 0.3378        | 0.3378        | 0.0000          |            |
| Continuing Student          | 0.3851        | 0.4070        | -0.0449         |            |
| New Student                 | 0.4077        | 0.3744        | 0.0677          |            |
| Returning Student           | 0.0980        | 0.0992        | -0.0043         |            |
| Special Admit Student       | 0.0282        | 0.0293        | -0.0072         |            |
| Transfer Student            | 0.0811        | 0.0901        | -0.0329         |            |
| Full-Time Employed          | 0.1025        | 0.0988        | 0.0121          |            |
| Part-Time Employed          | 0.4628        | 0.4542        | 0.0174          |            |
| Unemployed                  | 0.4347        | 0.4470        | -0.0249         |            |
| DSPS Visits                 | 0.1171        | 0.1069        | 0.0155          | 0.9142     |

Next, to estimate the effect of SA on course success, a logistic regression was fit with the treatment (SA), covariates, and all interactions as predictors of course success – including full matching weights. The *avg\_comarisons()* function in the *marginalEffects* package in R statistical software was used to perform g-computation in the matched sample to estimate the average treatment effect for the treated (ATT). Cluster-robust variances were used to estimate its standard error with subclassification (determined from propensity matching) as the clustering variable.

The risk-ratio – the ratio of the probability of success in an SA course divided by the probability of success in a non-SA course – was estimated to be 1.09 ( $p = 0.074$ ). This ratio was not significant. In other words, evidence did not support an effect of supplemental courses in online courses. Next, moderation effects were estimated for Black/African American students, Hispanic/Latino(a) students, Below-Poverty, and Low-Income students. In each case, no statistically significant effect was found –  $p = 0.587$ ,  $p = 0.881$ ,  $p = .5388$ , and  $p = 0.083$ , respectively.

## Conclusions and Recommendations

Due to the limitations of this research (section below), it is difficult to draw strong conclusions and/or make recommendations. However, future research should gather some quantitative data on the



number of students who interacted with/were helped by the SA assigned to a course. This may help us draw stronger conclusions.

## **Caveats and Limitations**

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The research described here is fundamentally correlational, and other factors may explain the differences between SA and non-SA courses (or lack thereof). For example, some instructors reward their students with extra credit for getting assistance from the SA. This could explain a difference in success – unrelated to the actual assistance of the SA. Furthermore, it is difficult to draw strong conclusions without a measure of how frequently the SA helped students in the course. We don't know how often students went to the SA for help and/or how the SA sought to help students. That is to say, just because an SA was assigned to help students does not mean that students received help.

The level of analysis must also be considered. It is possible for an SA to improve the chance of succeeding without an observed increase in success relative to other courses. For example, suppose two instructors have differences in teaching methods. The instructor with lower success rates may be more inclined to request an SA. Ultimately, although an SA may have raised success rates for this instructor, their course success may still not be higher relative to other courses/instructors.