



**COSUMNES**  
**RIVER COLLEGE**

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OFFICE OF RESEARCH & EQUITY

**Spring 2021 Supplemental Instruction Evaluation**

Reported in fall 2021

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## Background

At Cosumnes River College (CRC), the Supplemental Instruction (SI) Program provides course specific support for students in math. As part of the SI program, student tutors (also referred to as SI tutors) attend a particular course for the full semester and organize help sessions outside of class. This allows the SI tutor to tailor support to the specific needs of students. In recent terms, the SI program has been impacted by the COVID-19 pandemic and subsequent move to remote classes.

In spring 2021, ten math courses at CRC were assigned an SI tutor who tracked student visits: one section of MATH 300, two sections of STAT 100, and seven sections of STAT 300. Conversely, 15 math classes were assigned an SI tutor, but student visits in those sections were not tracked: 13 sections of STAT 300 and two sections of MATH 300. This evaluation focuses on the ten math courses that tracked SI usage.

Prior elements of the SI evaluation process are not implementable in the remote environment. The Office of Research and Equity used the fall 2020 semester to develop and test an evaluation plan for SI, which the Office then implemented in spring 2021. In previous terms, SI tutors were able to track individual interactions with students in out-of-class support sessions. Because SI tutors are now meeting with students during class, via email, Zoom, and sometimes phone, it is harder for them to track exact interactions with students. Therefore, SI tutors in spring 2021 were asked to track whether or not they had substantially worked with each student throughout the term. This “substantial” form of help could be either one interaction, or many.

The evaluation described here focused on two primary questions for spring 2021: (1) does support from an SI tutor lead to higher rates of course success; and, (2) does attending SI reduce disproportionate impact in success among student groups? Note that for the purposes of this investigation, *course success* was defined as receiving an A, B, C, or P in a course.

## Summary of Findings

1. Various factors predicted higher SI usage (Table 1):
  - a. Student gender was slightly correlated with SI usage, such that male students received SI help less often ( $\Delta\chi^2(2) = 5.886, p = .05$ ).
  - b. Math course was correlated with SI usage, such that students in STAT 100 were more likely to receive SI help ( $\Delta\chi^2(2) = 12.42, p < .01$ ).
  - c. Differences between how each SI tutor reported “significant interaction” with students could account for some of the differences in SI usage across courses; e.g., some tutors may have counted interactions that other tutors did not.
  - d. Differences in how Math courses implemented SI could account for some of the differences in SI usage across courses; e.g., some courses offer extra credit for SI, involve their SI tutors in in-class activities, or employ other more highly interactive implementation methods).
2. SI tutor support was not correlated with increased success in math courses ( $\Delta\chi^2(1) = 1.210, p > .05$ ), even when controlling for math course and demographic variables (Table 2).
  - a. Some of the difference in success in math courses was explained by student demographics. Race was correlated with success in math courses ( $\Delta\chi^2(1) = 20.59, p > .01$ ).
  - b. The sample size for this term’s evaluation is smaller than for previous evaluations; a lower sample size may increase standard error and thereby reduce the ability to find effect in the statistical model.



- c. It is worth noting that equity gap was smaller for African American students who attended SI – if not statistically different, which reflects a finding from previous evaluations. The equity gap for Hispanic/Latinx students increased slightly for students who received SI help, though Hispanic/Latinx students who used SI succeeded at a slightly higher rate than those who did not (43.90% vs. 40.68%, respectively).

### Caveats and Recommendations

Due to rapid changes under the COVID-19 pandemic, SI instructors are now meeting with students via email, Zoom, and sometimes phone; it is therefore harder for tutors to track exact interactions with students. SI tutors in spring 2021 were asked to track whether or not they had substantially worked with each student throughout the term. This “substantial” form of help could be either one interaction, or many. Therefore, this analysis is unable to associate number of visits to an SI tutor with course success, which was a significant finding in past evaluations. The move to remote operations also introduced several caveats, such as that students who were already struggling academically may have been more likely to not re-enroll in courses. This might reduce the effect of SI on student success; however, while not significant, student success in spring 2021 was, on average, higher for students who saw their SI than for those who did not. Finally, the number of students with access to an SI was lower than in prior terms, which could make it harder find statistical significance in the effect of SI on student success in math courses.

In light of the findings and caveats, the Research and Equity Office makes the following recommendations:

- Given that SI usage was statistically tied to student success in prior terms, consider how implementation in the online environment might continue to evolve to meet changing student needs.
- Consider reaching out to system-wide SI coordinators to hear how other SI programs are evolving with increased online math offerings.
- Given continued access gaps for some groups of students, consider studying how different courses advertise and utilize SI tutors in their courses in order to share successful practices.

### Data Tables

Table 1: Proportion of students with access to SI who used it

Race/Ethnicity	Number of Students	Used SI	Usage Gap*
African American	35	48.57%	3.88%
Asian	57	50.88%	6.19%
Filipino	12	41.67%	-3.02%
Hispanic/Latinx	100	41.00%	-3.69%
Multi-Race	18	38.89%	-5.8%
Native American	Low N	Low N	Low N
Pacific Islander	Low N	Low N	Low N
Unknown	Low N	Low N	Low N
White	40	45.00%	0.31%
<b>Total</b>	<b>273</b>	<b>44.69%</b>	



Gender			
	Number of Students	Used SI	Usage Gap
Female	164	50.61%	5.80%
Male	106	35.85%	-8.96%
<b>Total</b>	<b>270</b>	<b>44.81%</b>	

Age			
	Number of Students	Used SI	Usage Gap
24 or younger	199	41.71%	-2.98%
25 or older	74	52.70%	8.01%
<b>Total</b>	<b>273</b>	<b>44.69%</b>	

Course			
	Number of Students	Used SI	Usage Gap
MATH 300	30	36.67%	-8.02%
STAT 100	51	66.67%	21.98%
STAT 300	192	40.10%	-4.59%
<b>Total</b>	<b>273</b>	<b>44.69%</b>	

\*Usage Gap: % of group who used SI minus % of all students who used SI

Table 2: Success rates for students in math courses that offered SI

Did Not Receive SI Help			
Race/Ethnicity	Number of Students	Success Rate	Success Gap**
African American	18	27.78%	-20.57%
Asian	28	60.71%	12.37%
Filipino	7	57.14%	8.80%
Hispanic/Latinx	59	40.68%	-7.76%
Multi-Race	11	45.45%	-2.89%
Pacific Islander	Low N	Low N	Low N
Unknown	Low N	Low N	Low N
White	22	72.73%	24.38%
<b>Total</b>	<b>151</b>	<b>48.34%</b>	
Received SI Help			
Race/Ethnicity	Number of Students	Success Rate	Success Gap
African American	17	47.06%	-8.68%
Asian	29	75.86%	20.12%
Filipino	Low N	Low N	Low N
Hispanic/Latinx	41	43.90%	-11.84%
Multi-Race	Low N	Low N	Low N
Pacific Islander	Low N	Low N	Low N
Unknown	Low N	Low N	Low N
White	18	55.56%	-0.18%
<b>Total</b>	<b>122</b>	<b>55.74%</b>	



Did Not Receive SI Help			
Gender	Number of Students	Success Rate	Success Gap
Female	81	54.32%	5.33%
Male	68	42.65%	-6.34%
<b>Total</b>	<b>149</b>	<b>48.99%</b>	
Received SI Help			
Gender	Number of Students	Success Rate	Success Gap
Female	83	53.01%	-2.36%
Male	38	60.53%	5.16%
<b>Total</b>	<b>121</b>	<b>55.37%</b>	

Did Not Receive SI Help			
Age Group	Number of Students	Success Rate	Success Gap
24 or younger	116	46.55%	-9.19%
25 or older	35	54.29%	5.95%
<b>Total</b>	<b>151</b>	<b>48.34%</b>	
Received SI Help			
Age Group	Number of Students	Success Rate	Success Gap
24 or younger	83	55.42%	-0.32%
25 or older	39	56.41%	0.67%
<b>Total</b>	<b>122</b>	<b>55.74%</b>	

Did Not Receive SI Help			
Course	Number of Students	Success Rate	Success Gap
MATH 300	19	31.58%	-16.76%
STAT 100	17	29.41%	-18.93%
STAT 300	115	53.91%	5.57%
<b>Total</b>	<b>151</b>	<b>48.34%</b>	
Received SI Help			
Course	Number of Students	Success Rate	Success Gap
MATH 300	11	72.73%	16.99%
STAT 100	34	55.88%	0.14%
STAT 300	77	53.25%	-2.49%
<b>Total</b>	<b>122</b>	<b>55.74%</b>	

\*\*Success Gap: % of group with successful grade minus % of all students with successful grade