Evaluation of Academic Support Programs at Cosumnes River College, Spring 2016

CRC Research Office

Summer 2016

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Executive Summary of Academic Support Program Evaluations

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Background

There are currently five programs at Cosumnes River College that provide academic support to students – the Supplemental Instruction (SI) Program, the Student Assistant (SA) Program, the Tutoring Center, the Math Center, and the Reading and Writing Center (RWC; at Elk Grove Center and on Main Campus). These programs, referred to here as *academic support programs*, serve a substantial proportion of the campus population, mostly in the areas of English and mathematics. Given their breadth and potential impact, the CRC Research Office conducted an evaluation of each academic support program in spring 2016. These evaluations were intended to highlight areas of program improvement and to support ongoing changes in academic support services – including centralization and integration. As such, they were designed to identify differences in student usage and impacts on student success/retention. This document provides an executive summary of findings from each evaluation. Note that nuances of each investigation can be found in documents describing each separate program evaluation.

Executive Summary of Findings: Student Usage

Overall Academic Support Usage

In spring 2016, approximately 10% of CRC students visited/utilized an academic support program at CRC (1431 out of 14252). Usage was low amongst students who would reasonably be expected to seek help from academic support programs (e.g., students in math/English courses or students in courses offering supplemental instruction). Amongst math students in spring 2016, approximately 12.2% visited the Math Center (481 out of 3935), and amongst English students, approximately 8.0% visited the RWC for help (at Elk Grove/Main Campus; 234 out of 2930). Not surprisingly, usage rates were higher in programs that embedded support into specific classes. A total of 24.6% of students (220 out of 894) in courses with SI visited their SI leader for help, and 41.3% of English students in courses with SA sought help (126 out of 305)[1]. Finally, approximately 4.0% of students at CRC (577 out of 14252) visited the tutoring center. This usage rate must nevertheless be interpreted with caution because the full campus population was used as the denominator.

In addition to overall trends, there were clear differences in usage amongst demographic groups on campus. An evaluation of overall academic support usage (combining all five academic support programs) revealed that older students and students who are African American were more likely to seek help from an academic support program. Students who are Hispanic/Latino, Filipino, Mixed-Race, or White were less likely to seek help than African Americans. These findings were replicated when looking separately at English help (SA program/RWC), Math Help (SI program/Math Center), and the Tutoring Center. They were also mirrored in several program level evaluations – specifically in supplemental instruction/Math Center usage. However, there does appear to be some program specific nuance in the association between student demographics and usage (Table 1). In particular, no differences were found on the basis of ethnicity/age in the SA program – possibly due to high usage rates and low sample sizes. Therefore, the overall evaluation of usage may have obscured some slight variation in findings at the program specific level.

[1] Note that for various reasons usage numbers amongst math/English students will not add up to the total number of students visiting academic support programs (1431).

Importantly, the overall evaluation of academic support usage revealed that students who previously performed poorly in math/English were likely to perform poorly in spring 2016. However, students who performed poorly in the past were just as likely to seek help as students who performed well in the past.

Whereas evaluations identified several demographic/academic factors associated with student usage, further investigation is required to understand potential barriers to student usage. Surveys conducted for the SI/SA programs point to some potential barriers. Specifically, scheduling difficulties appeared to prevent some students from seeking help. Moreover, stigma associated with help seeking and lack of consistency in the help provided by SA's/SI Leaders might also lead to lower usage.

Table 1. *Brief Summary of Associations Between Student Demographics and Academic Support Program Usage*

	Program	Variables Associated with Usage	Differences
Math Help	Math Center	1) Age 2) Ethnicity	1) Older students were more likely to visit than younger students. 2) African American students more likely to visit than Hispanic/Latino, Filipino, Asian, and White students.
	Supplemental Instruction*	1) Ethnicity 2) Gender 3) Age	1) African American students were more likely to visit than other students. 2) Female students more likely to visit than other students. 3) Older students more likely to visit than younger students.
English Help	Student Assistant Program	None	None
	Reading and Writing Center	1) Age	1) Older students were more likely to visit than younger students. 2) African American students were more likely to visit, although this difference was not statistically significant.
Tutoring	Tutoring Center	1) Age 2) Ethnicity	1) Older students were more likely to visit than younger students. 2) African American students more likely to visit than Hispanic/Latino, Filipino, Asian, and White students.

Note. *A formal statistical analysis was not conducted for supplemental instruction. Interpret these findings with caution. Also note that the vast majority of SI targeted math students, but SI was also offered in sections of nutrition.

Executive Summary of Findings: Student Success/Retention

Findings regarding the association between academic support program usage and success/retention were mixed. SI and/or Math Center usage was not associated with student success in math. Students who visited the Math Center/SI Leader were therefore not more likely to succeed in math than students who did not. Findings were slightly more promising for the Math Center. Specifically, amongst students that needed help (e.g., those that visited the Math Center), students who visited more were more likely to succeed in math than students who visited less. This suggests that the Math Center may act as a protective factor, preventing students who need help from doing worse if they seek assistance frequently. In addition, students who visited the Math Center were more likely to persist until the end of the term (e.g., not withdraw from their math course; see Table 2 for a summary of findings).

On the other hand, usage of the SA program and/or the RWC was correlated with student success in English courses – with the SA program yielding the strongest effects. In both cases, simply increasing the number of times students seek help from the RWC or an SA would reduce equity gaps in success across student demographic groups (Table 3 and Table 4, respectively). Finally, students who used the SA/RWC were more likely to persist until the end of the term.

Unfortunately, due to a lack of data, the association between Tutoring Center usage and student success/retention could not be evaluated.

Table 2. Associations with Success/Retention

Program	Associated with Success	Associated with Retention
Supplemental Instruction	No	Not Evaluated
Math Center	Possible	Yes
Student Assistant Program	Yes	Yes
Reading and Writing Center	Yes	Yes
Tutoring Center	Not Evaluated	Not Evaluated

Table 3. *Projected Probability of Success by Number of RWC Visits by Ethnicity/Foster Youth Status*

Times	African American	Asian	Filipino	Hispanic/Latino	Multi-Race	Pacific Islander	White	Avg. Diff.	Foster Youth
0	47.90%	67.30%	76.70%	60.30%	61.60%	68.50%	70.50%	9.2%	37.70%
5	53.40%	71.90%	80.40%	65.50%	66.70%	73.00%	74.90%	8.7%	42.60%
10	58.70%	76.20%	83.60%	70.20%	71.30%	77.10%	78.80%	8.0%	47.70%
15	64.00%	79.90%	86.40%	74.60%	75.70%	80.80%	82.20%	7.2%	52.80%
20	68.90%	83.20%	88.80%	78.60%	79.50%	84.00%	85.20%	6.4%	57.90%
25	73.40%	86.10%	90.80%	82.00%	82.80%	86.70%	87.80%	5.6%	62.80%
30	77.50%	88.50%	92.50%	85.10%	85.70%	89.10%	89.90%	4.8%	67.40%

Note. The Avg. Diff. column presents the average difference between ethnicities for each number of visits.

Table 4. *Projected probability of success by number of visits to an SA.*

	Probability of Success by Ethnicity				
Number of Visits	**African American**	**Hispanic/Latino**	**Asian**	**White**	**Avg. Difference**
0	27.6%	45.0%	54.9%	60.2%	12.4%
1	38.2%	57.0%	66.3%	71.0%	12.6%
2	50.0%	68.3%	76.1%	79.9%	11.5%
3	61.5%	77.7%	83.8%	86.5%	9.7%
4	72.4%	84.9%	89.3%	91.2%	7.3%
5	80.9%	90.1%	93.1%	94.4%	5.3%
6	87.3%	93.7%	95.6%	96.5%	3.6%
7	91.8%	96.0%	97.3%	97.8%	2.4%
8	94.7%	97.5%	98.3%	98.6%	1.5%
9	96.7%	98.4%	98.9%	99.1%	0.9%

Note. The Avg. Diff. column presents the average difference between ethnicities for each number of visits.

Limitations

There are several limitations to the evaluations summarized here. First, the evaluation of student usage does not explain *why* there are demographic differences. Further investigation is required to understand the motivating factors behind students that seek help and students that do not. As with all evaluations of support programs, the students who seek help may approach college in a fundamentally different way than the students who do not seek help. These differences – e.g., in motivation – may explain increased student success and retention not necessarily the help received. Because demographic differences in success are so pronounced in the data, (e.g., after 30 visits, African American students can experience the same relative success of White students who visit 5+ times), it would be appropriate to understand how the quality of help received may contribute to demographic differences. Second, the purpose of each visit to the RWC, Math Center, and Tutoring Center was not recorded. As such, one could not distinguish between a student who signed in to study and a student who signed in to actively seek help. This resulting measurement error may have masked the true effects of the RWC/Math Center services. Moreover, this absence of data prevented a full evaluation of the Tutoring Center because the subjects for which students sought help could not be determined.

Recommendations

The evaluation of the five academic support programs – the SI program, the SA program, the Tutoring Center, the RWC, and the Math Center – revealed differences in student usage on the basis of student demographics. Notable differences in the impact of each program on student success/retention were also revealed. With these findings in mind, the Research Office makes the following recommendations consistent with evidence based best-practices for promoting success in developmental and general education programs:

1) Identify and implement best practices for improving student usage of academic support programs:
    a. Expand embedded support programs (SI/SA programs) in math and English. Students in courses with embedded support were more likely to seek help.

(http://extranet.cccco.edu/Portals/1/AA/BasicSkills/2013Files/BSI_E-Resource_10-18-13.pdf - pages 78 - 81)

   b. Investigate and implement strategies that could improve student motivation to seek help; see for example: (http://web.a.ebscohost.com/ehost/pdfviewer/pdfviewer?sid=c02c96a1-d7cd-4d90-9dc0-1df3dfd401a0%40sessionmgr4006&vid=1&hid=4206).
   c. Promoting a mastery orientation within classrooms might improve student help seeking rates: (Karabenick, 2004) (a mastery orientation focuses on student skills improvement as opposed to course performance).
   d. Conduct outreach to student groups who have lower usage rates and traditionally lower success rates. For example, students who are younger have lower usage rates and traditionally lower success rates. Moreover, students who perform poorly in the past should be motivated to seek help in the future.

2) Reduce scheduling barriers to student usage:
   a. With regards to the SI/SA programs find ways to orient SA/SI Leader schedules to student needs or advertise SA/SI Leader schedules prior to student enrollment.
3) Identify and implement best practices to improve program effectiveness:
   a. Provide proactive training to SIs, SAs, and program coordinators, for example: (http://www.chaffey.edu/titlev/si/documents/si_training_manual.pdf) (https://www.skylinecollege.edu/collegesuccessinitiative/assets/documents/resources/Supplemental%20Instruction%20Training.pdf) (http://www.mdrc.org/sites/default/files/full_417.pdf)
   b. Send program coordinators to professional development activities and training (http://info.umkc.edu/si/).
   c. Integrate student service programs with instructional programs, for example: (http://www.cccbsi.org/Websites/basicskills/Images/Chapter_6_Integration.pdf)
4) Continue to evaluate each academic support program and improve tracking of student usage:
   a. Use SARS database reason codes to track the purpose of each visit to the Math Center, RWC, and Tutoring Center. In particular, track the subject of each visit if a student is seeking help/assistance and track whether or not a student is signing in to study.

Analysis of Student Usage: Supplemental Instruction, Tutoring, Math and Reading/Writing Center

CRC Research Office

Summer 2016

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Background

In spring 2016, approximately 10% of students at Cosumnes River College (1431 out of 14252) received help from the Tutoring Center, Reading/Writing Center, Math Center, or Student Assistant/Supplemental Instruction Programs. These programs, referred to here as *academic support programs*, are designed to provide additional academic assistance to students in various subjects. Due to their scope and potential impact, the Research Office sought to identify factors that predict student usage and identify any potential equity differences therein.

Summary of Findings

1. Ethnicity was significantly associated with a student's likelihood of seeking assistance through an academic support program. Students who are African American had the highest likelihood of seeking help. On the other hand, students who are Hispanic/Latino, Filipino, Mixed-Race, or White were significantly less likely than African American students to seek help. Additionally, older students were significantly more likely to seek help from an academic assistance program than younger students. These findings held regardless of the type of assistance – math (Supplemental Instruction/Math Center), English (Student Assistant Program/Reading and Writing Center), or tutoring (Tutoring Center).
2. Additionally, amongst students who sought help, older students sought help more frequently in math (Supplemental Instruction/Math Center) and English (Student Assistant Program/Reading and Writing Center).
3. Foster Youth students were significantly more likely to seek help at the Tutoring Center than other students.
4. Amongst students who sought math related help (Supplemental Instruction/Math Center), ethnicity was associated with the frequency of help seeking. Students who are Pacific Islander sought help the most. On the other hand, students who are African American, Hispanic/Latino, Multi-Race, Native American, and White sought help significantly less than Pacific Islander students. This finding should nevertheless be interpreted with caution because only 15 students who are Pacific Islander sought Math Help.
5. Students with a lower GPA in English prior to the spring 2016 term were *not* more likely to seek English related help. This is notable because prior GPA in English strongly predicted spring term English GPA. This means that although students who performed poorly in the past were at-risk for performing poorly in the spring, they were no more likely to seek help.
6. Students with lower GPAs in Math were *not* more likely to seek math related help. This is notable because prior GPA in math strongly predicted spring term math GPA. This means that although students who performed poorly in the past were at-risk for performing poorly again, they did not seek help at higher rates.

Limitations

This investigation has several caveats and limitations. Importantly, sample sizes were too low in several cases to make definitive conclusions – particularly with regards to students who are Native American. Moreover, this study lacked information to explain *why* differences between certain student groups exist. Finally, due to small sample sizes, this investigation did not specifically evaluate other forms of supplemental instruction (e.g., nutrition/economics).

Conclusion and Recommendations

In short, this evaluation revealed several factors that predict help seeking from an academic support program (ethnicity, age, and in some cases Foster Youth status). Additionally, this evaluation revealed that students who performed poorly in math/English in the past were not more likely to seek help from an academic support program. With the above findings in mind, the Research Office makes the following recommendations:

1) Engage in targeted outreach to students who have struggled in math or English in the past in order to increase their likelihood of seeking help from an academic support program.
   This outreach could be enhanced by embedding various forms of academic support, including supplemental instruction, into basic skills Math, English, and ESL courses and extending this support to college level English and Math courses. (http://extranet.cccco.edu/Portals/1/AA/BasicSkills/2013Files/BSI_E-Resource_10-18-13.pdf - pages 78 - 81)
2) Engage in outreach to student groups who were less likely to seek help from an academic assistance program and have lower success rates. For example, students who are Hispanic/Latino are currently targeted in the student success section of the College's Equity Plan. However, these students were significantly less likely to seek help than African American students. Moreover, younger students traditionally have lower success rates and are also less likely to seek help.
   a. This outreach could be accomplished by assigning a lead student services professional to each Basic Skills course who would be responsible for providing proactive interventions and services to students. (http://www.mdrc.org/sites/default/files/full_482.pdf - See discussion on integrating student services programs into academic programs. See also chapters 2, 4, 5, and 6 for specific discussion on integrating student support services into academic instruction)
   b. Improve communication strategies with at-risk students so as to help these students engage more fully in college and in the classroom. (http://www.mdrc.org/sites/default/files/full_527.pdf)
3) Continue to find ways to reduce potential barriers for students who need help (e.g., stigma, scheduling difficulties).
   a. One way to reduce barriers would be to assign a lead student services professional to each Basic Skills course who could provide personalized proactive interventions and services to students. (http://www.mdrc.org/sites/default/files/full_482.pdf - See discussion on integrating student services programs into academic programs. See also chapters 2, 4, 5, and 6 for specific discussion on integrating student support services into academic instruction) (http://www.mdrc.org/sites/default/files/full_527.pdf)
   b. Implement best practices. For example, provide training on mastery vs. performance orientation in courses. A mastery orientation is promoted by focusing on skills mastery and improvement as opposed to course performance (Karabenick, 2004).

Method

In spring 2016, student usage of the five academic support programs was tracked in various ways. Student assistants (SAs) and supplemental instructors (SIs) tracked student attendance using paper and electronic tracking sheets. The Tutoring Center, Reading/Writing Center, and Math Center automatically tracked attendance through the SARs database. At the end of spring term, the Research Office combined all three data sources and merged this information with student demographic characteristics. Foster Youth status was included as a demographic variable because the student success section of Cosumnes River College's Equity Plan explicitly targets these students (in addition to students who are African American, Hispanic/Latino, and Pacific Islander). Data were analyzed in two steps. The first analysis was intended to identify differences in usage for *all* support programs combined. The second analysis was an attempt at identify differences in usage separately by subject for *English Help* (Reading/Writing Center and the Student Assistant Program), *Math Help* (Math Center and the Supplemental Instruction Program), and Tutoring (The Tutoring Center). Tutoring was analyzed separately because a mechanism for tracking session subject has not yet been developed.

Within all analyses performed here, ether logistic regressions with quasibinomial error terms or standard least squares regressions were used to test for significance. When associations between demographic variables and usage were uncovered (e.g. for ethnicity), follow-up analyses compared the group with the highest usage rate to all others.

Overall Usage Analysis

As previously stated, 1431 students used at least one support service in the spring 2016 term (see Table 1). A statistical analysis revealed that ethnicity was associated with the likelihood of using an academic support program ($\Delta\chi^2(9) = 147.4$, $p < .001$). Students who are African American had the highest likelihood of using an academic support program. Students who are Hispanic/Latino ($t(1) = -4.79$, $p < .001$), Multi-Race ($t(1) = -4.21$, $p < .001$), Filipino ($t(1) = -4.08$, $p < .001$), or White ($t(1) = -10.04$, $p < .001$) had a significantly lower likelihood than students who are African American to seek help. Furthermore, age was significantly associated with the likelihood of academic support service usage ($\Delta\chi^2(1) = 24.86$, $p < .001$). Older students were more likely to use academic support services relative to younger students. Gender was not associated with the likelihood of using a support program, although females were represented in higher proportion. Finally, Foster Youth students used support services more frequently than other students, but this difference was not statistically significant.

Amongst students who used an academic support program, older students went significantly more than younger students, $\Delta\chi^2(1) = 722.26$, $p < .001$. There were no statistically significant differences in the number of visits on the basis of ethnicity, gender, or Foster Youth status (Table 2).

Table 1. *Percent usage by demographic group*

Demographic	Used Support Services (*N*)	Total	%	Equity Index
Ethnicity				
African American	259	1685	15.37%	1.53
Asian	435	3356	12.96%	1.29
Pacific Islander	30	253	11.86%	1.18
Other Non-White	-	-	10.00%	1.00

Hispanic/Latino	347	3629	9.56%	0.95
Unknown	13	152	8.55%	0.85
Multi-Race	75	902	8.31%	0.83
Filipino	54	690	7.83%	0.78
Native American	-	-	6.78%	0.68
White	207	3456	5.99%	0.60
Gender				
Female	811	7781	10.42%	1.04
Male	596	6186	9.63%	0.96
Unknown	24	285	8.42%	0.84
Age				
Younger than 25	797	8567	9.30%	0.93
25 or Older	634	5685	11.15%	1.11
Foster Youth				
Foster Youth	36	285	12.31%	1.23
Not Foster Youth	1395	13967	10.12%	1.01
Total	**1431**	**14252**	**10.04%**	

Note. Includes both self-reported and verified Foster Youth. Equity index was calculated by dividing a given group's percentage by the overall percentage (in this case 10.04%). Numbers suppressed when a sample size is less than ten and greater than zero in the Used Support Services or Total columns.

Table 2. *Avg. Number of Visits for students who used an academic support service.*

Demographic	Average Times	Equity Index	Headcount
Ethnicity			
African American	13.01	0.93	251
Asian	15.29	1.09	429
Filipino	15.02	1.07	53
Hispanic/Latino	13.23	0.94	340
Multi-Race	11.95	0.85	73
Pacific Islander	16.93	1.21	29
Unknown	19.00		12
White	13.94	0.99	202
Gender			
Female	13.81	0.99	793
Male	14.25	1.02	572
Unknown	17.58	1.25	24

Age			
Younger than 25	12.16	0.87	778
25 or Older	16.48	1.18	611
Foster Youth			
Foster Youth	13.68	0.98	34
Not Foster Youth	14.07	1.00	1355
Total	**14.02**		**1389**

Note. Note. Native American/Mixed Ethnicity were excluded due to small sample sizes. Additionally, outliers were removed at greater than 3 standard deviations above the overall average number of visits. The Equity index was calculated by taking the average number of visits for a given group and dividing it by the overall average.

Usage by Subject

English Help

Next, student usage was analyzed within the three aforementioned subject areas: English Help, Math Help, and Tutoring. Ethnicity was significantly associated with the likelihood of using English academic support programs ($\Delta\chi^2(9) = 77.74$, $p < .001$). Again, the highest proportion of help seeking was found amongst students who are African American. Students who are Hispanic/Latino ($t(1) = -2.19$, $p < .05$), Multi-Race ($t(1) = -2.37$, $p < .05$), Filipino ($t(1) = -2.67$, $p < .01$), or White ($t(1) = -6.34$, $p < .001$) had a significantly lower likelihood of using an English academic support program than students who are African American. Age was also significantly associated with the likelihood of using an English academic support program ($\Delta\chi^2(1) = 27.27$, $p < .001$) such that older students were more likely to seek help. On the other hand, gender and Foster Youth status were not significantly associated with the likelihood of seeking assistance from an English academic support program. A summary of usage by demographic group can be found in Table 3, Appendix A (tables were moved to Appendix A to save space). Finally, amongst students who sought help from an English academic support program, older students visited significantly more than younger students, $\Delta\chi^2(1) = 364.41$, $p < .001$. There were no other statistically significant differences in the number of visits on the basis of ethnicity, gender, or Foster Youth status

Next the association between prior English GPA and the likelihood of seeking English Help was tested. Interestingly, prior performance in English did not predict whether or not a student sought help from an English academic support program. This finding was particularly salient given the fact that that spring 2016 English GPA was strongly correlated with prior English GPA, $F(1, 1267) = 238.6$, $p < .001$. Thus, students who performed poorly in previous terms would have been particularly at-risk for poor performance in spring. Yet, on the basis of this analysis, they would have been no more likely to seek help.

Math Help

Ethnicity was significantly associated with the likelihood of using Math academic support programs ($\Delta\chi^2(9) = 41.44$, $p < .001$). African American students used Math Help at a higher proportion than other student groups. Students who are Filipino ($t(1) = -2.12$, $p < .05$), Multi-Race ($t(1) = -2.41$, $p < .05$), Hispanic/Latino ($t(1) = -3.67$, $p < .001$), or White ($t(1) = -6.15$, $p < .001$) had a significantly lower likelihood of using a math academic support program compared to students who are African American. Age was also significantly associated with the likelihood of seeking Math Help, $\Delta\chi^2(1) = 5.57$, $p < .05$, such that older students were more likely than younger students to seek help. No other demographic variables were associated with the likelihood of using a math academic support program. A summary of usage by demographic group can be found in Table 4, Appendix A. Additionally, amongst students who sought Math Help, older students visited more times than younger students, $\Delta\chi^2(1) = 67.05$, $p < .05$. Ethnicity was also (weakly) associated with the number of visits amongst students who sought Math Help, $\Delta\chi^2(9) = 293.51$, $p < .05$. Specifically, students who are Pacific Islander went significantly more times ($M = 25.5$) than students who are African American ($M = 13.0$; $t(1) = -2.57$, $p < .05$), Hispanic/Latino ($M = 13.9$; $t(1) = -2.36$, $p < .05$), Multi-Race ($M = 10.9$; $t(1) = -2.79$, $p < .01$), Native American ($M = 3.0$; $t(1) = -2.81$, $p < .01$), Other/Non-White ($M = 7.0$; $t(1) = -2.88$, $p < .01$), or White ($M = 14.1$; $t(1) = -2.30$, $p < .05$). However, this finding should be interpreted with caution because only 15 students who are Pacific Islander sought Math Help.

Next the association between prior math GPA and the likelihood of seeking Math Help was tested. Interestingly, prior GPA in math was not associated with the likelihood of seeking Math Help. This finding is particularly interesting because prior math GPA strongly predicted spring 2016 math GPA, $F(1,1780) = 325.60$, $p < .001$. Thus, students who performed poorly in in math in the past were at-risk for performing poorly in spring. Yet, on the basis of this analysis, they were no more likely to seek help.

Tutoring

Similar to math and English, ethnicity was significantly associated with the likelihood of seeking help at the Tutoring Center, $\Delta\chi^2(9) = 92.07$, $p < .001$. African American students again sought help at a higher proportion than other students. Students who are Hispanic/Latino ($t(1) = -3.36$, $p < .01$), Filipino ($t(1) = -3.20$, $p < .001$), Multi-Race ($t(1) = -4.23$, $p < .001$), or White ($t(1) = -7.40$, $p < .001$) were significantly less likely to seek help at the Tutoring Center than students who are African American. Age was also significantly associated with the likelihood of seeking help at the Tutoring Center, $\Delta\chi^2(1) = 40.65$, $p < .001$, such that older students were more likely to seek help. Finally, Foster Youth students were more likely to seek help at the Tutoring Center than other students, $\Delta\chi^2(1) = 7.14$, $p < .01$. A summary of usage by demographic group can be found in Table 5, Appendix A. Finally, similar to English Help, students who used an academic support program went roughly the same number of times, regardless of ethnicity, gender, age, or Foster Youth status.

Appendix A

Table 3. *Percent usage by demographic group within English Help*

Demographic	Used Support Services (*N*)	Total	%	Equity Index
Ethnicity				
African American	88	1685	5.42%	1.60
Other Non-White	-	-	5.02%	1.48
Asian	154	3356	4.77%	1.41
Unknown	-	-	3.52%	1.04
Hispanic/Latino	117	3629	3.33%	0.98
Multi-Race	23	902	2.63%	0.78
Filipino	14	690	2.16%	0.64
Pacific Islander	5	253	2.06%	0.61
White	57	3456	1.73%	0.51
Native American	0	59	0.00%	0.00
Gender				
Female	279	7781	3.68%	1.08
Male	178	6186	3.02%	0.89
Unknown	10	285	4.05%	1.20
Age				
Younger than 25	248	8567	2.95%	0.87
25 or Older	219	5685	4.24%	1.25
Foster Youth				
Foster Youth	13	285	4.62%	1.36
Not Foster Youth	454	13967	3.37%	0.99
Total	**467**	**14252**	**3.39%**	

Note. Includes both self-reported and verified Foster Youth. Equity index was calculated by dividing a given group's percentage by the overall percentage (in this case 3.39%). Numbers suppressed when a sample size is less than ten and greater than zero in the Used Support Services or Total columns.

Table 4. *Percent usage by demographic group within Math Help*

Demographic	Used Support Services (*N*)	Total	%	Equity Index
Ethnicity				
African American	121	1685	7.10%	1.58
Pacific Islander	15	253	6.33%	1.41
Asian	153	3356	4.61%	1.03
Filipino	31	690	4.54%	1.01

Hispanic/Latino	159	3629	4.36%	0.97
Multi-Race	40	902	4.29%	0.96
Unknown	-	-	3.86%	0.86
White	109	3456	3.30%	0.74
Other Non-White	-	-	3.06%	0.68
Native American	-	-	2.16%	0.48
Gender				
Female	330	7781	4.30%	0.96
Male	296	6186	4.74%	1.06
Unknown	11	285	3.92%	0.87
Age				
Younger than 25	363	8567	4.24%	0.94
25 or Older	274	5685	4.97%	1.11
Foster Youth				
Foster Youth	18	285	6.07%	1.35
Not Foster Youth	619	13967	4.46%	0.99
Total	**637**	**14252**	**4.49%**	

Note. Includes both self-reported and verified Foster Youth. Equity index was calculated by dividing a given group's percentage by the overall percentage (in this case 4.49%). Numbers suppressed when a sample size is less than ten and greater than zero in the Used Support Services or Total columns.

Table 5. *Percent usage by demographic group within Tutoring*

Demographic	Used Support Services (*N*)	Total	%	Equity Index
Ethnicity				
African American	118	1685	7.03%	1.74
Other Non-White	-	-	6.56%	1.63
Pacific Islander	14	253	5.92%	1.47
Native American	-	-	5.80%	1.44
Asian	182	3356	5.49%	1.36
Hispanic/Latino	139	3629	3.77%	0.94
Unknown	-	-	2.87%	0.71
Filipino	18	690	2.61%	0.65
White	76	3456	2.17%	0.54
Multi-Race	19	902	2.00%	0.50
Gender				
Female	343	7781	4.41%	1.09
Male	230	6186	3.69%	0.92

Unknown	-	-	1.48%	0.37
Age				
Younger than 25	283	8567	3.30%	0.82
25 or Older	294	5685	5.46%	1.35
Foster Youth				
Foster Youth	21	285	7.17%	1.78
Not Foster Youth	556	13967	3.97%	0.98
Total	**577**	**14252**	**4.03%**	

Note. Includes both self-reported and verified Foster Youth. Equity index was calculated by dividing a given group's percentage by the overall percentage (in this case 4.03%). Numbers suppressed when a sample size is less than ten and greater than zero in the Used Support Services or Total columns.

The Math Center: Evaluation of Student Access and Program Effectiveness

CRC Research Office

Summer 2016

Author:

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Background

At Cosumnes River College, math students who need or want additional math academic support may enroll in a non-required math lab (MATH 70 – 80). Enrollment in a math lab permits students to visit and use services offered at the Math Center. These services are intended to promote improvement in math skills – from arithmetic to calculous – and are ultimately intended to improve the likelihood of success in math/statistics courses. With this in mind the Research Office sought to evaluate the association between success/retention in math courses at CRC and usage of the Math Center. Additionally, in the spirit of the College Equity Plan, the Research Office sought to identify any differences in usage amongst English students on the basis of student demographics.

Summary of Findings

1. The overall success rate for math labs in spring was 65.8%. This suggests that many students do not use the Math Center enough to reach the requisite amount of visitation time. Note that this success rate does not include withdraws because withdrawing from a math lab is not assigned an official grade within the Peoplesoft database.
2. 480 out of 607 (79.1%) students who were enrolled in a math lab as of the beginning of the term visited the Math Center at least once. One student visited the Math Center despite not having been enrolled in a Math Lab at the beginning of the term. Overall, 12.2% (481 out of 3935) of math students visited the Math Center in spring.
3. Math 299 (Accelerated Math), 343 (Business Math), and 20 (Arithmetic) had the highest proportion of students visiting the Math Center.
4. Ethnicity was significantly associated with the likelihood of visiting the Math Center. Students who are African American visited in higher proportion. Students who are Hispanic/Latino, Filipino, Asian, and White visited significantly less than students who are African American.
5. Older students were more likely to visit the Math Center than younger students.
6. Students who visited the Math Center were not more likely to succeed in math than students who did not. However, students who needed help (e.g., those that visited the Math Center) and received above average amounts of help (> 19 times; *Success* = 60.4%) were more likely to succeed than students who needed help and received below average amounts of help (<= 19 times; *Success* = 44.8%). This finding suggests that students who need help could do worse without the services offered by the Math Center. It should also be noted that students who received above average amounts of help were not statistically different from students who did not receive help (*Success* = 53.0%)
7. Students who visited the Math Center more times were more likely to persist until the end of the term.

Limitations

As with all academic support evaluations, the findings here must be interpreted with caution. There may be a fundamental difference between students who choose to seek help frequently and those who do not. This difference – study skills, motivation, mastery mindset, an ability to process/digest help from the Math Center etc. – may explain differences in success and retention. Additionally, there is currently no way to identify the reason for which the student visited the Math Center. Students may have signed into the Math Center to study and may not have explicitly received help. This factor likely obscures the true effect of Math Center services.

Recommendations

In summary, the services offered by the Math Center *may* act as a protective factor for students who need help. Specifically, students that need and receive help may perform better than they otherwise would have without help. Moreover, students who are African American and students who are older are more likely to visit the Math Center for help. Given these findings, the Research Office makes the following recommendations:

1) Develop a means of identifying students who need help.
    a. This may include embedding math support (e.g. supplemental instruction) in all math courses and training embedded support staff to recognize when students are struggling before it is too late. (http://extranet.cccco.edu/Portals/1/AA/BasicSkills/2013Files/BSI_E-Resource_10-18-13.pdf - pages 78 - 81)
2) Promote usage of the Math Center amongst students that need help.
    a. Continue to embed math support into math courses at CRC. Use this support a means for promoting independent usage of the Math Center.
    b. Promote a mastery orientation in math courses. In other words, focus course content on skills improvement/mastery as opposed to successful exam and grade performance (Karabenick, 2015).
3) Implement best practices/training to improve the effectiveness of services offered in the Math Center.
    b. Provide proactive training to Supplemental Instruction leaders, tutors, and program coordinators, for example: (http://www.chaffey.edu/titlev/si/documents/si_training_manual.pdf) (https://www.skylinecollege.edu/collegesuccessinitiative/assets/documents/resources/Supplemental%20Instruction%20Training.pdf) (http://www.mdrc.org/sites/default/files/full_417.pdf)
    c. Send program coordinators to professional development activities and training (http://info.umkc.edu/si/).
    d. Integrate student service programs with instructional programs, for example: (http://www.cccbsi.org/Websites/basicskills/Images/Chapter_6_Integration.pdf)
4) To enhance research, have each student indicate their reason for using the Math Center when checking-in. This could be implemented with reason codes through the SARS tracking system.

Method

Math Center usage in spring 2016 was tracked via the SARs information system. In summer 2016, the Research Office merged usage data from SARs with official grade/demographic data of CRC math students from the District Peoplesoft database. The analyses of these data proceeded in two steps. The first analysis evaluated the association between student demographics and usage with the intention of identifying potential barriers to access. Students who are Native American could not be included in this analysis due to small sample sizes. The final sample size was 3928 math students. A follow-up analysis looked at the number of Math Center visits *amongst math students who visited the Math Center* (*N* = 465, excluding students with outlier scores and students who are Native American, Other/Unknown ethnicity, and unknown gender due to small sample sizes). The second analysis focused on the association between Math Center usage and student success/retention. As previously stated, success

was defined as receiving an A, B, C, or P in a math course and retention was defined as not receiving a W. Students who took more than one math course in spring were not included in this analysis, because it was not easy to precisely identify the course for which they sought help. Moreover, including students with multiple math courses would have violated certain statistical assumptions (e.g., the assumption of independence). Additionally, students who are Native American were not included due to small sample sizes. The final sample size for this analysis was 3877.

Data were analyzed with generalized linear models. In the case of continuous count data (e.g., number of visits), data were analyzed with a linear model assuming a quasipoisson error distribution, and in the case of a binomial outcome variable (e.g. successful/not successful), data were analyzed with logistic regressions assuming a quasibinomial error distribution.

Analysis of Access

Out of 3935 students in math, a total of 607 students were enrolled in a lab (as of the beginning of the term), and 480 of these students eventually visited the Math Center (79.1%). One student visited the Math Center despite not having been enrolled in a math lab at the beginning of the term. Thus, a total of 481 math students (12.2%) visited the Math Center. The overall success rate for these labs was 65.8%. Note that withdraws were not counted in this success rate because lab withdraws are not assigned an official grade within the Peoplesoft database. Given the obvious variability in visitation and lab enrollment, this analysis sought to identify factors associated with student usage.

Ethnicity was significantly associated with whether or not a student sought help at the Math Center, $\Delta\chi^2(9) = 17.8$, $p < .05$, such that students who are African American visited the Math Center in higher proportion. Students who are Asian, $t(1)$ -2.5, $p < .05$, Filipino, $t(1) = -2.3$, $p < .05$, Hispanic/Latino, $t(1) = -3.2$, $p < .01$, and White, $t(1) = -4.0$, $p < .05$ were significantly less likely than students who are African American to visit the Math Center (See Table 1 for usage data). Age was also significantly associated with whether or not a student sought help from the Math Center, $\Delta\chi^2(1) = 115.0$, $p < .001$, such that older students were more likely to seek help. No other demographic variables were associated with the seeking help at the Math Center. Amongst students who visited the Math Center, ethnicity was significantly associated with the number of times a student visited, $\Delta\chi^2(6) = 194.6$, $p < .05$. Students who are Pacific Islander had the highest number of visits, and only two student groups – Asian and Filipino – were not significantly lower. This finding should nevertheless be interpreted with caution because only 10 students who were Pacific Islander visited the Math Center.

Table 1. *Usage by Demographic Group*

	Visited or Not				Number of Visits	
Demographic	**Used (N)**	**Total**	**%**	**Equity Index**	**Avg. Times**	**Equity Index**
Ethnicity						
African American	92	421	21.85%	1.79	14.9	0.77
Asian	121	975	12.41%	1.02	20.4	1.06
Filipino	19	203	9.36%	0.77	21.3	1.10
Hispanic/Latino	118	1122	10.52%	0.86	18.9	0.98
Multi-Race	29	252	11.51%	0.94	14.0	0.72
Native American	-	-	14.29%	1.17	3.0	

Other Non-White	-	-	7.69%	0.63	1.0	0.05
Pacific Islander	10	73	13.70%	1.12	29.5	1.53
Unknown	-	-	17.24%	1.41	21.4	1.11
White	85	840	10.12%	0.83	19.5	1.01
Gender						
Female	242	1962	12.33%	1.01	16.5	0.86
Male	231	1898	12.17%	1.00	20.8	1.08
Unknown	-	-	10.67%	0.87	17.5	0.91
Age						
Under 25	263	2903	9.1%	0.75	17.2	0.89
25 or Older	218	1032	21.7%	1.78	20.2	1.05
Foster Youth						
Not Foster Youth	465	3858	12.05%	0.99	18.8	0.97
Foster Youth	16	77	20.78%	1.70	13.7	0.71
Total	**481**	**3935**	**12.2%**		**19.3**	

Note. Foster Youth includes both self-reported and verified status. Equity indexes were calculated by dividing the group value by the total/overall value. Numbers suppressed when sample size is less than ten and greater than zero in the Used (N) or Total columns.

Table 2 below provides a breakdown of usage by Course. Note that these data could not be formally analyzed due to students enrolling in multiple math courses. An analysis would have violated the statistical assumption of independence. Math 299 (Accelerate Math), 343 (Business Math), and 20 (Arithmetic) appear to have the highest usage rates.

Table 2. *Percent of Students Using the Math Center by Math Course*

Course	Used	Total Enrolled	Usage Rate
MATH 299	-	-	58.33%
MATH 343	28	86	32.56%
MATH 20	40	209	19.14%
MATH 401	17	95	17.89%
MATH 370	26	152	17.11%
MATH 400	18	113	15.93%
MATH 410	-	-	15.79%
MATH 335	26	175	14.86%
MATH 351	-	-	14.29%
MATH 483	-	-	14.29%
MATH 30	48	357	13.45%
MATH 125	19	147	12.93%
MATH 350	-	-	12.50%

MATH 120	91	799	11.39%
MATH 300	-	-	10.96%
MATH 101	-	-	10.53%
MATH 100	80	799	10.01%
MATH 402	-	-	8.93%
STAT 300	44	521	8.45%
MATH 102	-	-	8.33%
MATH 420	-	-	6.98%
MATH 110	-	-	6.19%
MATH 310	-	-	3.03%
MATH 144	0	20	0.00%

Note. Numbers suppressed when sample size is less than ten and greater than zero in the Used or Total Enrolled columns.

Analysis of Success/Retention

Ethnicity, age, Foster Youth status, and gender were all significantly associated with student success, $\Delta\chi^2(8) = 94.6$, $p < .001$, $\Delta\chi^2(1) = 12.1$, $p < .001$, $\Delta\chi^2(1) = 4.3$, $p < .05$, $\Delta\chi^2(2) = 17.2$, $p < .001$, respectively. All four demographic variables were therefore included as control variables. Visiting the Math Center for help was not significantly associated with student success, $\Delta\chi^2(1) = 2.1$, *ns.*, nor was the raw number of visits to the Math Center, $\Delta\chi^2(1) = 0.79$, *ns* (See Table 3 for Success Rates). With regards to retention, ethnicity was significantly associated with whether or not a student withdrew and received a 'W', $\Delta\chi^2(8) = 30.8$, $p < .001$. No other demographic variables were associated with retention, and therefore, only ethnicity was controlled for in analyses. Visiting the Math Center for help was not associated with student retention, $\Delta\chi^2(1) = 1.3$, *ns.*, but the raw number of times a student visited the Math Center was, $\Delta\chi^2(1) = 26.5$, $p < .001$. Students who visited the Math Center *more* were more likely to persist to the end of the course.

The analysis of success reported above does not provide a good understanding of how students would have done *if they had not sought help*. That is, although students who visited the Math Center performed equivalently to those who did not, they may have performed worse had help not been provided. One way to test this hypothesis is to evaluate success amongst students who sought help. All students who visited the Math Center are presumed to have needed help at some point. With this said, students who visited the Math Center minimally (a few times) may roughly approximate how students would do if they need help but did not receive it. With this in mind, a follow-up analysis was performed where students were divided into three groups: The *no-help* group did not seek help ($N = 3405$); the *low-help* group visited at a below average rate (less than 19 or equal to 19 times; $N = 328$); and the *high-help* group visited at an above average rate (more than 19 times; $N = 144$). Note that ethnicity, age, Foster Youth status, and gender were controlled for in this analysis. Students in the high help group (*Success =* 60.4%) had a significantly higher success rate than students in the low help group (*Success* = 44.8%), $t(1) = -3.0$, $p < .01$. Students in the high-help group had a statistically equivalent success rate to students in the no-help group (*Success* = 53.0%). This finding suggests that students who sought help might have performed *worse* had they not received help.

Table 2. Success Rate by Student Demographic and Visited/Not Visited

		Success			Retention		
Demographic	**Headcount**	**Overall**	**Visited**	**Did Not Visit**	**Overall**	**Visited**	**Did Not Visit**
Ethnicity							
African American	419	38.2%	35.9%	38.8%	70.4%	71.7%	70.0%
Asian	959	61.9%	58.0%	62.5%	82.0%	81.5%	82.0%
Filipino	199	55.8%	38.9%	57.5%	82.4%	83.3%	82.3%
Hispanic/Latino	1110	46.8%	46.6%	46.8%	76.4%	79.3%	76.1%
Multi-Race	251	49.4%	48.3%	49.5%	74.9%	72.4%	75.2%
Native American	-	71.4%		83.3%	71.4%		83.3%
Other Non-White	13	76.9%		83.3%	84.6%		83.3%
Pacific Islander	73	52.1%	70.0%	49.2%	72.6%	80.0%	71.4%
Unknown	29	55.2%	60.0%	54.2%	86.2%	100.0%	83.3%
White	824	56.6%	57.3%	56.5%	78.9%	84.1%	78.3%
Gender							
Female	1943	55.6%	50.6%	56.3%	78.2%	76.6%	78.5%
Male	1867	49.5%	48.2%	49.7%	77.5%	81.4%	77.0%
Unknown	74	51.4%	50.0%	51.5%	78.4%	87.5%	77.3%
Age							
Under 25	2871	50.2%	50.4%	50.2%	78.1%	81.0%	77.8%
25 or Over	1013	56.2%	47.5%	58.4%	77.2%	76.7%	77.3%
Foster Youth							
Not Foster Youth	3807	52.9%	50.1%	53.3%	78.1%	79.4%	77.9%
Foster Youth	77	36.4%	31.3%	37.7%	68.8%	68.8%	68.9%
Total	**3884**	**52.6%**	**49.5%**	**53.0%**	**77.9%**	**79.1%**	**77.7%**

Note. Numbers suppressed when sample size is less than ten and greater than zero in the Headcount column.

Evaluation of the Supplemental Instruction Program, Spring 2016

CRC Research Office

Summer 2016

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Background

At Cosumnes River College, the Supplemental Instruction (SI) Program provides academic support to students in various subject areas. Classes that incorporate SI are assigned an "SI leader" – a student who has successfully completed a given course in the past (e.g., Math 100, Stat 300, etc.) and provides academic support to students enrolled in that course. Supplemental instruction provides more personalized help than standard tutoring because the SI leader regularly attends a specific course and provides support in a specific subject area (e.g., Math 100). In spring 2016, SI was offered in 22 class sections in Nutrition, Math, and Statistics, including:

- MATH 20 (2)
- MATH 30 (2)
- MATH 100 (8)
- MATH 110 (1)
- MATH 120 (1)
- MATH 299 (1)
- NUTRI 300 (5)
- STAT 300 (2)

This report provides a summary of findings from an evaluation of SI conducted by the Research Office in spring 2016. This evaluation was intended (1) to replicate previous findings regarding the association between success and SI attendance and (2) reveal any changes in programmatic effectiveness. The following questions were addressed:

1. Do students who participate in SI succeed at higher rates than their class peers?
2. Is SI effective for some student groups but not for others?
3. What was the overall participation rate for SI?
4. Do different groups of students participate in SI at different rates?
5. What motivates students to use SI?
6. What are the reasons students do not use SI?

To answer these questions, the Research Office collected data from three sources: student records (final grades and student demographics), SI attendance from SI sign-in sheets, and online surveys. For each question, the findings from spring were compared to the findings from fall to reveal changes in programmatic effectiveness.

Summary of Findings

Do students who participate in SI succeed at higher rates than their class peers?

The overall success rate for students who used SI was slightly higher than the students who did not (51.4%% vs 49.7%). However, this difference was not statistically significant. SI was therefore not associated with success in both Math/Statistics and Nutrition in spring 2016. As a result, this evaluation did not replicate the findings previously reported in the fall 2015 evaluation – where success was significantly associated with SI utilization after controlling for ethnicity. It should be noted that in a follow-up analysis, SI utilization was significantly associated with success in STAT 300. This finding should nevertheless be interpreted with caution because students in the fall who utilized SI in STAT 300 were *less* likely to succeed. As such, this finding should be replicated before any definitive conclusions can be drawn.

Is SI effective for some student groups but not for others?
There were no differences in the impact of SI based on student demographic group. This finding is consistent with the findings reported for fall 2015.

What was the overall participation rate for SI?
In the spring 2016 term, there were 894 students enrolled in courses that participated in SI. Out of the 894 students, 220 (24.6%) were identified as having met with their SI Leader for academic support. Compared to fall 2015, the participation rate increased in spring 2016 (24.6% vs. 17.1%).

Do different groups of students participate in SI at different rates?
Students who were 25 years of age or older, African American, and/or female participated at higher rates than their peers. This finding is consistent with the findings reported in fall 2015.

What motivates students to use SI?
To determine what motivated students to participate in SI, an online survey was administered to all students enrolled in courses that offered SI. Of the 109 students who responded to the survey, 52 reported that they used SI (47.7%). When asked about their primary reason for seeking help, students most frequently indicated that they always utilize available services (31.8%). Some students reported that they wanted to improve their grade in the class (18.2%), or that they had not done well in the subject in the past (11.4%). These findings exactly replicate those reported in fall 2015.

What are the reasons students do not use SI?
Of the 57 students who reported not using SI, a total of 55.8% indicated that they had the intention but could not find the time (13.5%) or they had schedule conflicts with normal SI meeting times (42.3%). Students who did not use SI provided open-ended feedback and generally stated that they would be more motivated to attend SI in the absence of scheduling conflicts. The SI leaders in Math, Statistics, and Nutrition mirrored these concerns – identifying scheduling conflicts as a barrier to students. This seemingly significant barrier to student participation was also noted in fall 2015.

Limitations

There were several limitations in conducting the spring 2016 evaluation of SI. This semester MATH 100 represented a large proportion of the enrollment for SI courses and its participation rate in SI sessions was higher than the overall participation. The lack of a positive effect within MATH 100 may have resulted in an overall non-significant effect for SI. Additionally, the small number of participants across the courses that offered SI (N = 220) reduces the power of statistical analyses to find an effect and limits the ability to detect effects in subgroups of students. Moreover, the survey response rate was too small (N = 109) to analyze differences between courses or student groups, and the survey response from SI faculty was too small to report (N = 2). Finally, only Math/Statistics students were asked to complete a survey for this evaluation, and therefore, the student survey results do not represent Nutrition students. All other surveys (SI leaders/faculty) did include Nutrition.

It should also be noted that any comparison between fall and spring should be interpreted with caution. Different courses used SI in the fall. Any reduction in the association between SI utilization and success could be explained by differences in courses – not necessarily a decrease in effectiveness.

Recommendations

In summary, participation in SI sessions appears to have improved as compared to fall 2015. However, the (somewhat weak) association between SI utilization and success in fall 2015 was not observed in spring 2016. This suggests that the effect of SI may have diminished in the spring term.

For this reason, and because SI has been demonstrated to work at other institutions, the Research Office makes the following suggestions to strengthen the implementation if SI:

1. Continue to utilize various technologies and communication methods to inform students of the SI sessions and continue to incentivize attendance.
2. Find ways to address ongoing scheduling concerns – such as including session days/times in the class schedule prior to the beginning of the semester.
3. Continue to enable SI leaders to coordinate their availability with the class early in the semester to promote awareness of the program and to enable to the SI leader to adjust his/her schedule.
4. Continue to track attendance for each SI session – including student ID and course information. Some consideration to using SARS to track attendance may be warranted.
5. The SI Coordinator should consider looking at best practices for SI to improve its effectiveness. This may include reaching out to the College's Student Assistant Program where stronger effects of in class assistants have been found.
6. Seek out additional training for SI leaders and the SI coordinator in order to improve program effectiveness.
7. Develop a system for evaluating various aspects and components of SI. For example, there is currently no way to know whether a particular SI session was effective (as defined by student learning, alignment with training and/or best practices, etc.)

Student SI Usage and Outcomes

Method

During the spring 2016 semester, paper sign-in sheets were used to track student attendance in SI sessions. These sign-in sheets recorded the time, date of the session, the SI subject (e.g., the course), and names and student IDs of attendees. These sign-in sheets were logged into the dataset. In June 2016, the Research Office appended official grades and demographic data (age, gender, and ethnicity) for each student to the attendance dataset. The dataset was then used to evaluate the Supplemental Instruction Program.

Out of the 894 students enrolled in courses where SI was provided, 220 were identified as having participated based on the SI session sign-in sheets (24.6%). Table 1 below displays the characteristic differences between the students who participated in SI Sessions and those who did not. Students who are older (25 and older), female, and/or African American were more likely to attend Si sessions. Among students who visited SI, the median number of visits was two. The median was used because of the large number of students who visited SI once and the handful of students who attended 20 or more SI sessions.

Table 1. *Student Characteristics and SI Participation*

Student Demographic Characteristics	SI Participants	Non-Si Participants	Difference
Gender			
Female	60.0%	53.1%	6.9%
Male	38.6%	44.7%	-6.0%
Unknown	*	2.2%	—
Ethnicity/Race			
African American	17.3%	10.7%	6.6%
Asian	23.6%	26.0%	-2.3%
Filipino	5.9%	5.9%	0.0%
Hispanic/Latino	28.6%	29.2%	-0.6%
Multi-Race	5.5%	7.1%	-1.7%
Native American/Alaskan Native	—	*	—
Other Non-White	—	*	—
Pacific Islander	*	1.9%	—
Unknown	*	*	—
White	14.1%	17.5%	-3.4%
Age Group			
19 or younger	29.5%	42.3%	-12.7%
20-24	33.6%	41.1%	-7.5%
25-29	11.4%	8.0%	3.4%
30-39	14.5%	4.9%	9.6%
40 or older	10.9%	3.7%	7.2%
Median Number of SI Visits	2		
Total Number of Students (N=607)	**220**	**674**	

*represents fewer than 10 students

Data sources: SI Sessions Sign-In Sheets; LRCCD Student Information System (PeopleSoft), June 9, 2016

Table 2 displays the participation rate by course, and the success outcomes by SI participation status. Overall, the participation rate for all courses was 24.6%. MATH 120 had the lowest participation rate (16.7%), whereas STAT 300 had the highest (34.3%). The participation rate for MATH 299 (41.7%) was higher but the sample size was too small within this course to ensure accurate representation. Generally, the students who participated in SI sessions achieved a higher average success rate in each of the courses, with the exception of MATH 100 and MATH 120. However, these differences were not statistically significant.

Table 2. *SI Participation Rates and Success Outcomes by Course*

Course	Number of Students	Number of SI Participants	Participation Rate	SI Participant Success Rate	Non-SI Participant Success Rate	Difference* (SI – Non-SI)	Overall Success Rate
MATH 20	81	13	16.0%	53.8%	51.5%	2.4%	51.9%
MATH 30	72	12	16.7%	58.3%	43.3%	15.0%	45.8%
MATH 100	334	104	31.1%	40.4%	44.8%	-4.4%	43.4%
MATH 110	31	9	29.0%	44.4%	31.8%	12.6%	35.5%
MATH 120	36	6	16.7%	50.0%	56.7%	-6.7%	55.6%
MATH 299	12	5	41.7%	40.0%	14.3%	25.7%	25.0%
NUTRI 300	258	47	18.2%	78.7%	64.9%	13.8%	67.4%
STAT 300	70	24	34.3%	45.8%	19.6%	26.3%	28.6%
Total	**894**	**220**	**24.6%**	**51.4%**	**49.7%**	**1.7%**	**50.1%**

***Not enough data to test for statistically significant differences for each course.**

Data sources: SI Sessions Sign-In Sheets; LRCCD Student Information System (PeopleSoft), June 9, 2016.

Analysis (Technical Specifications)

Initially, a logistic regression model, assuming a quasibinomial error term (commonly used to test for differences in binomial outcome variable), was used to predict the probability of student success from the number of times a student visited their SI Leader. Prior to entering the number of visits as a predictor, the demographic variables age, gender, and ethnicity were entered as predictors of student success. Ethnicity significantly predicted a student's probability of success, $\Delta\chi^2(5) = 14.5$, $p < .05$. Gender did not significantly predict the probability of success after controlling for ethnicity, $\Delta\chi^2(2) = 4.6$, $p < .10$. However, the effect of gender was trend level ($p < .10$), and therefore, it was included as a control variable in later analyses.

After controlling for ethnicity and gender, the number of visits was entered as a predictor of success and was not significant, $\Delta\chi^2(1) = 0.21$, *ns*. This finding does not replicate the previously reported finding for the fall 2015 evaluation. In spring 2016, MATH 100 represented a large proportion of the enrollment for SI courses and its participation rate in SI sessions was higher than the overall participation rate. This could explain the lack of a significant association. MATH 100 students who attended SI achieved a lower average success rate than those who did not.

One possible explanation for the lack of a significant association could have been the disparate subject areas included in the analysis. The analysis above included data for both Nutrition, Math, and Statistics combined. Analyses were therefore performed within Math/Statistics and Nutrition data separately. These follow-up analyses also did not reveal any significant association between success and the number of SI visits. It should be noted that the follow-up analyses for Math/Statistics did reveal a significant association between SI visits and success in STAT 300. However, this finding seemed to directly contradict a finding from fall 2015 – where STAT 300 students who attended SI achieved lower success rates than their peers. Therefore, until this finding is consistently replicated, it should not be concluded that SI is more effective for STAT 300 students.

SI Surveys: Students and SI Leaders

Method

Towards the end of the spring 2016 semester, students in courses with SI were asked to participate in an online survey. This survey asked if students were aware of the SI leader assigned to their course, if they sought help from the SI leader, and the primary reasons for why they did/did not get help from the SI leader. The end of the survey asked if they would recommend SI to future students and asked for suggested improvements to the Supplemental Instruction Program.

Faculty and SI Leaders were also surveyed about their experiences with the SI program. SI leaders were asked if they felt prepared, if the faculty communicated their expectations, and if they attended the classes for which they were assigned. They were also asked to share their methods for encouraging student participation, as well as their observations on what factors prevent students from attending SI sessions. Finally, they were asked to rate various elements of the SI program (i.e., training, relationship with instructor, location of SI sessions, etc.) and to share their thoughts on what they believe could improve the Supplemental Instruction Program.

Like the SI leader survey, faculty were asked how students were encouraged to use SI and to rate their SI leader on accessibility, rapport with students, attendance in class, and communication with the faculty. They were also asked to indicate how frequently they communicated with their SI Leaders in-person, during class, by phone, and/or email. Finally, they were asked a series of questions on whether or not they had previously had an SI Leader in their class, plan to have an SI Leader in their next class, and would recommend the SI program to other faculty. As with the student and SI Leader survey, open-ended comments for program improvement were also collected.

Student Survey

Out of 636 students enrolled in Math and Statistics SI-courses, 109 responded to the student survey (17.1% response rate; Nutrition 300 students were not included in the survey). Most of the surveyed students were aware that the course had an SI Leader (90.8%); close to half (47.7%) reported that they participated in SI sessions. When asked their primary reason for using SI, the most frequent responses were that students wanted to improve their grade in the class (31.9%) and that they had not done well in the subject area in the past (29.8%). Students who attended SI sessions were also asked to indicate how many times they received help with assignments at the Math Center, with their instructor, with their SI leader during class, and with their SI leader outside of class. Students were more likely, on average, to receive help at the Math Center and with their SI leader than with their instructor. When asked to evaluate their SI Leaders, at least 80% of the students agreed that their SI Leader was knowledgeable (91.7%), approachable (85.4%), and helpful (83.3%). Slightly less than two-thirds (60.4%) agreed that the SI leader helped them improve their class grade. All of the students who indicated they participated in SI said they would recommend their SI leader to other students who need help with their course subject.

Out of the 109 who participated in the survey, 57 (52.3%) reported they did not use SI. When asked their primary reason for not using SI, more than half (55.8%) indicated they either intended to use SI but could not find the time (13.5%) or the times conflicted with their schedules (42.3%), 32.7% felt they did not need the additional help, and 7.7% were not aware their class offered SI. In their open-ended feedback, students indicated they would be more motivated to attend SI sessions if the SI sessions' dates and times did not conflict with their schedule. Others shared that if they were struggling in class or could not understand the material, then they would seek the SI leader's assistance. Students who did

not attend were asked to indicate the number of times they received help with assignments at the Math Center and with their instructor. On average, they sought help from their instructor more often than the students who received help from their SI leaders (4.2 vs. 2.9). However, they visited the Math Center for help less often than their peers (1.6 vs. 7.2).

SI Leader Survey

All twelve respondents felt adequately prepared for their roles as SI leaders. Eleven of the twelve (91.2%) indicated that the course instructor communicated his/her expectations; one SI leader did not attend the instructor's class this semester. Ten of the twelve SI leaders indicated they attended the class that they were assigned to as SI leader. The SI leaders encouraged their students to seek their help outside of class by making classroom announcements, talking with students individually, emailing the students directly (or providing the students with their e-mail address/phone number). One SI leaders asked the instructor to give extra credit for students who attend SI sessions, while another promoted it by having "practice tests and quizzes."

When asked what factors seem to prevent students from seeking help, the SI leaders frequently identified schedule conflicts. One SI leader shared that when he/she changed his/her hours to 4:30 pm, more students attended the session. A few other SI leaders noted the students may be shy or nervous seeking help outside of class.

The majority of SI leaders (at least 11 of the 12) were satisfied/very satisfied with the accessibility of, communication with, and help provided by faculty. They were also satisfied/very satisfied with the designated space for SI sessions and the support they received from the SI coordinator. Ten out of twelve were satisfied with the ongoing SI leader training.

When prompted to share additional feedback that would help improve the SI program, four of the twelve SI leaders responded. One SI leader suggested that the training include various scenarios that could happen during SI sessions with students. It was also suggested that the issues with timing SI sessions needs to be worked out, faculty should have more input in the SI program, and extra credit or some other form of an incentive be used to help increase SI session attendance. There was also suggesting that the SI program should make it easier for SI leaders to access resource rooms for SI sessions. Lastly, and on a positive note, one respondent shared his/her hopes that the SI program will continue as he/she saw its impact on helping keep the students alert and organized with their work.

Faculty Survey

Due to the very low response rate (n=2), findings from the faculty survey could not be analyzed, nor reported without identifying individual faculty.

The Reading and Writing Center: Evaluation of Student Access and Program Effectiveness

CRC Research Office

Summer 2016

Author:

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Background

At Cosumnes River College, students who need or want additional English academic support may enroll in a non-required English lab (ENGLB). Enrollment in an English lab permits students to visit and use services offered at the Reading and Writing Center (RWC). These services are intended to improve student reading/writing skills and ultimately improve the likelihood of success. With this in mind, the Research Office sought to evaluate the association between success/retention in English courses at CRC (ENGWR, ENGRD, ENGLT, and ENGCW) and usage of the RWC in spring 2016. Additionally, in the spirit of the College Equity Plan, the Research Office also sought to identify any differences in usage amongst English students on the basis of student demographics. Note that this evaluation combined usage of the RWC at Elk Grove Campus and Main Campus. The sample sizes at Elk Grove Campus were too small to conduct a separate evaluation.

Summary of Findings

1. The overall success rate for English labs in spring was 67.2%. This suggests that many students do not use the RWC enough to reach the requisite amount of visitation time. Note that this success rate does not include withdraws because withdrawing from a lab is not assigned an official grade within the Peoplesoft database.
2. In spring 2016 at CRC, a total of 289 English students were enrolled in English labs as of the beginning of the term. A total of 231 of these students visited the Reading and Writing Center (80.1%). Additionally, three students visited the RWC at Elk Grove Center once without having enrolled in a lab. Thus a total of 234 English students visited the RWC (out of 2930 at Main Campus and Elk Grove; 8.0%).
3. Students in ENGWR 42/58 and accelerated English 299 had the highest proportion of students who visited the RWC (Table 2).
4. Older English students were more likely to use the RWC than younger English students. Additionally, it should be noted that ethnicity did not predict RWC usage. However, students who are African American had the highest proportion of RWC usage. This finding mirrors the findings from the overall usage report released by the Research Office – where African American students were more likely to take advantage of academic support services in general.
5. RWC usage was significantly associated with student success and retention such that students who visited the RWC for help were more likely to succeed and persist until the end of the term.
6. In order to reach a 70% probability of success, it would take students who are African American 20-25 visits, students who are Hispanic/Latino 5-10 visits, students who are Multi-Race 5-10 visits, and students who are Foster Youth 35 visits. All other student groups would reach a 70% probability of success at less than five visits (Table 4).
7. Finally, simply increasing the number of visits to the RWC for *all* students has the potential to reduce equity gaps in success (Table 4)

Limitations

As with all academic support evaluations, the findings here must be interpreted with caution. There may be a fundamental difference between students who choose to seek help and those who do not. This difference – e.g., motivation, mastery mindset, etc. – may explain the difference in success observed between students who seek help at the RWC and those who do not. Additionally, this evaluation did not include students in courses with high writing content (e.g. History, Social Sciences, etc.) who sought help from the RWC. These students were not included for practical purposes. Namely, the subject they

sought help for could not easily be identified. As a result, the effect of RWC services on non-English related coursework is unclear. Finally, the current tracking system does not distinguish between students who used the RWC to study and students who used the RWC to get tutoring/assistance. This potential measurement error could have obscured the true (possibly stronger) effect of receiving help at the RWC.

Recommendations

In summary, RWC usage is associated with student success/retention such that students who seek help at the RWC are more likely to succeed and persist until the end of the term. Moreover, the overall usage rate amongst English students was 8.0%, and young students were less likely to seek help from the RWC. Given these findings, the Research Office makes the following recommendations:

1) Promote usage of the RWC and help seeking in English more generally:
   Continue to embed writing support into English courses and consider expanding embedded support to College-/Transfer-Level English courses. Use this embedded support to promote independent usage of the RWC and help seeking from supplemental instructors/student assistants. (http://extranet.cccco.edu/Portals/1/AA/BasicSkills/2013Files/BSI_E-Resource_10-18-13.pdf - See pages 78 – 81)
   a. Implement best practices for improving student help seeking. This may include promoting a mastery orientation in English courses. A mastery orientation is promoted by focusing on skills improvement as opposed to course performance (Karabenick, 2004).
2) To enhance evaluation, have students check into the RWC with reason codes for studying and reason codes for receiving assistance.

Method

This investigation focused primarily upon students enrolled in non-lab English courses at CRC in spring 2016. Student usage of the RWC (on main campus *and* at Elk Grove Center) was tracked via the SARS system. During summer 2016, the Research Office pulled data from the SARS system and merged it with data from the District Peoplesoft database. Analysis of these data proceeded in two steps. In the first step, factors predicting student usage were identified. Differences in student usage of the RWC could indicate potential issues and/or barriers to access. This analysis included 2921 of the 2930 unduplicated students enrolled in non-lab English in the spring (ENGLT, ENGWR, ENGRD, and ENGCW). Students who are Native American/Other Non-White could not be included due to low sample sizes (N = 9). A follow-up analysis of 216 students who visited the RWC was intended to identify differences in the number of visits. Note that demographic groups with low sample sizes and students with unusual visit rates (greater than 3 standard deviations above the mean) were excluded from this analysis. In the second step, the association between RWC usage and success/retention was evaluated. Success was defined as receiving an A, B, C, or P in an English course, and retention was defined as persisting in the course until the end of the term (e.g., not receiving a "W" grade). This analysis included only students who took one English course during the spring and excluded demographic groups with low sample sizes (Native American/Other Non-White). Students with only one English course were included because it was easier to precisely identify the course for which they sought help. Additionally, inclusion of students with two or more courses would have violated statistical assumptions (e.g., the assumption of independence). The final sample size for this analysis was 2792.

In analyses with count data as the outcome variable (e.g., number of times visiting, etc.), generalized linear models assuming a quasi-poisson error distribution were used. In analyses with a binomial outcome variable (e.g. Successful/Not Successful), generalized linear models assuming a quasi-binomial error distribution were used.

Analysis of Access

In spring 2016 at CRC, a total of 289 English students were enrolled in English labs as of the beginning of the term. A total of 231 of these students visited the Reading and Writing Center (79.9%). Additionally, three students visited the RWC at Elk Grove Center once without having enrolled in a lab. Thus a total of 234 English students visited the RWC (Main Campus and Elk Grove; 7.8%). Moreover, English labs at CRC had a combined success rate of 67.2%. Note that this success rate does not include withdraws because withdrawing from a lab is not assigned an official grade within the Peoplesoft database. Given the obvious variability in usage and lab enrollment, this analysis sought to identify factors associated with visiting the RWC.

Only age was significantly associated with whether or not a student visited the RWC for help, $\Delta\chi^2(1) = 39.2$, $p < .001$, such that older students were more likely to seek help than younger students. Ethnicity, gender, and Foster Youth status were not associated with help seeking. However, it should be noted that students who are African American were represented in higher proportion (Table 1). This is consistent with the collegewide evaluation of academic support program usage. Amongst students who visited the RWC for help, no significant differences were found in the number of visits on the basis of gender, ethnicity, Foster Youth status, or age. However, it should be noted that, although not significantly different, older students had more visits. This finding also mirrors findings from the previously mentioned collegewide evaluation.

The usage rate by English course can be found in Table 2. Note that a formal statistical analysis was not conducted on these data because students may have taken more than one English course, and an analysis would have violated the assumption of independence. The two experimental accelerated courses had the highest usage rates followed by ENGWR 42 and 58.

Table 1. *Attendance by Demographic Group*

	Visited or Not				Number of Visits	
Demographic	**Used (N)**	**Total**	**%**	**Equity Index**	**Avg. Times**	**Equity Index**
Ethnicity						
African American	45	369	12.2%	1.53	24.5	1.17
Asian	48	631	7.6%	0.95	19.6	0.94
Filipino	-	157	5.7%	0.72	26.0	1.24
Hispanic/Latino	78	895	8.7%	1.09	17.0	0.81
Multi-Race	14	196	7.1%	0.89	24.5	1.17
Native American	-	-	0.0%	0.00	-	-
Other Non-White	-	-	33.3%	4.17	11.0	0.53
Pacific Islander	-	-	4.1%	0.51	34.0	1.63
Unknown	-	-	15.4%	1.93	39.0	1.87
White	33	598	5.5%	0.69	20.7	0.99

Gender						
Female	134	1542	8.7%	1.09	20.4	0.98
Male	92	1319	7.0%	0.87	21.1	1.01
Unknown	-	-	11.6%	1.45	25.1	1.20
Age						
Under 25	152	2335	6.4%	0.80	19.4	0.93
25 or Older	82	595	13.4%	1.68	23.5	1.12
Foster Youth						
Not Foster Youth	226	2868	7.7%	0.96	20.6	0.98
Foster Youth	-	-	14.3%	1.79	28.3	1.35
Total	**234**	**2930**	**8.0%**		**20.9**	

Note. Foster Youth includes both self-reported and verified status. Equity indexes were calculated by dividing the group value by the total/overall value. Sample sizes for a group are suppressed when either the Used(N) column or the Total column had less than 10 students.

Table 2. *Usage Rate by English Course*

Course	Used (N)	Total	Usage Rate
ENGRD 299	12	15	80.0%
ENGWR 299	16	21	76.2%
ENGWR 42	19	81	23.5%
ENGWR 58	34	190	17.9%
ENGCW 430	-	-	11.8%
ENGLT 321	-	-	8.1%
ENGRD 312	-	-	7.7%
ENGWR 300	83	1107	7.5%
ENGLT 340	-	-	6.7%
ENGRD 110	11	175	6.3%
ENGWR 101	27	439	6.2%
ENGCW 420	-	-	5.0%
ENGWR 302	23	476	4.8%
ENGRD 310	-	-	4.5%
ENGCW 410	-	-	4.3%
ENGWR 301	-	-	3.2%
ENGCW 400	0	43	0.0%
ENGCW 495	-	-	0.0%
ENGLT 311	0	34	0.0%
ENGLT 402	0	15	0.0%
ENGWR 480	0	14	0.0%

Note. Sample sizes for a group are suppressed when either the Used(N) column or the Total

column had less than 10 (but more than zero) students.

Analysis of Student Success/Retention

Ethnicity gender, and Foster Youth status were both significantly associated with student success ($\Delta\chi^2(7) = 61.3$, $p < .001$; $\Delta\chi^2(2) = 6.3$, $p < .05$; $\Delta\chi^2(1) = 9.9$, $p < .01$, respectively) and therefore were used as control variables in all analyses. Whether or not a student visited the RWC for help was significantly associated with the likelihood of success, $\Delta\chi^2(1) = 15.7$, $p < .001$, such that students who visited the RWC had higher success rates (Table 3). Additionally, the number of visits to the RWC was associated with success, $\Delta\chi^2(1) = 38.9$, $p < .001$, such that students that visited more were more likely to succeed. In order to reach a 70% probability of success, it would take students who are African American 20-25 visits, students who are Hispanic/Latino 5-10 visits, students who are Multi-Race 5-10 visits, and students who are Foster Youth 35 visits. All other student groups would reach a 70% probability of success at less than five visits (Table 4).

Ethnicity was significantly associated with student retention ($\Delta\chi^2(7) = 20.9$, $p < .01$, respectively) and therefore was used as a control variable in all analyses. Whether or not a student visited the RWC for help was significantly associated with the likelihood of retention, $\Delta\chi^2(1) = 21.8$, $p < .001$, such that students who visited the RWC had higher retention rates (Table 2). Additionally, the raw number of visits to the RWC was associated with student retention, $\Delta\chi^2(1) = 39.7$, $p < .001$, such that students that visited more were more likely to persist to the end of the course without withdrawing.

Table 2. Success Rates by Demographic Group/RWC Usage

		Success			Retention		
Demographic	**Headcount**	**Overall**	**Visited**	**Did Not Visit**	**Overall**	**Visited**	**Did Not Visit**
Ethnicity							
African American	358	50.6%	65.1%	48.6%	73.7%	88.4%	71.7%
Asian	599	68.3%	83.7%	67.1%	83.0%	95.3%	82.0%
Filipino	155	77.4%	66.7%	78.1%	86.5%	77.8%	87.0%
Hispanic/Latino	853	61.5%	71.6%	60.6%	79.7%	90.5%	78.7%
Multi-Race	186	62.9%	61.5%	63.0%	80.1%	100.0%	78.6%
Native American	-	33.3%	-	33.3%	50.0%	-	50.0%
Other Non-White	-	100.0%	-	100.0%	100.0%	-	100.0%
Pacific Islander	49	69.4%	100.0%	68.1%	87.8%	100.0%	87.2%
Unknown	23	56.5%	75.0%	52.6%	73.9%	75.0%	73.7%
White	561	71.3%	87.9%	70.3%	83.1%	90.9%	82.6%
Gender							
Female	1460	65.5%	76.4%	66.4%	81.1%	92.1%	80.0%
Male	1265	61.9%	72.4%	62.6%	80.3%	88.5%	79.7%
Unknown	67	60.0%	71.4%	61.2%	82.1%	100.0%	80.0%

Age							
Under 25	2224	64.6%	72.9%	64.0%	81.4%	93.1%	80.6%
25 or Older	568	64.6%	77.9%	62.5%	78.3%	87.0%	77.0%
Foster Youth							
Not Foster Youth	2732	65.1%	74.6%	64.3%	81.0%	90.6%	80.2%
Foster Youth	60	41.7%	75.0%	36.5%	68.3%	100.0%	63.5%
Total	**2792**	**64.6%**	**74.7%**	**63.7%**	**80.8%**	**91.0%**	**79.9%**

Note. Note. Sample sizes for a group are suppressed when the Headcount column had less than 10 (but more than zero) students.

Table 4. *Projected Probability of Success by Number of RWC Visits by Ethnicity/Foster Youth*

Times	African American	Asian	Filipino	Hispanic/Latino	Multi-Race	Pacific Islander	White	Avg. Diff.	Foster Youth
0	47.90%	67.30%	76.70%	60.30%	61.60%	68.50%	70.50%	9.2%	37.70%
5	53.40%	71.90%	80.40%	65.50%	66.70%	73.00%	74.90%	8.7%	42.60%
10	58.70%	76.20%	83.60%	70.20%	71.30%	77.10%	78.80%	8.0%	47.70%
15	64.00%	79.90%	86.40%	74.60%	75.70%	80.80%	82.20%	7.2%	52.80%
20	68.90%	83.20%	88.80%	78.60%	79.50%	84.00%	85.20%	6.4%	57.90%
25	73.40%	86.10%	90.80%	82.00%	82.80%	86.70%	87.80%	5.6%	62.80%
30	77.50%	88.50%	92.50%	85.10%	85.70%	89.10%	89.90%	4.8%	67.40%

Note. The Avg. Diff. column presents the average difference between ethnicities for each number of visits.

Evaluation of the English Student Assistant Program

CRC Research Office

Spring 2016

Author:

Paul Meinz, Research Analyst

Background

Student assistants (SAs) are available in all basic skills/experimental English courses at Cosumnes River College (ENGWR 42, 58, and 299) to help with assignments inside and outside of class. In spring 2016, a total of 13 English courses had an SA available to provide assistance to 307 students. Due to the scope of the SA program in English, the Research Office – in cooperation with key faculty and staff – sought to evaluate the English Student Assistant Program. The purpose of this evaluation was to replicate/extend findings from previous evaluations of the English Student Assistant Program (from fall/summer 2015) and to identify any changes in program effectiveness.

Findings

1. Students who sought help from their SA outside of class more often were more likely to succeed relative to their peers (Table 2, page 44). This finding replicates the primary finding of the fall 2015 SA evaluation. Note that success was defined as receiving an A, B, C, or P in an English course.
2. Additionally, students who sought help from their SA outside of class more often were also less likely to withdraw from their English course (Table 2, page 44). This finding expands upon the fall 2015 SA evaluation.
3. Simply increasing the number of times all students seek help outside of class has the potential of reducing equity differences in success (Table 3, page 46), although encouraging attendance for student groups with lower success rates would also be effective.
4. Approximately 41.3% of students (126 out of 305) visited their SA outside of class. This constitutes a 3% increase over the fall 2015 term (38.2%). However, the increase was more modest (39.3% vs 38.2%) after excluding English 299 – a course that was not included in the fall evaluation.
5. Students who did not seek help from their SA frequently cited scheduling difficulties as a result of busyness/lack of time. SAs also cited scheduling difficulties as an explanation for why students did not attend. This issue was also reported by SAs/Students in fall 2015.
6. Some SAs said that students often don't seek help due to the potential embarrassment/stigma of needing help.
7. The majority of surveyed faculty respondents (5 out of 6) said that they required SA attendance in some form. This represents an increase over the fall term. Nevertheless, it is unclear whether or not this finding represents all faculty because three did not complete a survey.
8. The majority of faculty and some student assistants believed that more training for SAs would increase program effectiveness.

Limitations

There are two notable limitations to the present investigation. First, students who choose to seek help from their SA might be different from other students in motivation and/or other psychological factors. The difference between students who seek and do not seek assistance might therefore be explained by motivation – and not necessarily help from their SA. Second, the response rates for surveys were very low and may not necessarily be representative of the full student population

Recommendations

Overall, the findings regarding the effectiveness of SAs were positive and replicate findings reported for the fall. However, steps must be taken to increase usage of SAs – both to improve overall student success and to reduce equity differences in course success. Usage could be improved by any or all of the following (non-exhaustive) steps:

1) Conducting a study to identify groups of at-risk students who do not utilize SA.
2) Conducting a follow-up study to identify incentives that could encourage at-risk students to visit their SA for help.
3) Implementing an incentivization plan using data on best practices (including the studies mentioned above).
4) Developing methods for encouraging student groups with low success rates to visit their SA for help.
5) Providing additional training to SAs in order to improve consistency/outreach.
6) Finding ways to reduce the perceived stigma associated with seeking help.

Student SA Usage, Success, and Retention

Method

Shortly before the spring 2016 census date, the Research Office generated SA attendance tracking sheets for all basic skills English courses. These tracking sheets were then used by SAs to record the number of times each student sought help from their SA *outside of class* on a weekly basis. At the end of the spring 2016 semester, the tracking sheets were returned to the Research Office. The Research Office then merged these sheets with demographic and official grade data in late June. The resulting dataset was used to test the association between SA usage and success/retention and to evaluate potential equity differences in program usage. Note that success was defined as receiving an A, B, C, or P in an English course, and retention was defined as receiving any grade other than a "W".

Student Population Description and Usage Rates

Of the 307 students enrolled in English courses offering SA, two students did not have attendance data tracked. Therefore a total of 305 students in 13 courses were included in this study. Success rates for each course can be found in Table 1, and attendance data can be found in Table 2/Figure 1. Overall, the participation rate increased when compared to the fall term (41.3% vs. 38.2%). This increase in attendance may have been due to the inclusion of English 299 in the spring evaluation. When English 299 was excluded from the spring data, the increase was more modest (39.3% vs 38.2%). Asian/Filipino/Pacific Islander and Female students had the highest attendance rate. However, there were no statistically significant differences in participation rate on the basis of ethnicity, gender, or age. This finding does not replicate findings from the spring term, where older students were significantly more likely to visit the SA for help. Finally, it appears as if the number of visits peaked during the week of April 18th and dipped for two weeks starting on March 14th (the week before Spring Break).

Table 1. *Demographic Characteristics and Success/Retention by Demographic Group*

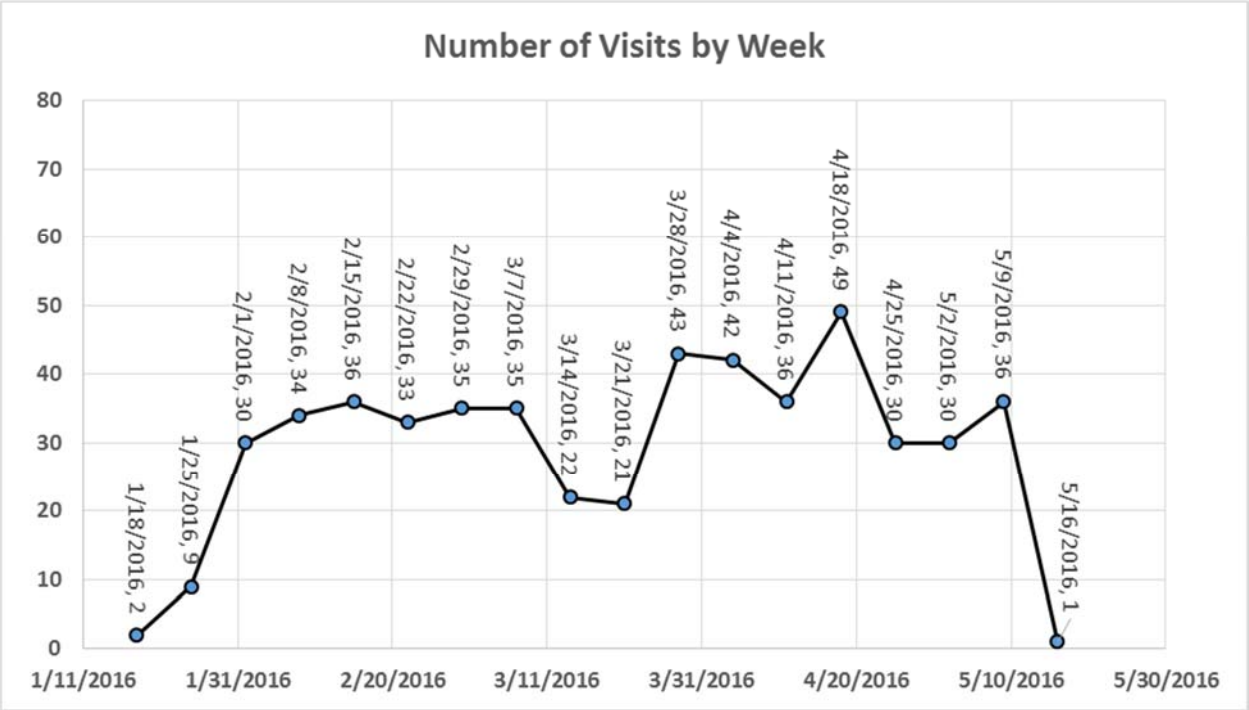
	Headcounts		Course Success		Retention Rate	
Demographic	**N**	**% or Avg.**	**N**	**%**	**N**	**%**
Gender						
Female	146	47.9%	88	60.3%	120	82.2%
Male	150	49.2%	82	54.7%	119	79.3%
Unknown	-	3.0%	-	66.7%	-	100.0%
Ethnicity						
African American	64	21.0%	27	42.2%	47	73.4%
Asian/Filipino/Pacific Islander	88	28.9%	59	67.0%	73	83.0%
Hispanic/Latino	95	31.1%	54	56.8%	80	84.2%
Multi-Race/Unknown/Other	32	10.5%	18	56.3%	25	78.1%
White	26	8.5%	18	69.2%	23	88.5%
Age		23.5				
Total	**305**		**176**	**57.7%**	**248**	**81.3%**

Note. Sample sizes suppressed when headcounts less than 10.

Table 2. *SA Visits Outside of Class, Course Success/Retention for Students Who Used SA Outside of Class*

	Headcount			Course Success		Course Retention	
Demographic	**Visited (N)**	**Visited (%)**	**Average Visits**	**Visited**	**Did Not Visit**	**Visited**	**Did Not Visit**
Gender							
Female	64	43.8%	1.8	47.6%	76.6%	73.2%	93.8%
Male	58	38.7%	1.6	37.0%	82.8%	68.5%	96.6%
Unknown	-	44.4%	2.2	60.0%	75.0%	100.0%	100.0%
Ethnicity							
African American	28	43.8%	1.8	27.8%	60.7%	63.9%	85.7%
Asian/Filipino/Pacific Islander	42	47.7%	1.9	50.0%	85.7%	69.6%	97.6%
Hispanic/Latino	38	40.0%	1.8	40.4%	81.6%	75.4%	97.4%
Multi-Race/Unknown/Other	-	28.1%	0.9	43.5%	88.9%	69.6%	100.0%
White	-	34.6%	1.8	58.8%	88.9%	82.4%	100.0%
Total	**126**	**41.31%**	**4.2**	**42.5%**	**79.4%**	**71.5%**	**95.2%**

Note. Sample sizes suppressed when headcounts less than 10.



Results and Analysis (Technical Specifications)

This evaluation sought to replicate findings from the fall term. As such, the association between student success and the number of SA visits outside of class was tested. Additionally, in an attempt to extend the findings from the previous evaluation, the association between retention and the number of SA visits was tested. In both cases, a logistic regression with a quasibinomial error term was used. With regards to success, in the first step age, gender, and ethnicity were entered as predictors of student success. Only ethnicity was significantly associated with success in English courses that offered SA, $\Delta\chi^2(4) = 10.97$, $p < .05$, such that White and Asian Pacific Islander Students were significantly more likely to succeed than African American students ($t(1) = 2.93$, $p < .01$, $t(1), = 2.29$, $p < .05$, respectively). Therefore, ethnicity was used as a control variable in all subsequent analyses. Next, the total number of times a student visited the SA was entered as a predictor of success. The number of times a student visited SA significantly (and strongly) predicted success, $\Delta\chi^2(4) = 46.61$, $p < .001$, suggesting that success is associated with receiving help from an SA. Findings were similar for student retention. Student demographic characteristics (age, gender, and ethnicity) did not significantly predict retention, and therefore were not included in subsequent analyses. The number of times a student visited SA significantly predicted student retention, $\Delta\chi^2(1) = 32.40$, $p < .001$, suggesting that success is associated with receiving help from an SA.

Interestingly, because the increase in probability per single SA visit is non-linear, simply increasing the average number of visits for *all* students could reduce achievement gaps between ethnic groups. Table 3 presents the projected probability of success by ethnic group from zero to nine visits. The column "Avg. Difference" is a measure of the average difference in probability of success between groups. Note that as the number of visits increases, the average difference in probability decreases. Also note that it would

take African American students four visits and Hispanic/Latino(a) students three visits to the SA to reach a 70% probability of success.

Table 3. *Projected probability of success by number of visits.*

	Probability of Success by Ethnicity				
Number of Visits	**African American**	**Hispanic/Latino**	**Asian**	**White**	**Avg. Difference**
0	27.6%	45.0%	54.9%	60.2%	12.4%
1	38.2%	57.0%	66.3%	71.0%	12.6%
2	50.0%	68.3%	76.1%	79.9%	11.5%
3	61.5%	77.7%	83.8%	86.5%	9.7%
4	72.4%	84.9%	89.3%	91.2%	7.3%
5	80.9%	90.1%	93.1%	94.4%	5.3%
6	87.3%	93.7%	95.6%	96.5%	3.6%
7	91.8%	96.0%	97.3%	97.8%	2.4%
8	94.7%	97.5%	98.3%	98.6%	1.5%
9	96.7%	98.4%	98.9%	99.1%	0.9%

Survey Data and Perceptions of the SA Program

Method

Three online surveys were administered to faculty, SAs, and students, respectively, in order to gauge knowledge and perceptions of the program. The student survey asked if they knew about their SA, whether or not they sought help from their SA, why they did or did not seek help, and if their SA was helpful/approachable. The faculty survey asked how students were encouraged to seek help from the SA and if the SA was accessible/helpful to students. Finally, the SA survey asked about communication between the faculty member and the SA and how the SA encouraged participation. Additionally, all three surveys asked for general comments and feedback on the program from students, faculty, and staff.

Student Survey

Of the 307 English students invited to participate, a total of 75 completed a survey (24.4%). Most respondents were aware of the English student assistant in their course (*N* = 68, 90.7%), and the same proportion received help from their student assistant. The reasons students sought help from their English student assistant are summarized below (Table 4). Students were likely to seek help from their student assistant because they always take advantage of help or they wanted to improve their grade in their English course.

Table 4. *Reasons for seeking help from a student assistant.*

Reason	%
I always utilize learning assistance services when they are offered.	30.00%
I found student assistants helpful in the past.	13.33%
I have not done well in in this subject area in the past.	6.67%
I wanted to improve my grade in the class.	35.00%
It was required as part of my class grade.	6.67%
Other (please specify)	8.33%

Respondents who received help from their student assistant were asked to rate the knowledge, approachability, helpfulness, and impact of their student assistant. The findings are summarized in the table below (Table 5). In general students were very likely to agree that their student assistant was helpful, knowledgeable, approachable, and impactful. Respondents that received help from their student assistant were also highly likely to recommend a student assistant (59 out of 59 total responses; 100%). Similarly, very few students offered suggestions for changing the SA program. Some students would like additional time at the end of class to meet with their SA, and other students suggested that a time sheet in the beginning of the term might be helpful for scheduling.

Table 5. *Attribute ratings for English Student Assistants*.

	Agree	Disagree
Attribute	**%**	**%**
The Student Assistant was Knowledgeable	96.7%	3.3%
The Student Assistant was Approachable	96.6%	3.4%
The Student Assistant was Helpful	96.6%	3.4%
The Student Assistant helped me improve my class grade.	96.4%	3.6%

Students who did not visit their student assistant most frequently cited busyness as an explanation for not seeking help (the sample size is too small to provide percentages). These students also stated that having more time would enable them to visit their student assistant for help. Some said that more one-on-one time with the student assistant would encourage them to seek help more often.

Student Assistant Survey

Nine student assistants completed the student assistant survey. All of the respondents (100%) stated that expectations for their performance were made clear by the course instructor and Student Assistant Program generally. Most of the student assistants (*N* = 8; 88.9%) encouraged students to seek their help by making students aware of their Reading and Writing Center hours. Others offered incentives that were authorized by the instructor (e.g., extra credit). Half of the student assistants encouraged students to seek their help outside of class weekly (*N* = 5; 55.6%).

When asked to explain why students didn't seek help, several explanations were offered. The most prominent explanations were: students had schedules that clashed with the RWC hours (*N* = 6; 66.6%),

and students are anxious about having their work reviewed by a new person (*N* = 3; 33.3%). A minority of student assistants thought that inconsistency might be contributing to a lack of trust in the Student Assistant Program.

In general, student assistants were satisfied with their interactions with English instructors and materials provided by the Research Office (See Table 6). Almost all student assistants were satisfied with their communications with the instructor, the help provided by the instructor, and the accessibility of the instructor.

Table 6. *Ratings of instructor interactions.*

Statement	Satisfied	Dissatisfied
Communications with instructor	88.9%	11.10%
Help Provided by the instructor	88.9%	11.10%
Accessibility of the instructor	100.0%	0%
Attendance tracking materials provided at the beginning of the semester.	88.9%	11.10%

Although feedback was generally positive regarding the Student Assistant Program. Some student assistants would have liked to meet with the instructor earlier (before the term) so as to better prepare for the role. Others wanted monthly SA meetings, and still others wanted syllabi to be made available in the Reading and Writing Center.

Faculty Student Assistant Survey

Six faculty responded to the faculty student assistant survey. Most of these faculty had had a student assistant in the past (*N* = 5; 83.3%) All faculty indicated that they encouraged participation in SA by introducing the student assistant and verbally encouraging participation. A large majority of faculty indicated that they required their students to visit the student assistant at least once (*N* = 5, 83.3%). Finally a majority also indicated that they provided class time to work with the student assistant (*N* = 4; 66.7%), and they incentivized student participation (*N* = 3; 50.0%).

Nearly all faculty agreed that their student assistant regularly attended class (100%), encouraged students to seek help (83.3%), made him/herself accessible (100%), had good rapport with students (83.3%), provided helpful feedback on student work (83.3%), and communicated regularly (100%). Possibly due to this overall positive evaluation of student assistants, the faculty who are teaching a basic skills English course next semester all indicated that they intend on having a student assistant. All faculty would recommend student assistants to other faculty teaching English courses.

Although faculty positively evaluated the Student Assistant Program, some provided suggestions for improvement. Specifically, three faculty suggested that new student assistants need better training.