

Analysis of Allied Health Supplemental Instruction

An Educational Intervention Funded by the
California Wellness Foundation



Fall 2007

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Goal of the Grant

The Cabrillo College Foundation and the Cabrillo College Allied Health Program, located one hour south of San Francisco in Santa Cruz County, received a grant for \$210,000 over three years to provide customized academic, mentoring and social supports for Latino health professions students in Santa Cruz County as a strategy to improve the health of underserved populations in California.

The approach taken by Tom McKay, Director of Allied Health and the Principal Investigator of the grant, was to work with faculty to develop a system of supplemental instructors comprised of former students who had excelled in the course. These peer mentors would work with current students to improve their class performance.

What is Supplemental Instruction (SI)?

Supplemental Instruction (SI) is a form of peer mentoring that provides academic support for historically difficult courses so as to improve student performance and retention. At Cabrillo College, there were four supplemental instructors who offered regularly scheduled, out-of-class review sessions where they provided support and shared tips, methods, knowledge and insights.

Description of Classes & Students

In spring 2007 eight course sections were targeted for SI: seven sections of Anatomy (Bio 4) and one of Inorganic Chemistry for Health Occupations (Chemistry 30A). These classes were targeted because they are historically a “bottleneck” for students seeking to advance their education on track to a health occupation.

There were 285 enrollments in these eight course sections with six students taking both Anatomy & Chemistry. Student participation in SI was strong; out of 279 students in the eight classes, 117 (42%) availed themselves of the SI sessions, attending anywhere from 1 to 14 sessions, with an average of 3.7 sessions. There were two students who took advantage of SI for both Anatomy & Chemistry.

Attendance at SI sessions was open to all students in these class sections.

GPA & Pass Rates Boosted

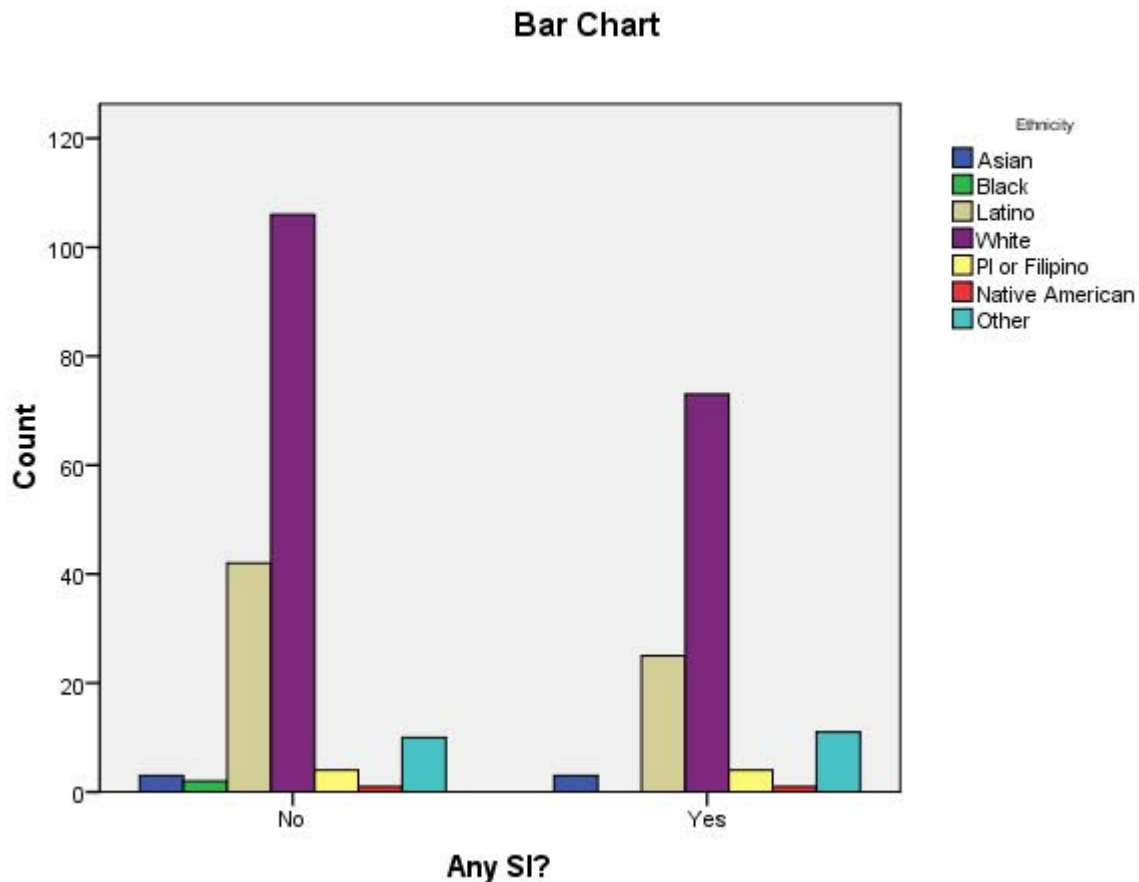
Initial results of the supplemental instruction project in Allied Health classes are promising. There was a robust and statistically significant tendency for those students who took SI to have higher course grades (expressed as GPAs in this paper) than those students who did not experience SI (2.86 vs. 2.17, $p < .001$). Also, 80% of students with SI passed their class whereas only 43% of students without SI passed their class ($p < .001$).

No Dose-Response Relationship Found

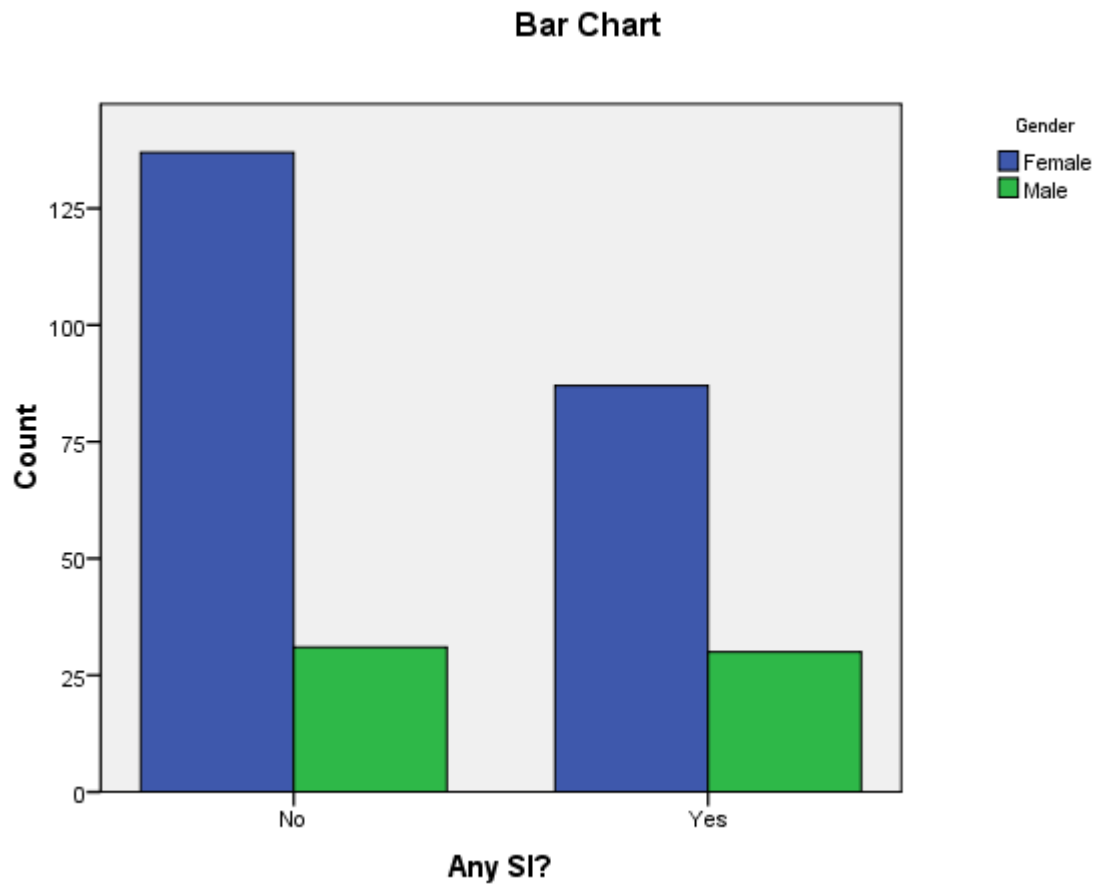
There was no dose-response relationship between course grade (GPA) and number of SI sessions attended by students. In other words, among those students who experienced SI, students with more SI sessions did not necessarily perform better than students with fewer SI sessions. Students seemed to take as many sessions as they needed to get the help necessary to pass – whether that was one session or fourteen.

Participation

Participation in SI appeared to be even across ethnic groups. Overall, fewer students participated in SI than did (42% to 58%). An ANOVA confirmed that participation was not significantly different among ethnic groups ($F=0.564$, $p=.759$).



Participation in SI by Gender



There were more females in the sample than males (79% vs. 21%). Neither females nor males appeared to be more likely to participate in SI, however (Chi square=1.77, p=.184).

Ethnicity

Was the effect of SI equivalent among ethnic groups? While most ethnic groups were not numerous enough to draw statistically valid conclusions, there were sufficient numbers of Latino and White students for statistical comparison. The effect of SI appeared to be the greatest for Latino students.

On average, those Latino students who participated in SI attained grades that were a full grade point higher (1.04) than those Latino students who did not. White students who participated in SI attained a higher GPA than non-participating white students, but by a smaller amount (0.76 grade points).

Ethnicity	Any SI?	Mean GPA	N
Latino	No	1.48	27
	Yes	2.52	21
	Total	1.94	48
White	No	2.24	71
	Yes	3.00	64
	Total	2.60	135
Latino & White	No	2.03	98
	Yes	2.88	85
	Total	2.43	183

To test the possibility of a differential effect of SI between Latinos & whites, a Univariate Generalized Linear Model (GLM) was run in which both SI and ethnicity were specified as main effects. The test also included an interaction term that evaluated the joint impact of SI status and ethnicity. The model found that both SI and ethnicity had strong main effects, but that the interaction between the two was not statistically significant. Thus, the hypothesis that the impact of SI is stronger for Latinos was not supported.

Gender effects

It appears that females may have benefited more from SI than did males. Female students who participated in SI attained GPAs of 2.95 versus 2.09 for those who did not participate (a gain of 0.89 grade points). Male students in SI, however, attained an average GPA of 2.64 whereas those who did not participate in SI had a similar average GPA of 2.58 (a gain of only 0.06 grade points).

Gender	Any SI?	Mean	N
Female	No	2.09	92
	Yes	2.95	74
	Total	2.47	166
Male	No	2.58	19
	Yes	2.64	28
	Total	2.62	47

A statistical test (Univariate GLM) revealed that SI had a significant relationship with course grade/GPA ($p=.034$) but that gender did not ($p=.662$). The interaction between SI and gender approached significance ($p=.067$), however, suggesting that females may be benefiting more from SI than males.

