



Office of
Research & Planning

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Research Briefs from the Office of Research & Planning The Relationship between Student Success and Participation in the 2010-2011 Crafton Hills College Santos Manuel Student Success Partnership Program

Purpose: The purpose of this brief is to illustrate the relationship between the services received by the Santos Manuel students and their completion, success, and retention rates to help inform the continued development of the program and services provided to students.

Summary of Findings:

Santos Manuel Student Characteristics

- 579 students participated in the Santos Manuel Program
- 46% were Hispanic or Native American
- 90% completed a Student Education Plan (SEP)
- 39% received at least one free textbook
- 39% received tutoring services

Findings

- Santos Manuel Students were statistically significantly more likely to successfully complete their courses (71%) than Non-Santos Manuel students (66%)
- Santos Manuel Students were statistically significantly and substantially more likely to be retained from fall to spring (84%) than Non-Santos Manuel students (69%)

Findings by Ethnicity

- Native American Santos Manuel Students were statistically significantly and substantially more likely to successfully complete their courses (80%) than Native American Non-Santos Manuel students (39%)
- Hispanic Santos Manuel Students were statistically significantly and substantially more likely to be retained from fall to spring (83%) than Native American Non-Santos Manuel students (68%)

Findings by Service

- Santos Manuel students who received a free textbook had similar completion, success, and retention rates than Santos Manuel students who had not received a free textbook
- Santos Manuel students who received tutoring (76%) were statistically significantly more likely to successfully complete their courses than Santos Manuel students who did not receive tutoring (68%)
- Santos Manuel students who received tutoring (91%) were statistically significantly and substantially more likely to be retained from fall to spring than Santos Manuel students who did not receive tutoring (68%)
- Santos Manuel students who had an SEP (90%) were statistically significantly and substantially more likely to complete their courses than Santos Manuel students who did not have an SEP (75%)
- Santos Manuel students who had an SEP (73%) were statistically significantly and substantially more likely to successfully complete their courses than Santos Manuel students who did not have an SEP (38%)

- Santos Manuel students who had an SEP (87%) were statistically significantly and substantially more likely to be retained from fall to spring than Santos Manuel students who did not have an SEP (44%)

Methodology: In order to qualify for the program, students needed to be enrolled in one of the following developmental reading, English, or math courses: READ-925 (Introduction to Reading), READ-956 (Intermediate Reading), READ-078 (Advanced Reading), ENGL-914 (Basic English Skills), ENGL-015 (Preparation for College Writing), MATH-942 (Arithmetic), MATH-952 (Pre-Algebra), or MATH-090 (Elementary Algebra). In addition, students had to be economically disadvantaged by qualifying for BOGWA or B. Students receive a BOGWA (Board of Governors Waiver) if they are receiving one of the following types of public assistance: AFDC/TANF (Temporary Assistance to Need Families), SSI (Supplemental Security Income), or General Assistance. Students receiving a BOGWB have an income equal to 150% of the federal poverty guidelines. **In order to measure the effectiveness of the Santos Manuel program, Santos Manuel students were compared to students who were enrolled in the same sections and who were BOGWA and B eligible.**

A database of students who participated in the Santos Manuel program was provided by the Dean of Counseling and Matriculation. The information was merged on Term and Student ID into a grades database that was retrieved from the college's MIS system. Sixty-one of the 403 DSPS students (15%) were excluded from the merge because the term that they participated in the program was missing. In addition to receiving DSPS services, Santos Manuel students also received counseling, EOPS, and tutoring services.

Sample: In Fall 2010 and Spring 2011 579 students participated in the Santos Manuel Program which included counseling, EOPS, DSPS, and tutoring services. Referring to Table 1, 64% of the students were female, 46% were Hispanic or Native American, and 63% were 24 years old or younger. Equally important, 90% of the students participating in the Santos Manuel Program completed a Student Education Plan, 39% received at least one book, and 39% received tutoring services.

Definitions: The number of **GOR** refers to one of the following grades and is also the number of students enrolled at census: A, B, C, D, F, P (CR), NP (NC), I, or W. **Completion** (formally retention) rate refers to the number of students who completed the course with a grade of A, B, C, D, F, P (CR), NP (NC), or I divided by the number of GOR. **Success** rate is the number of A, B, C, or P grades divided by the number of GOR. Fall to Spring Retention (formally persistence) rate refers to the percent of students who earned a GOR in the fall semester and who also earned a GOR record in the following spring semester.

Table 1: Percent and Number of Santos Manuel Students by Gender, Ethnicity, Age, Completing a Student Education Plan, Receiving a Book, and Tutoring.

Student Characteristics		#	%
Gender	Female	372	64.2%
	Male	196	33.9%
	Missing	11	1.9%
	Total	579	100.0%
Ethnicity	Asian	25	4.3%
	African American	59	10.2%
	Hispanic	258	44.6%
	Native American/Alaskan Native	5	.9%
	Other	4	.7%
	Caucasian	199	34.4%
	Decline to State	6	1.0%
	Missing	23	4.0%
	Total	579	100.0%
Age	19 or younger	200	34.5%
	20-24	167	28.8%
	25-29	69	11.9%
	30-34	50	8.6%
	35-39	34	5.9%
	40-49	37	6.4%
	50 and above	11	1.9%
	Missing	11	1.9%
	Total	579	100.0%
Student Education Plan (SEP)	No SEP	59	10.2%
	SEP	520	89.8%
	Total	579	100.0%
Received a Book	No Books	355	61.3%
	One book	181	31.3%
	Two books	43	7.4%
	Total	579	100.0%
Tutoring	Did Not Access Tutoring Center	352	60.8%
	Tutoring Center	227	39.2%
	Total	579	100.0%

The **p-value** represents the probability that the difference in success, completion, and retention rate is due to chance. A p-value less than .05 indicates that the difference is less likely to occur randomly in the population (i.e. statistically significant). It is important to keep in mind that when interpreting statistical significance statistically significant differences can occur even when the difference between two groups is very small (Serlin & Lapsley, 1985). Accordingly, it is also important to not only look at statistical significance, but to also examine how large the difference is between the comparison groups, and to consider the size of the difference in order for it to be meaningful. Therefore, the results presented here also include an effect size.

The **effect size** statistic is used in meta-analyses. A meta-analysis uses quantitative techniques to summarize the findings from a number of studies on a particular topic to determine the average effect of a given technique (Marzano, Pickering, and Pollock, 2001; Marzano, Marzano, and Pickering, 2003). One method of interpreting effect size was developed by Jacob Cohen (Marzano et al.). Jacob Cohen defined "small," "medium," and

"large" effect sizes (Rosenthal and Rosnow, 1984). He explained that an effect size of .20 can be considered small, an effect size of .50 can be considered medium, and an effect size of .80 can be considered large (Marzano et al., and Rosenthal and Rosnow, 1984). Equally important, if the lower end of the effect size confidence interval (CI) is above .20 it indicates that there is a 95% probability that the program or characteristic has a meaningful impact on the outcome. As mentioned previously, the number of students in each group does not influence Effect Size; whereas, when statistical significance is calculated, the number of students in each group does influence the significance level (i.e. "p" value being lower than .05).

Findings: Table 2 illustrates the percent of Santos Manuel and Non-Santos Manuel Students who completed their courses, successfully completed their courses, and who were retained from fall to spring. As mentioned previously, the Non-Santos Manuel Students were enrolled in the same sections and were also eligible for BOGWA and/or B financial aid. Santos Manuel Students were statistically significantly ($p < .001$) more likely to successfully complete their courses (71%) than Non-Santos Manuel students (66%). In addition, Santos Manuel Students were also statistically significantly ($p < .001$) and substantially ($ES = .34$) more likely to be retained from fall to spring (84%) than Non-Santos Manuel students (69%).

Table 2: Success, Completion, Fall to Spring Retention, and Effect Size (ES), 95% Confidence Intervals, and P-Values for all Santos Manuel Students and Non-Santos Manuel Students Enrolled in the Same Sections for Fall 2010 and Spring 2011.

Aggregated Outcomes	Non-Santos Manuel Students			Santos Manuel Students			Effect Size & 95% CI Lower & Upper ES			P-Value
	#	N	%	#	N	%	ES	Lower	Upper	
Completion (Formally Retention)	4,507	5,185	86.9	1,616	1,825	88.5	.05	.00	.10	.073
Success	3,407	5,185	65.7	1,286	1,825	70.5	.10	.05	.15	< .001
Fall to Spring Retention (Formally Persistence)	773	1,122	68.9	331	394	84.0	.34	.23	.46	< .001

Note. Santos Manuel Students who are BOGWA and B eligible were compared to Non-Santos Manuel Students enrolled in the same sections who were also BOGWA and B eligible.

Tables 3 – 5 illustrate the percent of Santos Manuel and Non-Santos Manuel Students who completed their courses, successfully completed their courses, and who were retained by ethnicity. Referring to Table 3, Native American Santos Manuel Students were statistically significantly ($p < .01$) and substantially ($ES = .95$) more likely to complete their courses (100%) than Native American Non-Santos Manuel students (65%). In addition, Native American Santos Manuel Students were also statistically significantly ($p < .01$) and substantially ($ES = .90$) more likely to successfully complete their courses (80%) than Native American Non-Santos Manuel students (39%, see Table 4). Hispanic Santos Manuel Students were also statistically significantly ($p < .001$) more likely to successfully complete their courses (71%) than Hispanic Non-Santos Manuel students (63%). Table 5 illustrates the results for the retention rate from fall to spring by ethnicity. The results indicate that Asian (100%), Hispanic (83%), and Caucasian (87%) Santos Manuel Students are statistically significantly ($p < .05$) and substantially $ES \geq .33$ more likely to be retained from fall to spring than Non-Santos Manuel students who were Asian (73%), Hispanic (68%), and Caucasian (69%).

Table 3: Completion Rate, and Effect Size (ES), 95% Confidence Intervals, and P-Values for all Santos Manuel Students and Non-Santos Manuel Students Enrolled in the Same Sections for Fall 2010 and Spring 2011 by Ethnicity.

Ethnicity	Not a Santos Manuel Student				Santos Manuel Student				Effect Size & 95% CI Lower & Upper ES			P-Value
	Did not Complete Course		Completed Course		Did not Complete Course		Completed Course		ES	Lower	Upper	
	#	%	#	%	#	%	#	%				
Asian	46	12.3	328	87.7	7	9.3	68	90.7	0.09	-0.16	0.34	.469
African American	67	19.3	281	80.7	31	15.1	174	84.9	0.11	-0.06	0.28	.220
Hispanic	253	13.4	1,637	86.6	88	10.6	741	89.4	0.08	0.00	0.17	.045
Native American	9	34.6	17	65.4	0	0.0	20	100.0	0.95	0.32	1.54	.003
Other	3	13.0	20	87.0	1	5.9	16	94.1	0.23	-0.40	0.86	.468
Caucasian	276	11.9	2034	88.1	74	11.8	551	88.2	0.00	-0.09	0.09	.941
Decline to State	5	8.6	53	91.4	2	11.8	15	88.2	-0.11	-0.65	0.43	.700
Missing	19	12.2	137	87.8	6	16.2	31	83.8	-0.12	-0.48	0.24	.513

Table 4: Success Rate, and Effect Size (ES), 95% Confidence Intervals, and P-Values for all Santos Manuel Students and Non-Santos Manuel Students Enrolled in the Same Sections for Fall 2010 and Spring 2011 by Ethnicity.

Ethnicity	Not a Santos Manuel Student				Santos Manuel Student				Effect Size & 95% CI Lower & Upper ES			P-Value
	Did Not Successfully Complete Course		Successfully Completed Course		Did Not Successfully Complete Course		Successfully Completed Course		ES	Lower	Upper	
	#	%	#	%	#	%	#	%				
Asian	105	28.1	269	71.9	15	20.0	60	80.0	0.18	-0.07	0.43	.150
African American	166	47.7	182	52.3	82	40.0	123	60.0	0.16	-0.02	0.33	.079
Hispanic	708	37.5	1182	62.5	239	28.8	590	71.2	0.18	0.10	0.26	< .001
Native American	16	61.5	10	38.5	4	20.0	16	80.0	0.90	0.27	1.50	.004
Other	5	21.7	18	78.3	9	52.9	8	47.1	-0.67	-1.30	-0.02	.050
Caucasian	706	30.6	1604	69.4	175	28.0	450	72.0	0.06	-0.03	0.15	.215
Decline to State	22	37.9	36	62.1	3	17.6	14	82.4	0.43	-0.12	0.97	.122
Missing	50	32.1	106	67.9	12	32.4	25	67.6	-0.01	-0.36	0.35	.965

Table 5: Fall to Spring Retention Rate, and Effect Size (ES), 95% Confidence Intervals, and P-Values for all Santos Manuel Students and Non-Santos Manuel Students Enrolled in the Same Sections for Fall 2010 and Spring 2011 by Ethnicity.

Ethnicity	Not a Santos Manuel Student				Santos Manuel Student				Effect Size & 95% CI Lower & Upper ES			P-Value
	Was Not Retained from Fall to Spring		Retained from Fall to Spring		Was Not Retained from Fall to Spring		Retained from Fall to Spring		ES	Lower	Upper	
	#	%	#	%	#	%	#	%				
Asian	22	27.2	59	72.8	0	0.0	16	100.0	0.66	0.11	1.20	.018
African American	25	37.9	41	62.1	10	22.7	34	77.3	0.33	-0.06	0.71	.096
Hispanic	127	32.1	269	67.9	32	17.5	151	82.5	0.33	0.15	0.51	< .001
Native American	1	20.0	4	80.0	1	25.0	3	75.0	-0.11	-1.41	1.22	.879
Other	1	25.0	3	75.0	1	25.0	3	75.0	0.00	-1.39	1.39	1.00
Caucasian	164	31.1	364	68.9	17	13.1	113	86.9	0.41	0.21	0.60	< .001
Decline to State	5	35.7	9	64.3	0	0.0	4	100.0	0.80	-0.38	1.90	.179
Missing	4	14.3	24	85.7	2	22.2	7	77.8	-0.21	-0.96	0.55	.587

Tables 6 – 8 examine Santos Manuel students only and how receiving a free textbook, accessing the tutoring center, and completing a Student Education Plan are related to completion, success, and fall to spring retention. Receiving a free textbook does not appear to be related to completion, success, or retention for Santos Manuel Students (see Table 6). Santos Manuel students who received a free textbook had similar completion, success, and retention rates than Santos Manuel students who had not received a free textbook.

On the other hand, accessing tutoring services and completing a Student Education Plan was related to completion, success, and retention. Referring to Table 7, Santos Manuel students who received tutoring (76%) were statistically significantly ($p < .01$) more likely to successfully complete their courses than Santos Manuel students who did not receive tutoring (68%). In addition, Santos Manuel students who received tutoring (91%) were statistically significantly ($p < .001$) and substantially ($ES = .35$) more likely to be retained from fall to spring than Santos Manuel students who did not receive tutoring (68%). Table 8 illustrates the relationship between Santos Manuel Students who had a Student Education Plan (SEP) and Santos Manuel who did not have a Student Education Plan. First, Santos Manuel students who had an SEP (90%) were statistically significantly ($p < .001$) and substantially ($ES = .47$) more likely to complete their courses than Santos Manuel students who did not have an SEP (75%). Second, Santos Manuel students who had an SEP (73%) were statistically significantly ($p < .001$) and substantially ($ES = .78$) more likely to successfully complete their courses than Santos Manuel students who did not have an SEP (38%). Third, Santos Manuel students who had an SEP (87%) were statistically significantly ($p < .001$) and substantially ($ES = 1.21$) more likely to be retained from fall to spring than Santos Manuel students who did not have an SEP (44%).

Table 6: Success, Completion, Fall to Spring Retention, and Effect Size (ES), 95% Confidence Intervals, and P-Values for all Santos Manuel Students who Received and Did Not Receive a Book for Fall 2010 and Spring 2011.

Aggregated Outcomes	Did not Receive a Book			Received a Book			Effect Size & 95% CI Lower & Upper ES			P-Value
	#	N	%	#	N	%	ES	Lower	Upper	
Completion (Formally Retention)	956	1,085	88.1	660	740	89.2	0.03	-0.06	0.13	.478
Success	761	1,085	70.1	525	740	70.9	0.02	-0.08	0.11	.711
Fall to Spring Retention (Formally Persistence)	208	247	84.2	123	147	83.7	-0.01	-0.22	0.19	.888

Note. When looking at retention (formally persistence), the student had to have been receiving services in the fall semester to be included in the cohort.

Table 7: Success, Completion, Fall to Spring Retention, and Effect Size (ES), 95% Confidence Intervals, and P-Values for all Santos Manuel Students who Accessed the Tutoring Center and Did Not Access a Tutoring Center for Fall 2010 and Spring 2011.

Aggregated Outcomes	Did Not Access the Tutoring Center			Accessed the Tutoring Center			Effect Size & 95% CI Lower & Upper ES			P-Value
	#	N	%	#	N	%	ES	Lower	Upper	
Completion (Formally Retention)	1,143	1,298	88.1	473	527	89.8	0.05	-0.05	0.15	.303
Success	888	1,298	68.4	398	527	75.5	0.16	0.05	0.26	.003
Fall to Spring Retention (Formally Persistence)	164	210	78.1	167	184	90.8	0.35	0.15	0.55	.001

Note. When looking at retention (formally persistence), the student had to have been receiving services in the fall semester to be included in the cohort.

Table 8: Success, Completion, Fall to Spring Retention, and Effect Size (ES), 95% Confidence Intervals, and P-Values for all Santos Manuel Students who Completed a Student Education Plan (SEP) and Did Not Complete an SEP for Fall 2010 and Spring 2011.

Aggregated Outcomes	Did not Complete an SEP			Completed an SEP			Effect Size & 95% CI Lower & Upper ES			P-Value
	#	N	%	#	N	%	ES	Lower	Upper	
Completion (Formally Retention)	85	114	74.6	1,531	1,711	89.5	0.47	0.28	0.66	< .001
Success	43	114	37.7	1,243	1,711	72.6	0.78	0.59	0.97	< .001
Fall to Spring Retention (Formally Persistence)	12	27	44.4	319	367	86.9	1.21	0.81	1.61	< .001

Note. When looking at retention (formally persistence), the student had to have been receiving services in the fall semester to be included in the cohort.

References:

- Marzano, Robert, Marzano, Jana, and Pickering, Debra. (2003). *Classroom Management that Works: Research-Based Strategies for Every Teacher*, Alexandria, Virginia: Association for Supervision and Curriculum Development.
- Marzano, Robert, Pickering, Debra, and Pollock, Jane. (2001). *Classroom Instruction that Works: Research-Based Strategies for Increasing Student Achievement*, Alexandria, Virginia: Association for Supervision and Curriculum Development.
- Rosenthal, Robert and Rosnow, Ralph. (1984). *Essentials of Behavioral Research: Methods and Data Analysis*, United States: McGraw-Hill Book Company.
- Serlin, R.C., & Lapsley, D.K. (1985). Rationality in psychological research: The good enough principle. *American Psychologist*, 40, 73-83.