



Lessons Learned from the Early Start Program @ San José State



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Summary

The purpose of this study is to examine the initial experience of the first time freshmen at San José State University (SJSU) who were subject to the Early Start Program (ESP) requirements and the impact of this program on their first-year performance.

- The data used in this study are only SJSU students taking ESP classes at SJSU. Results for SJSU students taking ESP at other campuses are excluded.
- Although some CSU campuses offered 3-unit ESP classes, SJSU ESP has been available with *1-unit* classes only.

For the last 5 years, the percent of college **Math** ready students increased from 64.8% in 2009 to 77.2% in 2013. Although the program-level impact started in the fall 2010, the greatest improvement took place during the last two years (the fall 2012 and fall 2013).

- The number of first-time freshmen successfully remediated during the summer rose from 2.2% (61 students) to 4.4% (164 students). Significant reduction in the number of students still needing remedial math in their first fall semester occurred when the ESP began in the summer 2012.
- By participating in the Early Start Mathematics (ESM) courses, 192 students were able to improve their placement in the summer 2012. Of those, 69% cleared their ELM requirements prior to their fall enrollment and remaining 31% reduced their remedial requirements from 2 semesters to 1 semester. A total of 239 remedial semesters of remedial math was avoided.

Summary

(continued)

The percent of college **English** ready students increased from 43.5% in 2009 to 71% in 2013. Again, the program-level impact began in the fall 2010 and fully expanded in the fall 2011.

- The number of first-time freshmen successfully remediated during the summer dropped from 3.5% in 2009 to 1.0% in the most recent fall.
- One Early Start English (ESE) course has been offered during the last two summers. For the first time in 2013, the ESE grading basis allowed us to designate both destination and service students as fully remediated. A total of 37 of 113 students (32.7%) were given the opportunity to promote from LLD1 (lower level remedial English) to LLD2 (upper level remedial English). One exceptional destination student was reviewed for promotion to English 1A.

Much higher education research has recognized the importance of parents' education on children's academic achievement.

- The majority of college ready students (59.2%) grew up with parents who had earned 2 or 4 year college degree.
- The factors that best predict Early Start Mathematics participation are ELM scores and first generation status. For the ELM scores, this is hardly surprising because such scores provide the sole basis for requiring individual students to participate in Early Start requirements..

Summary

(continued)

Based on the pre-college preparations, the fall 2012 first-time freshman cohort who completed at least one remediation through Early Start or EOP Summer Bridge programs cumulated an average of 9.84 baccalaureate units at the end of the spring 2013. It is nearly one 3-unit course (2.72 units) more than remedial students who did not participate in any summer programs.

The 1st year retention rate of students who participated in Early Start or EOP Summer Bridge programs was about 86.8% or nearly 3% higher than those who did not enroll in any summer programs and still needed at least one remedial course by the beginning of their 1st fall semester.

Both SJSU baccalaureate earned units and GPA at the end of the students' first academic year (by the end of the spring 2013) were chosen to measure student achievement.

- The participation in Early Start Mathematics had a greater effect on achieving higher degree applicable earned units at the end of the first year. However, the ESP participation was not a significant predictor of the first-year SJSU GPA.

*** Please refer to the **Glossary** at the end for more information on key terminologies.*

Introduction

The purpose of this study is to examine the initial experience of the first time freshmen at San José State University (SJSU) who were subject to the Early Start requirements and the impact of this program on their first-year performance. The relationships between a range of independent variables (including students' background and entry-level preparation) and criteria variables (cumulative units earned and GPA at the end of their first academic year) were selected to demonstrate the program's effects. The data used in this study are only from SJSU students taking ESP classes at SJSU. Results for SJSU students taking ESP at other campuses are excluded.

Started in the summer 2012, the Early Start Program (ESP) at San José State was developed in response to Executive Order 1048, which outlined general program parameters in response to action by the CSU Board of Trustees in May 2010 mandating the program's introduction. All incoming freshmen needing remediation in mathematics at the time of entry (their first semester's registration) must participate in Early Start activities. The requirement of the Executive Order to rescind the admission of incoming freshmen who fail to participate in a required Early Start activity has not been enforced during the initial implementation.

About Early Start Program @ San José State



The primary objective of ESP is to serve incoming freshmen who do not demonstrate readiness for college-level mathematics and/or English by beginning remediation during the summer before their first semester. This program was developed to improve their chances of completing a college degree and to allow motivated students to clear some or all of their remedial requirements. At SJSU, there are:

- a) Two Early Start Mathematics Courses: ESM 1 and ESM 2
- b) One Early Start English Course: ESE 1

Exemptions: *The following students will not be required to participate:*

- International students and residents of other states;
- Students participating in the EOP Summer Bridge program;
- Students appealing based on circumstances beyond their control.
- Students who received a conditional exemption based on participation in the Early Assessment Program (EAP) testing.
- In the first 2 years of the program, students with EPT scores below 138 were exempt from Early Start English.

Early Start Mathematics Courses

Two Early Start mathematics courses (each is a 1 unit course) had have been offered. that consisted They consist of 16 hours of class time with some additional assigned homework.

- **ESM1:** An Algebra Review course built upon ALEKS mathematics software, Udacity, or traditional classroom instruction. Intended for students with ELM scores of 40 or below and a two-semester remedial assignment. Students were able to advance to GE coursework or a higher level of remediation through completion of curriculum or an ELM retest.
 - In the summer 2012, 101 students were able to improve their placement. Of those, 49 students cleared their remedial mathematics requirements. A total of 144 remedial semesters was avoided.
- **ESM2:** An entry level mathematics review course. Intended for students with ELM scores of 42 to 48 and a one-semester remedial assignment. Students were able to advance to GE coursework only by retaking the ELM.
 - Ninety one students improved their placement in the summer 2012. About 91% of those cleared their remedial requirements prior to the fall enrollment. A total of 95 remedial semesters was avoided.

Note: Students were advised to register for Early Start classes according to their ELM scores. Although the majority followed this advice, about 12% to 15% did not and enrolled in these courses that were either above or below the recommended level, or they did not enroll in ESP at all.

	Summer 2012			Summer 2013		
	ESM1	ESM2	Total	ESM1	ESM2	Total
Total Destination Students Served	235	141	376	231	135	366
College Ready (Math and English Proficient)	49	83	132	49	72	121
Improved 1 Semester	52	8	60	49	7	56
Total Improving Placement	101	91	192	98	79	177
# Remedial Semesters Avoided	144	95	239	135	95	230
Not Improved	134	50	184	133	56	189

Early Start English Course

Only one Early Start English course (1 unit course) has been offered. That consisted of 16 hours of class time. Students studied rhetorical reading strategies using nonfiction texts and practiced the conventions of analytical writing. The course ended with a 45 minute analytical essay read by two ETS-trained holistic raters, each of whom assigned a score of 1 to 6 for a total score of 2 to 12.

In 2013, for the first time, the ESE grading basis allowed us to designate both destination and service students as fully remediated. In order to receive an Early Start English score of 2 (fully remediated), students had to achieve a score of 9 or better on their analytical essay and have their promotions approved by LLD faculty.

Analytical Essay Scores	# Student
0	2
4	12
5	6
6	56
7	10
8	26
10	1
Total	113

- Students who scored a 7 or 8 on the essay could be promoted from LLD1 to LLD2 without further review.
- Only one destination student in 113 was reviewed for promotion to English 1A. However, LLD declined to promote this student.
- In all, 37 of 113 students (32.7%) were given the opportunity to promote from LLD1 to LLD2.

Note: LLD is the Department of Linguistics & Language Development, which currently oversees developmental English at SJSU. Also, LLD1 and LLD2 refer to a two-semester developmental English sequence.

College Level *Math* Proficiency in the Entering Fall

- The percent of college Math ready students increased from 64.8% in 2009 to 77.2% in 2013. At SJSU, the program-level impact began in the fall 2010.
- The number of first-time freshmen successfully remediated during the summer rose from 2.2% (61 students) to 4.4% (164 students).
- In 2012, 376 students enrolled in ESM1 and ESM2, but 132 became college ready through the SJSU ESP. Sixty students reduced their remedial requirements to 1 semester. A total of 192 students improved their remedial status and 239 remedial semesters were avoided.

		Fall 09	Fall 10	Fall 11	Fall 12	Fall 13
College Ready (exempted or passed ELM and EPT on 1st attempt)	Headcount	1,790	1,983	2,616	2,548	2,884
	% of Cohort	64.8%	71.8%	66.3%	75.3%	77.2%
College Ready - Completed Remediation prior to 1st Yr	Headcount	61	2	7	146	164
	% of Cohort	2.2%	0.1%	0.2%	4.3%	4.4%
Not College Ready - Need Remediation in Fall 1st Yr	Headcount	913	776	1,324	680	688
	% of Cohort	33.0%	28.1%	33.5%	20.4%	18.4%
Early Start	College Ready	-	-	-	132	121
	Reduced to 1 Semester	-	-	-	60	56
	Not Improved	-	-	-	184	189
	Total	-	-	-	376	366
	# Semesters Avoided				239	230

College Level *English* Proficiency in the Entering Fall

- The percent of college English ready students increased from 43.5% in 2009 to 71% in 2013. The program-level impact began in the fall 2010 and fully expanded in the fall 2011.
- The number of first-time freshmen successfully remediated during the summer dropped from 3.5% in 2009 to 1.0% in the most recent fall.
- When examining the 2012 entering freshmen, 182 students enrolled in ESE 1, but only 3 became college ready through the analytical essay.

		Fall 09	Fall 10	Fall 11	Fall 12	Fall 13
College Ready (exempted or passed ELM and EPT on 1st attempt)	Headcount	1,205	1,353	2,401	2,325	2,653
	% of Cohort	43.6%	49.0%	60.8%	68.7%	71.0%
College Ready - Completed Remediation prior to 1st Yr	Headcount	98	85	73	31	38
	% of Cohort	3.5%	3.1%	1.8%	0.9%	1.0%
Not College Ready - Need Remediation in Fall 1st Yr	Headcount	1,461	1,323	1,473	1,028	1,045
	% of Cohort	52.9%	47.9%	37.3%	30.4%	28.0%
Early Start	College Ready	-	-	-	3	4
	Not Improved	-	-	-	179	129
	Total	-	-	-	182	133

Pre-College Preparation Trend

- When examining the pre-college preparation trends in both college mathematics and English, the ratios of college ready students improved nearly 25%, from 39.5% in 2009 to 63.8% in 2013.
- The number of first-time freshmen who needed both remediation requirements at entry declined from 25.4% in 2009 to 10.1% in 2013. Further significant improvements took place when the Early Start program began in the summer 2012.
- The same upward and downward trends occurs to with students needing remediation in mathematics or English only. The percentage of incoming freshmen who needed to fulfill entry-level proficiency requirements in mathematics only slightly increased (from 7.6% in 2009 to 8.3% in 2013). However, percent of students needing English remediation dropped nearly 10% (from 27.4 in 2009 to 17.8% in 2013).

College Math and English Readiness at Entry		Fall 2009	Fall 2010	Fall 2011	Fall 2012	Fall 2013
College Ready (exempted or passed ELM and EPT on 1st attempt)	Headcount	1,093	1,261	1,989	2,075	2,383
	% of Cohort	39.5%	45.7%	50.4%	61.3%	63.8%
Need both Math and English Remediation in Fall 1st Yr	Headcount	703	599	831	409	377
	% of Cohort	25.4%	21.7%	21.1%	12.1%	10.1%
Need Math Remediation in Fall 1st Yr	Headcount	210	177	493	281	311
	% of Cohort	7.6%	6.4%	12.5%	8.3%	8.3%
Need English Remediation in Fall 1st Yr	Headcount	758	724	634	619	665
	% of Cohort	27.4%	26.2%	16.1%	18.3%	17.8%

College Readiness by *Parents' Education Level*

(Fall 2012 First-time Freshmen)

- Many higher education studies have recognized the importance of parents' education on children's academic achievement*.
- When examined the impacts of parents' education on the fall 2012 entering freshmen, the evidence indicated that more college ready students grew up with parents who earned 2 or 4 year college degree (46.1% completed at least one remediation requirement during summer; 59.2% with college ready at entry).

College Math and English Readiness at Entry	Cohort	First Generation College	Parent Attended Some College	Parent Graduated College	Unknown
College Ready (exempted or passed ELM and EPT on 1st attempt)	1,971	20.6%	14.7%	59.2%	5.6%
Completed remediation in at least one category in summer	176	40.8%	9.2%	46.1%	3.9%
Needed at least one remedial course in Fall 1st Yr	1,237	39.7%	14.9%	38.2%	7.2%
Total	3,384	28.2%	14.6%	51.0%	6.2%

* Davis-Kean, P.E. The Influence of Parent Education and Family Income on Child Achievement, *Journal of Family Psychology*, 19(2), June 2005.
Sewell, W.H. and Shah, V.P. Parents' Education and Children's Educational Aspirations and Achievements, *American Sociological Review*, 1968

End of 1st Academic Year Performance

Fall 2012 First-time Freshmen Only

Pre-College Preparations

- Based on the pre-college preparations, first-time freshmen who completed at least one remediation through Early Start or EOP Summer Bridge programs earned an average of 9.84 baccalaureate units at the end of the spring 2013. It is nearly one 3-unit course (2.72 units) more than remedial students who did not participate in any summer programs. Also, approximately 88.2% of this group earned 7 or more units.
- College ready students cumulated degree applicable earned units in an average of 11.82 units. About three-fourth (76.7%) of those earned 12 or more units during their first academic year.
- The 1st year retention rate of students who participated in Early Start or EOP Summer Bridge programs was about 86.8% or nearly 3% higher than those who did not enroll in any summer programs and still needed at least one remedial course by the beginning of their 1st fall semester. The college ready students had the highest retention rate at 89% or about 2% higher the Early Starts and university average.

Degree Applicable Earned Units

College Math and English Preparation at Entry	Cohort	Avg. Earned Units	6 or less	7 to 11	12 or more
College Ready (exempted or passed ELM and EPT)	1,971	11.82	6.2%	17.1%	76.7%
Completed remediation in at least one category in summer	176	9.84	11.8%	46.1%	42.1%
Needed at least one remedial course in Fall 1st Yr	1,237	7.12	41.2%	56.9%	1.9%
Total	3,384	9.98	19.5%	32.7%	47.8%

One-Semester and One-Year Retention

College Math and English Preparation at Entry	Cohort	Retention	
		One-Semester	One-Year
College Ready (exempted or passed ELM and EPT)	1,971	96.2%	89.0%
Completed remediation in at least one category in summer	176	94.7%	86.8%
Needed at least one remedial course in Fall 1st Yr	1,237	96.2%	83.9%
Total	3,384	96.2%	87.1%

Pearson Correlations for Four Potential Measures of Preparation at College Entry

- Both high school GPA and SAT composite scores were selected as an indicator for entry-level preparation. To examine the correlations of these two variables, EPT and ELM scores were added into the mix.
- Shown in table below, *the Pearson Correlation coefficients of these two measures of preparations are not closely related.*
 - The SAT scores, however, are highly correlated with students' ELM and EPT scores. As a result, these two scores, which are not available for college ready students, will be excluded from the analyses without any loss of information.
 - Also, the movement of the high school GPA has a very weak (nearly random) correlation with these two scores ($r < .3$).
- In this analysis, the **Exclude Cases Pairwise** was used to ensure that there was no missing data used in this correlation analysis.

	A	B	C	D
A. EPT Scores	1.000	0.446	0.679	0.006
B. ELM Scores	0.446	1.000	0.548	0.087
C. SAT Composite Score	0.679	0.548	1.000	0.066
D. High School GPA	0.006	0.087	0.066	1.000
Mean	143.1	46.6	891.2	3.17
Std. Deviation	7.6	12.1	101.4	0.327
Number of Responses	1,569	1,761	2,396	2,398

Bold = Correlation is significant at the 0.01 level (2-tailed)

Pearson Correlations for College Entry and Initial Performance Characteristics

	A	B	C	D	E	F	G	H	I	J	K
A. Gender (0=Male; 1=Female)	1.000	-0.105	0.063	-0.283	0.167	0.020	0.082	0.179	-0.202	0.013	0.114
B. Racial & Ethnic Background (0=Traditionally Underserved; 1=Better Served)	-0.105	1.000	-0.192	0.273	0.037	0.148	-0.130	-0.168	0.212	0.177	0.101
C. First Generation (0=1st Gen; 2=Not 1st Gen)	0.063	-0.192	1.000	-0.286	0.000	-0.122	0.239	0.115	-0.207	-0.108	<i>-0.051</i>
D. Composite SAT score (includes ACT equivalents)	-0.283	0.273	-0.286	1.000	0.155	0.555	-0.290	-0.551	0.637	0.297	0.118
E. High School GPA	0.167	0.037	0.000	0.155	1.000	0.905	-0.039	-0.172	0.177	0.274	0.394
F. Eligibility Index (EI SAT)	0.020	0.148	-0.122	0.555	0.905	1.000	-0.156	-0.377	0.418	0.358	0.383
G. Participated in EOP Summer Bridge (1=yes; 0=no)	0.082	-0.130	0.239	-0.290	-0.039	-0.156	1.000	-0.065	-0.350	-0.124	<i>0.050</i>
H. Participated in Early Start Mathematics (1=enrolled in ESM1 or ESM2; 0=no)	0.179	-0.168	0.115	-0.551	-0.172	-0.377	-0.065	1.000	-0.912	-0.337	-0.110
I. Exempt from Summer Program Participation (1=college ready; 0=no)	-0.202	0.212	-0.207	0.637	0.177	0.418	-0.350	-0.912	1.000	0.367	0.083
J. Units Earned at end of first year	0.013	0.177	-0.108	0.297	0.274	0.358	-0.124	-0.337	0.367	1.000	0.659
K. SJSU GPA at end of first year	0.114	0.101	<i>-0.051</i>	0.118	0.394	0.383	<i>0.050</i>	-0.110	0.083	0.659	1.000
Mean	0.45	0.62	0.24	1,089	3.29	3,721	0.02	0.14	0.83	22.7	2.83
Std. Deviation	0.50	0.48	0.43	149.15	0.37	352.9	0.15	0.35	0.37	6.19	0.76
Number of Responses	2,391	2,389	2,387	2,381	2,384	2,387	2,390	2,389	2,388	2,393	2,391

Bold = Correlation is significant at the 0.01 level (2-tailed).

Italics = Correlation is significant at the 0.05 level (2-tailed).

Pearson Correlations for College Entry and Initial Performance Characteristics *(Continued)*

Student Achievement (Units Earned and SJSU GPA at end of first year)

- Two elements of student achievement examined, which appear in Columns J and K, are strongly correlated (0.659). It indicated that students cumulated higher numbers of earned units during their first year at SJSU also tended to maintain higher GPAs at the end of the year.

Pre-college Performance (SAT Composite Scores and High School GPA)

- SAT composite scores are more strongly correlated with the Early Start program participation (-0.551) and college ready in the entry (0.637) than are students' high school GPAs.

Background Information (Gender, Racial & Ethnic Background, and First Generation)

- Three background variables are weakly linked to other variables in this analysis.

Estimated Regression Models on Summer Program Participations

Participated in EOP Summer Bridge

	Unstandardized Coefficients		Standardized Coefficients	Sig.	Collinearity Statistics
	B	Std. Error	Beta		Tolerance
Better Served	-0.075	0.029	-0.111	0.011	0.889
First Generation	0.164	0.030	0.246	0.000	0.846
EPT Scores	0.003	0.001	0.125	0.018	0.598
ELM Scores	-0.010	0.003	-0.228	0.000	0.447

- The EOP Summer Bridge program participation is largely determined by racial and ethnicity background and first-generation status.
- EPT and ELM scores are significantly contributing to the degree of program participation.

Participated in Early Start Mathematics

	Unstandardized Coefficients		Standardized Coefficients	Sig.	Collinearity Statistics
	B	Std. Error	Beta		Tolerance
First Generation	-0.186	0.044	-0.186	0.000	0.846
ELM Scores	-0.008	0.002	-0.187	0.000	0.598

- The first-generation and ELM scores contribute most to predicting the Early Start Mathematics participation.
- For the ELM scores, this is hardly surprising because such scores provide basis for individual students' Early Start requirements.

Exempt from Summer Program Participation

	Unstandardized Coefficients		Standardized Coefficients	Sig.	Collinearity Statistics
	B	Std. Error	Beta		Tolerance
SAT Composite	0.002	0.001	0.330	0.048	0.041
EPT Scores	0.004	0.002	0.110	0.012	0.598
ELM Scores	0.011	0.003	0.173	0.001	0.447

- SAT Composite, ELM, and EPT scores are significant predictors for the exemption from summer program participation.
- This is expected because these variables provide basis for remediation requirements.

Estimated Regression Model for Student Achievement

To measure student achievement, both SJSU cumulative units earned and GPA at the end of the students' first academic year (by the spring 2013) were used as a dependent or criteria variable.

- **SJSU Cumulative Units Earned:** The participation in Early Start Mathematics, along with better served students, EPT, and ELM scores are significant predictors on earning degree applicable units at the end of the first year. It implied that the Early Start participation has a greater effect on achieving higher earned units.
- **SJSU GPA:** The participation in EOP Summer Bridge program and better served students have stronger effect on SJSU GPA at the end of the first year. The Early Start participation is not a significant predictor in this criteria.

Estimated Regression Model for Cumulative Units Earned at the End of 1st Year at SJSU

	Unstandardized Coefficients		Standardized Coefficients	Sig.	Collinearity Statistics
	B	Std. Error	Beta		Tolerance
Better Served	1.335	0.545	0.100	0.015	0.886
Participated in Early Start Mathematics	2.540	0.747	0.191	0.001	0.463
EPT Scores	0.084	0.027	0.155	0.002	0.603
ELM Scores	0.229	0.049	0.264	0.000	0.460

Estimated Regression Model for SJSU GPA at the End of 1st Year at SJSU

	Unstandardized Coefficients		Standardized Coefficients	Sig.	Collinearity Statistics
	B	Std. Error	Beta		Tolerance
Better Served	0.178	0.072	0.113	0.013	0.886
Participated in EOP Summer Bridge	0.563	0.143	0.241	0.000	0.490

Glossary

college ready – A student who exempted from taking the EPT and ELM (or mathematics or English proficiency) or who passes the ELM and/or EPT on the first attempt.

first generation – A student whose parents did not graduate from either a 2- or 4-year college.

better served – A student whose race was classified either white or Asian/Pacific Islander students. International students or students with unknown or decline to state were excluded from the race metrics.

underrepresented minority – A student whose race/ethnicity was African-American, Hispanic, American-Indian, and Pacific Islander students.