IMPLEMENTATION REPORT
San Fernando Valley Collaborative
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Introduction — Initial Priority Area for Implementation

In 2005 a collaborative of five partners was awarded a planning grant from the Alliance for Regional Collaboration to Heighten Educational Success (ARCHES) and California Engaging Latino Communities for Education (ENLACE) to address a common concern with high attrition rates among high school students due, in part, to failure in first year algebra. Thus, the initial work of the collaborative focused on decreasing high school attrition by promoting student success in algebra. This collaborative consisted of Local District 2 of Los Angeles Unified School District (LAUSD), California State University Northridge (CSUN), Los Angeles Mission College (LAMC), Project GRAD Los Angeles, and the Economic Alliance of the San Fernando Valley.

Using results from a pilot study (see Table 2), the partners met in the spring of 2006 and conceptualized an implementation plan that leveraged the resources of each partner to serve students who were struggling in math. This new plan resulted in the creation of the Developing Resources and Engaging Activities to Motivate Students (DREAMS) Project. In the fall of 2006 members of Advisory Committee of the DREAMS Collaborative met and agreed to move forward with a summer program in 2007 to promote student success *before* they took algebra in middle school. This summer program included three key blocks of instructional time (see Table 1).

	8:00–9:45	10:00–11:45	12:15–2:55
Students' Schedule	Math course (*Algebra Readiness*)	Study skills/ leadership training	Robotics course
Math teachers	Teach math	SITTE Professional Development	
Robotics teachers		Collaborative lesson development	Teach robotics

Table 1. Sample daily structure of the DREAMS Project

In the first block of time, a team of teachers provided rigorous mathematics instruction that focused on student learning rather than on content coverage. During the second block of time, Project GRAD staff provided instruction in study skills and leadership skills while math teachers collaborated in lesson design using a model of professional learning called Student Improvement in Teacher Empowerment (SITTE). In the third instructional block of time, a team of robotics teachers provided hands-on experiences that applied the mathematics taught by the math teachers. Project GRAD staff also provided logistical support as well as snacks and lunches. The structure of this summer program provides a model of how partners were able to come together to deliver a full suite of services to support student achievement. This model also provides the flexibility for future expansion plans, as each block of instructional time can be tailored for the learning needs of individual schools.

Following the implementation of DREAMS in the summer of 2007, the DREAMS collaborative then developed additional alliances with other community based organizations, including the Valley Education Collaborative (VEC) and Alliance for a Better Community. This connection allowed the collaborative to become even more responsive to the needs of the community while deepening relationships with the district and other agencies. In May, 2008 representatives of the VEC met and conceptualized a plan to expand the DREAMS model to serve students in the Sylmar High School feeder pattern. This expansion represents the primary focus of the sustainability plan.

Measurable Student Outcomes

In the Implementation Plan (May 26, 2006), measurable student outcomes consisted of improved course grades in algebra and standardized test scores (see Appendix B). The first indicator of student success was based on grade comparisons between those students who participated in DREAMS and those who did not. A second measure of student outcomes was improved scores in LAUSD's quarterly benchmark assessments. Specifically, this data compared how well the students performed on the Quarter 2 periodic assessment. A third measure of student outcomes was based on student performance on California Standards Tests.

Table 2 below provides data collected from pilot studies of SITTE professional development / algebra intervention program. Lessons learned from these pilot studies provided the foundation for the development of the DREAMS Project in the summer of 2007.

Algebra 1A Classes (Non-SITTE)	Algebra 1A Classes (SITTE)	Number of students enrolled	Number of students passing	Percentage of students passing
Spring 2004		418	106	25.36%
Inter-session 2004		131	51	38.93%
	Pilot Study 1 **Fall 2004**	**111**	**67**	**60.36%**
Inter-session 2005		95	28	29.47%
	Pilot Study 2 **Winter 2006**	**84**	**44**	**52.38%**
Fall 2005		201	73	36.32%
	Pilot Study 3 **Summer 2006**	**87**	**54**	**62.07%**

Table 2. Comparison of pass rates in algebra from the SITTE pilot studies

Following the implementation of the 2007 DREAMS Project, a diagnostic assessment was given to representative eighth grade students at three middle schools. The assessment consisted of 20 items selected from the released questions of the California High School Exit Examination. This assessment was administered in the third week of the fall semester in 2007 and included questions on topics that had not yet been taught in to the students. The students who participated in DREAMS consisted of a representative sample of eighth grade algebra students who had scored *below* "proficient" on the 2007 California Standards Test in mathematics as seventh graders. According to district statistics, almost three fourths of all eighth graders were in this category. The *proficient* students who did not participate in DREAMS consisted of nearly all of the students who had scored at a "proficient" or "advanced" level in seventh grade and were algebra ready as eighth graders. The *non-proficient* students who did not participate in DREAMS represented the same population from which the DREAMS students were selected. In essence, these students represented a "control group" in the comparison study. Table 3 below provides comparison data on this diagnostic assessment.

	DREAMS Algebra	Non-DREAMS	
		Proficient	Non-proficient
n	93	178	385
μ	10.645	11.921	6.722
σ	3.113	2.889	3.212

Table 3. Comparisons of diagnostic assessment scores following the DREAMS Project

Analysis of the diagnostic data indicates that students who participated in the DREAMS Project scored significantly higher than their pre-algebra classmates who did not participate in DREAMS. At the same time, the DREAMS students' scores were brought much closer to that of the algebra students who were already proficient or advanced upon entering the eighth grade. This data suggests that DREAMS had a significant impact on closing the achievement gap between those students who participated in the project and those who were already proficient or advanced in mathematics.

At the conclusion of the fall semester, follow-up data was collected based on course grades and scores on standardized benchmark assessment scores (see Tables 4, 5, and 6). The pass rates of students who participated in DREAMS is particularly compelling because statistics from LAUSD indicate that over 30% of the students in eighth grade algebra receive Ds and Fs (Ai & White, 2003) with the failure rate even higher in Local District 2. Furthermore, the fact that students who participated in DREAMS were not initially considered algebra ready makes their achievement even more remarkable. Since course grades have a high correlation with CST scores (Ai & White, 2003), these grades have significant implications.

Algebra Grades	Number of Students	Percentage of Students	Percentage of students passing (C or better)	Percentage of students passing (D or better)
A	46	30.87%	85.91%	99.33%
B	45	30.20%		
C	37	24.83%		
D	20	13.42%		
F	1	0.007%		

Table 4. Pass rates in algebra the semester following DREAMS

In addition to course grades, standardized benchmark assessment data was also collected at the end of the fall semester. This data was gathered from all algebra classes from the four participating middle schools, and included advanced students from a Math-Science Magnet located on the campus of one middle school. At another middle school, *all* eighth graders were placed into algebra regardless of their initial proficiency level. This provided a control sample, as the algebra classes at this school consisted of students from three representative populations: 1) students who participated in the DREAMS Project, 2) proficient eighth graders who did not participate in DREAMS, and 3) non-proficient eighth graders who did not participate in DREAMS.

Benchmark scores (see Table 5) indicate that, at the first three middle schools, DREAMS students scored 9.63% lower than their peers who entered eighth grade already proficient in math, based on their seventh grade scores on the California Standards Test (CST). At the same time, the DREAMS students scored 6.29% higher than non-proficient students who did not participate in DREAMS.

	DREAMS Algebra	Non-DREAMS Algebra	
		Proficient*	Non-proficient**
n	120	437	262
μ	43.30	52.66	37.01
σ	17.08	20.68	13.44

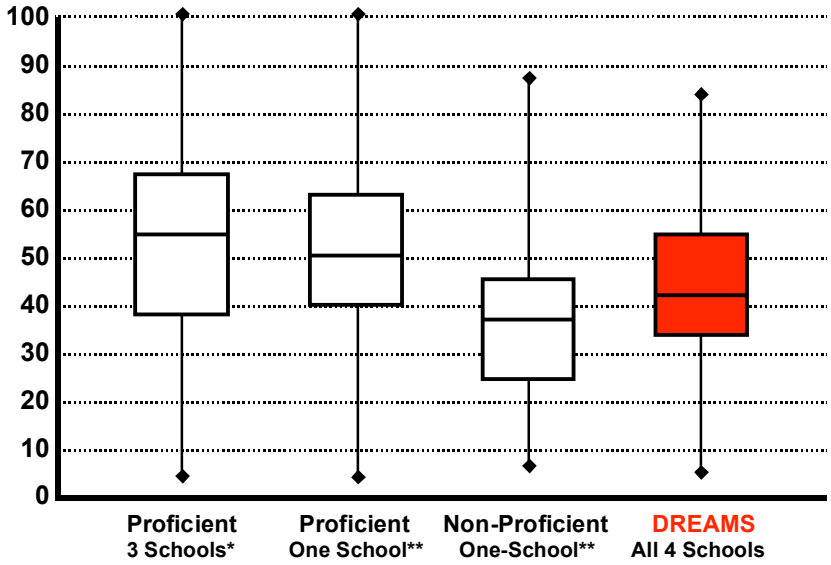
Table 5. Comparisons of benchmark assessment scores following the first semester of algebra
*Community Charter Middle School, Maclay Middle School, Pacoima Middle School
**San Fernando Middle School, where *all* eighth graders took algebra

Comparisons of all three groups at the fourth middle school show similar results (see Table 6), with DREAMS students scoring just 3.73% lower than the proficient students, and 10.39% higher than the non-proficient students who did not participate.

	DREAMS Algebra	Non-DREAMS Algebra	
		Proficient*	Non-proficient**
n	24	114	262
μ	47.40	51.13	37.01
σ	12.88	15.94	13.44

Table 6. Comparisons of benchmark assessment scores following the first semester of algebra at San Fernando Middle School, where *all* eighth graders took algebra

The graph below provides a better picture of how the DREAMS students compare with their peers. Each graph shows the range, the median, and the quartile values for each group on the Quarter 2 benchmark assessments. While the range of scores for non-proficient students and DREAMS students were similar, their median scores were 37.5 and 41.67, respectively. However, the DREAMS students' inter-quartile range was significantly higher than that of the non-proficient students, with nearly three fourths of the DREAMS students scoring above the median of the non-proficient students. Even though the DREAMS students had also tested below proficient on the CST, they clearly made progress over their peers who did not participate in DREAMS.

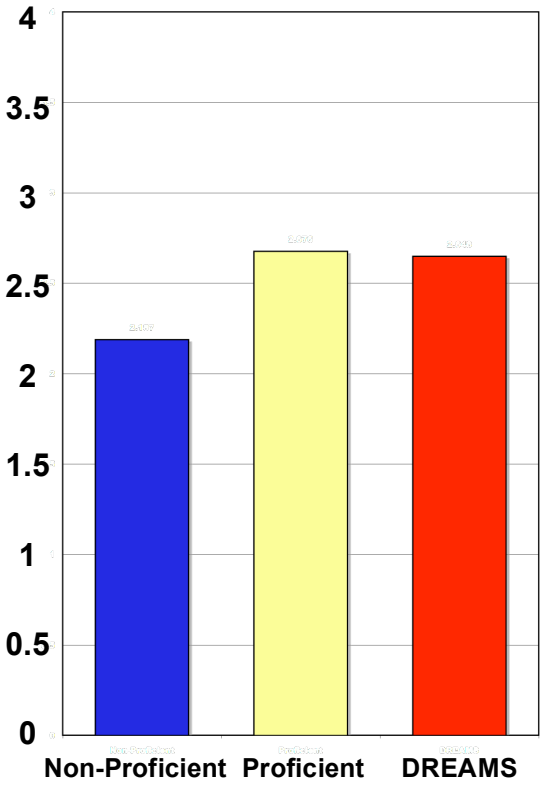


Graph 1. Comparisons of benchmark assessment scores following the first semester of algebra
*Community Charter Middle School, Maclay Middle School, Pacoima Middle School
**San Fernando Middle School, where *all* eighth graders took algebra

Further analysis of the benchmark assessment data reveals an even more dramatic achievement. When the benchmark scores were disaggregated to sort out multiple-choice items from the constructed-response item, the gap disappeared between the DREAMS students and their peers who were already proficient upon entering eighth grade (see Table 7 on the next page). This data is most compelling when considering the fact that average scores on the constructed-response item is typically closer to the performance of the non-proficient students. In fact, the DREAMS students scored 11.53% better than the non-proficient students who did not participate.

	DREAMS Algebra	Non-DREAMS Algebra	
		Proficient*	Non-proficient**
n	91	364	262
μ	2.648	2.676	2.187
σ	1.149	1.075	1.20

Table 7. Comparisons of constructed response scores following the first semester of algebra
*Community Charter Middle School, Maclay Middle School, Pacoima Middle School
**San Fernando Middle School, where *all* eighth graders took algebra



Graph 2. Comparison of performance on the constructed response item.

Lessons Learned

The evidence from pilot studies of SITTE as well as data from the 2007 implementation of DREAMS suggest that the collaborative effort has been highly successful in promoting student success in algebra. This success can be partially attributed to the strategic design of the intervention, which focused on getting through to the students rather than getting through a curriculum. Further, the DREAMS project provided three key elements needed for improving student achievement: relevance, rigor, and relationships. The connection of mathematics to instruction in robotics brought relevance to the study of an abstract subject such as algebra. This allowed the teachers to deliver rigorous instruction that *applied* algebra to the concurrent instruction in robotics. At the same time, the intensive time spent together allowed the students and teachers to develop relationships that would be carried into the subsequent school year.

Engaging students in learning algebra, however, was also enhanced by the effective implementation of the program's various operational components (e.g., scheduling, recruitment, refreshments, etc.). It was here that the success of a *collaborative* effort became most evident. The partners worked diligently to design a thorough implementation plan that included contributions of essential resources from each member. For example, Project GRAD Los Angeles provided funding from a grant to provide support services directly to the students and to

the mathematics teachers. Los Angeles Mission College provided funding to support robotics instruction and compensation for the robotics teachers. District 2 of LAUSD provided administrative and personnel support, both at the district level as well as the school site level. Further, the district worked to ensure that students were assigned to the same teachers as they had in the summer in the fall semester. Finally, CSU Northridge contributed technical expertise in facilitating professional development as well as in the project design. This collaborative effort made it possible for students to engage in a rich summer learning experience that provided the rigor, relevance, and relationships needed to foster student success in algebra.

The successful implementation of the DREAMS Project was made possible because each partner was committed to a shared vision (i.e., student success in algebra) and each partner played an *indispensable* role in the realization of that vision (e.g., resources, talent, etc.). Sufficient allocation of resources and the support of senior administrators was also essential for the success of the project. With adequate resources, it became possible to provide the necessary incentives for participation, such as compensation for the teachers and support personnel, refreshments for teachers and students, instructional materials and robotic equipment, and the facilities for teaching and professional development. Clearly, all of these were essential to the proper implementation of any instructional or professional development program.

At the same time, the active support of senior administrators was seen as advocacy for the project which was critical for making sure the implementation was kept on track. For example, the approval of the robotics course, as well as the purchase of robotics equipment, was only possible because Mission College administrators signed the necessary requisitions and assigned the necessary personnel to follow through. In short, administrators provided legitimacy for the projects and sent a clear message that the project was not just another temporary project done out of compliance.

As a result, one serendipitous outcome of the collaboration was the *creative* way that each partner was able to contribute to the project. In particular, the creation of a course for students at the community college to generate funding for robotics instruction was a wonderful example of how discussions focused on a common vision led to innovative, out-of-the-box solutions. At the same time, a negative unexpected outcome was the difficulty experienced in implementing a course on robotics with mathematics teachers. In particular, the teachers struggled to develop instructional activities without prior experiences in the actual building and operation of robots. Facilitating collaborative lesson planning for these robotics teachers, then, became more challenging because teachers needed instruction themselves, even as they were asked to design lessons for the students.

A key implication of these lessons learned is that a collaborative project such as DREAMS must gain the unequivocal support of senior administrators from each partner institution. Their confidence in the project design provides the necessary motivation for personnel to carry out all of the essential tasks of this project. In other words, only senior administrators can effectively move this project from development to completion, even though implementation was carried out by a number of other individuals.

Another key implication from the lessons learned is that reallocation of resources must be made in order to carry out an effective project implementation. This includes policy changes in how resources are used. For example, personnel with training in facilitation might need to be assigned to leading professional development differently than before. Support staff at the district and school offices might need to be assigned to work on the project as a priority item. Communications might also need to be routed with higher priority; as well as scheduling for meetings.

A final key implication is that creative approaches for improving student achievement are possible when partners are *empowered* to do so. In other words, true collaboration requires a trust in the process as well as in the people involved. This suggests that leaders and decision makers need not always rely on outside "experts" to find solutions to local problems.