



2017 HAWAII UNIVERSITY INTERNATIONAL CONFERENCES

SCIENCE, TECHNOLOGY & ENGINEERING, ARTS, MATHEMATICS & EDUCATION JUNE 8 - 10, 2017
HAWAII PRINCE HOTEL WAIKIKI, HONOLULU, HAWAII

REMEDICATION CHALLENGES IN CALIFORNIA

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Synopsis:

This paper examines remediation in California's public universities, specifically San José State University (SJSU) and the California State University (CSU) system, and suggests possible interventions to help those students in need of remediation progress to a college degree in a timely fashion. The authors include a history of remediation in the United States and California. The effectiveness of strategies currently being employed and recommendations to further explore the issues are presented.

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Abstract

This paper examines remediation in California's public universities, specifically San José State University (SJSU) and the California State University (CSU) system, and suggests possible interventions to help those students in need of remediation progress to a college degree in a timely fashion. The authors include a history of remediation in the United States and California. The effectiveness of strategies currently being employed and recommendations to further explore the issues are presented. It is concluded that addressing the burdens of remediation and the ultimate success of our students must be a shared effort to include the participation of universities, K-12, community colleges, nonprofits and legislative leaders.

What is Remediation?

Remedial education serves the purpose of “providing academically underprepared students with the knowledge and skills needed to succeed in college by eliminating or reducing academic deficiencies” (Nora & Crisp, 2012, p.). If a student falls below a minimum score on a college placement test, remediation in the form of additional courses is provided to build the student's academic skill in preparation of college-level curriculum. Students often do not receive college credit for remedial courses. Math and English are the main subjects for remediation (Kurlaender & Howell, 2012), and it is common in the United States for a high percentage of students to need this support. The timeliness and effectiveness of remedial courses are paramount in deciding the future of a student's college career. Kozeracki (2002, p.88) asks three questions informing this debate:

“Does developmental education belong in higher education at all, and, if so, should it only be taught at the community colleges? Should developmental education be privatized? Is it in the public’s best interest to support developmental courses financially?”

University-level remediation has been the subject of debate for more than 150 years. Supporters argue that remediation programs expand opportunities for a more diverse population of students to gain college degrees. Detractors of remediation assert that remedial education is costly and inappropriate for a university as students ideally should have gained the knowledge needed to succeed in college in secondary school (Martorell & McFarlin, 2010; Bahr, 2008).

Across the U.S., university administrators struggle to balance the institutional cost of delivering remedial courses while serving the rest of the student population. At the same time, K-12 educators struggle with varying standards and assessment measures used in the different higher education systems (Long, 2014). University faculty remain concerned about lowering standards while ensuring students have skills to succeed in college, such as writing competency. The true cost of remediation is to students who may require five or six years to complete a four-year degree, incurring more debt as financial aid runs out. Students with remedial needs are also much more likely to drop out before completing a degree. A recently released report by the Center for American Progress, a nonpartisan policy institute, found that nationwide less than 50 percent of students who enrolled in remedial programs persist with their education long enough to take credit-bearing courses (Jimenez, Sargrad, Moralzes & Thompson, 2016).

Adding to the challenges, remedial assessment across the nation does not prescribe to consistent standards. The levels at which students are deemed college-level ready versus in need of remediation are often set by individual institutions and can differ even within a state system.

Test scores also differ from exam to exam (Merisotis & Phipps, 2000). For example, the universities often use a different score to determine the cutoff for remedial English exemption based on SAT and ACT scores (Garcia, 2009). The most recent ACT annual report indicates that only 38 percent of graduating high school seniors who took the exam achieved the college-prepared benchmarks in at least three of the four core subjects tested as compared to 40 percent the previous year (Kerr, 2016).

Nationwide, among all first-time freshmen (FTF), studies have shown that 28 to 40 percent enroll in at least one remedial course during their first year (Strong American Schools, 2008; Attewell, Lavin, Domina, & Levey, 2006; Chen, & Simone, 2016). The numbers are higher among underrepresented minority students: a recent study by *Complete College America* (Weeden, 2016) showed that 44 percent of Black or African American students and 35 percent of Hispanic or Latino students at non-flagship, four-year institutions enrolled in remedial courses. First-generation students also take remedial courses in college at a higher rate than average (Chen, 2005; Nuñez & Cuccaro-Alamin, 1998). As the amount of remediation a student needs increases, the less likely a student is to complete college-level courses and make progress towards a degree (Bailey, Jeong, & Cho, 2009). Students with high remediation needs have lower persistence rates (Bettinger, & Long, 2010; Bailey, 2009; Complete College America, 2012; Kurlaender & Howell, 2012).

History of Remediation in U.S. Higher Education

Remediation in U.S. higher education has a long history and its place in the educational system has long been a debate. While university officials sometimes discuss college readiness as

though it is a new problem, universities have been challenged by it since the 1830s (Brier, 1984). Concerns about remediation have grown and become more contentious over time, especially since they are often tied up in issues of privilege and diversity (Markus & Zeitlin, 1992-1993). Most of a university's entering students in the 19th century were considered underprepared for college because formal secondary schools were not common. Many undergraduate institutions created preparatory departments for underprepared students. According to Wyatt (1992), the preparatory program at the University of Wisconsin started in 1849, was typical of these types of programs. This program provided remedial courses in reading, writing, and arithmetic. In 1865, for example, 88 percent of enrolled students took courses in the program (Brubacher & Rudy, 1976). The University of Wisconsin was not alone in having despaired about the writing abilities of its freshman—professors everywhere were complaining about poor student writing in the 1870s, 1880s and 1890s. In that era, colleges across the nation established rigorous certification programs for public high schools to reduce the writing ability gap between high school seniors and college freshman (Stanley, 2010). By the 1870s, approximately 80 percent of American colleges and universities had preparatory departments (Wyatt, 1992); and, by 1894, 40 percent of all first-year students were enrolled in preparatory courses (Ignash, 1997). Faculty, administrators, and concerned citizens made ever greater efforts to create standards as to what high schools should teach; by 1900, almost every state had a version of these standards.

In what Mike Rose calls “the myth of transience,” the rhetoric of universities establishing new tests, programs or course policies of writing remediation always suggests that the need is temporary. The obstacle that the new, temporary remediation effort must overcome is generally an influx of people who are different in some way from the academic establishment of the time:

the middle class (and eventually the lower class), women, people of color, veterans, foreign nationals, etc. (Stanley, 2010).

The percent of remedial students varies when one considers demographic and socio-economic factors (see Figure 1). Several states — including Arizona, Georgia, Florida, Montana, South Carolina, Virginia, and Tennessee — prohibit four-year public institutions from offering remedial education. In these states, the four-year institutions must arrange for community colleges to absorb the remediation (Long, & Boatman, 2013).

Remediation in California

Remediation has been a hot-button issue in California higher education for several decades. The history of remediation in California begins at University of California (UC) Berkeley. In *The Rhetoric of Remediation*, Jane Stanley explains how Berkeley’s administrators, following the example of many East and Midwest schools, instituted freshman composition, soon to be called “Subject A,” within a few years of Berkeley’s founding in 1868 (Stanley, 2010). Although universities have taught remedial writing in California since 1898, and the need shows no signs of abating, each new intervention program recycles hope for mitigating solutions (Stanley, 2010).

The remediation numbers are higher than average at California’s public universities, largely because California has a larger share than most states of underrepresented minority students, who are invariably at greater risk for remedial placement (Bahr, 2010; Nora & Crisp, 2012). Many CSU and UC system campuses also have an unusually high — and growing — percentage of foreign-born and international students, who are often underprepared for college-level writing in English. According to a report by the State of California’s Legislative Analyst

Office (Naqvi, 2014), nearly 50 percent of freshmen admitted to the CSU require remediation in math, English, or both.

Many U.S. educational reformers seem to agree that the solution is to provide more consistent educational standards for K-12 education and to ensure that K-16 educators can sit down together to decide what those standards are and establish common criteria for high school completion and college admission (Kirst & Venezia, 2001). While a good start, a consistent set of state or national standards cannot solve a problem of such magnitude by itself, especially in a state as diverse as California.

There is certainly no disputing that many students are not prepared for college by their K-12 education. It is also relatively uncontroversial that the lack of correspondence between high school exit requirements and college entrance requirements is unfair to students, who might justifiably expect that high school should prepare them for college. California already monitors remediation much more closely than many other states, and yet the percentage of students taking remedial courses at public colleges and universities remains stubbornly high. We cannot place all of the blame on California primary and secondary schools, especially given the large numbers of high-school dropouts in the California Community College system and the number of international students in the UC and CSU systems.

Remediation in the CSU

Students attending any CSU who have are not waived from the mathematics and English requirements based on test scores or classes previously taken must take the Entry Level Math (ELM) Test and/or the English Placement Test (EPT) . The ELM examination is designed to assess the skill levels of entering CSU students in the areas of elementary and intermediate algebra and plane geometry. Such skills generally are acquired in three years of rigorous college

preparatory mathematics courses in the high school. The EPT is designed to assess the level of reading and writing skills of entering lower-division students so that they can be placed in appropriate English composition courses. Those lower-division students who do not demonstrate college-level skills will be directed to courses or programs to correct identified deficiencies. The ELM and EPT is not a condition for admission to the CSU. It should be taken only once and may not be repeated] proficiency requirements are required to attend the Early Start program (see Tables 1 and 2). This program is designed for freshmen who need to improve their math and/or English skills before the beginning of the fall semester. There is a significant need for “Early Start” based on the fact that more than 50 percent of first-time freshmen enrolling at the CSU each year do not show entry-level proficiency in math and English assessments, even though they have earned at least a B average in the required college preparatory curriculum (*Early Start Initiative*. n.d)..

San Diego State University (SDSU) varies slightly from other CSU campuses. The number of students it admits who require remediation is already far below the system average. In 2014, at SDSU, 8 percent of admitted freshmen required remediation in math and 7 percent of students admitted required remediation in English (as compared with 17 percent for math and 27 percent for English at SJSU) (*CSU's 2014 Remediation Data*, 2014). SDSU requires freshmen students who need remediation to attend a college readiness program known as Freshmen Academic Success Track (FAST). The FAST program is designed to prepare students to excel in their courses at SDSU, and those who require remediation are required to participate in the FAST program before their first fall semester (*Becoming College Ready*, 2017). These students must attend a summer program at SDSU where they enroll in two three-unit classes. Non-California

residents and international students are exempt; therefore, SDSU has a small number of remedial students who enroll as freshmen in the fall.

Freshmen attending Fresno State or CSU-Los Angeles (CSULA) must complete their remediation during their first two semesters. If they do not complete their remediation requirements with a grade of “C” or better before the beginning of their third semester at Fresno State or CSULA, they have two options based on their academic standing. Option one lets students complete the required remedial courses in the summer and maintain their continuing student status for the fall semester. Option two allows students a one-semester stop out so they can apply to attend another university or community college for the fall semester to complete their remediation status. Students who satisfy their remediation requirement may then register at Fresno State or CSULA for the spring semester without reapplying (Remediation Advisory, CSU Fresno).

Problems with Remediation

One question that deserves attention is remedial placement. Most colleges and universities place most of the weight on a single, high-stakes placement test (Fain, 2012). While placement testing works well to discern the correct level for mathematics, it is less reliable at providing students with placement into the correct English courses (Fain, 2012). Some students are unaware that poor performance on the placement test could relegate them to as many as three years of remedial coursework before they are able to take any courses for college credit. Meeting the remediation requirements is only the first step in academic success. A study of data from SJSU’s engineering students shows that students admitted into that college with remediation requirements have lower retention and graduation rates (Backer, 2016).

Student Profiles: Two Paths of Remediation

Kevin and Amber are first-semester freshmen at SJSU this fall. Kevin is undeclared but wants to be a civil engineer. He grew up in the Bay Area, raised by parents who are natives of Mexico, and is the first in his family to attend college. Amber is a sociology major. She grew up in Southern California and moved to San Jose just before the start of the semester. During their senior year of high school, Kevin and Amber took the Entry Level Math (ELM) and English Placement Test (EPT), exams that help to determine a student's skill level and readiness for college-level coursework during their senior year of high school. Along with 30 percent of SJSU's first-year, first-time freshmen, their test scores indicated that they required remediation in math or English. Kevin's scores on the ELM and EPT require him to complete remediation in both subjects to better prepare him for college-level curriculum. Amber is in need of math remediation.

During the summer, Kevin enrolled in the Spartan Scholars Program. The summer bridge program allowed him to complete his math remediation requirement while connecting with advisors, tutors and mentors to help him succeed in his first year. He also became friends with other students in the program, creating a sense of community on campus that keeps him engaged after class and on weekends. Kevin enrolled in a year-long course called Stretch English that will allow him to complete his English remediation by the end of his freshman year.

Amber, meanwhile completed a two-week online course through Early Start, a CSU initiative which mandates incoming students who have scored below the proficiency level on the ELM or EPT to take a course that introduces them to the remedial work they will need to complete by the end of their first year in college. She was able to retake the ELM test, and while her score improved, she was still not proficient enough to enter general education (GE) math. She has enrolled in a two-semester remediation course for no degree credit that puts her a year

behind peers for completing the general education math requirement. Amber will finish freshman year with fewer units than she needs to stay on pace to complete an undergraduate degree in four years.

Remediation at SJSU

The number of incoming freshmen at SJSU with remedial status has been reduced over the past few years (Table 3); however, the numbers remain high (SJSU Institutional Effectiveness and Analytics Data). Note, the remediation data in Table 3 is for students enrolled in the fall semester. The drop in remediation needs in fall 2015 is partially due to students who were able to remove their remediation requirements by participation in Early Start, as described in a future section of this report.

Table 4 shows the remediation needed and completed by college in fall 2014. The breakdown by college is important when considering co-curricula options. This data also emphasizes that the struggle to complete remediation is largest for students requiring both English and math remediation.

Table 5 is a comparison of the success of SJSU's remediation as compared to the other CSU campuses (CSU Fall 2013 Freshmen Proficiency Data, 2013). In 2013, 34 percent of SJSU's incoming freshmen required remediation, and 87 percent of them met those remediation requirements by the end of their first year.

Early Start

Early Start is a CSU initiative which mandates incoming students who have not fulfilled the Entry Level Math (EMT) or English Placement Test (EPT) proficiency requirements to participate in remedial programming in the summer before fall enrollment. It does not mandate that they complete their remediation. The program started in summer 2012 and was phased in.

Early phases did not include enforcement or English remediation, resulting in low participation rates for SJSU in 2012 (19 percent) shown in Table 1.

Through the Early Start program, SJSU offers a one-week ELM preparation course for students close to passing the test, with an opportunity to retake the test at the end of the course. The tests are locally scored so that students can adjust their fall schedules quickly. Lower-level math students take a two-week online course where they work independently on ALEKS (Assessment and Learning in Knowledge Spaces) and take proctored tests, moving at their own pace. The curriculum is matched to the current developmental math program so that students who pass the first half are allowed to change their first-semester enrollment to a second-semester course in the fall. The students enrolled in the two-week course are also offered the opportunity to retake the ELM test along with the higher-level students to improve their placement. Analysis of the data for the Early Start math programs shows in 2012, 35.1 percent of Early Start participants cleared remediation and an additional 16 percent reduced the required remediation by a semester.

Starting in 2014, all non-exempt SJSU students who placed into remedial English were required to participate in Early Start. SJSU implemented a one-week, fully online math and English course in August 2014. In August 2015, participation in Early Start became a mandatory requirement for all CSU students who required math or English remediation. Tables 6 and 7 shows the success of the Early Start programs on students reducing or removing their remediation requirements in Fall 2015. As expected, the three-unit Early Start programs are more effective than the shorter programs. A large percentage of students still did not participate in the program despite the mandatory requirement (labeled as non-compliant in the tables). Greater outreach efforts will be made to engage all students who require remediation in this program.

This table details success as removing or reducing remediation. Further research is needed to determine if these students go on to have academic success similar to the general SJSU population.

Summer Bridge

Since 2010, SJSU has provided a summer transition program to 60 Educational Opportunity Program (EOP) students in need of remediation in both English and Math. In 2016, the university introduced a new summer bridge program, the Spartan Scholars Program, which served 112 additional students. The five-week summer programs are free to students. SJSU covers all associated summer costs, including tuition, room and board on campus, textbooks and weekend activities. Students who applied were selected based on admission to SJSU, academic need, expected family contribution, ELM and EPT examination scores, educational and personal background. Together the programs serve about 16 percent of students in need of remediation.

The Spartan Scholars take part in a summer residential program that provides college readiness support in math and English while also preparing admitted Spartans for the transition from high school to university life – free of charge. The rigorous schedule for the program includes math and/or English classes, tutoring sessions, study hall, and social activities to help students set their expectations for their first semester while clearing remediation requirements.

Traditional Developmental Studies (Remediation) Courses

At SJSU, students who score below the proficiency level on the ELM and do not complete the Early Start program need to enroll in remedial courses during their first year. Students who score just below the proficiency level need to enroll in a one-semester remediation course for no degree credit that puts them a semester behind their peers. Those with lower scores are required to enroll in a two-semester remediation program for no degree credit that puts them

a year behind their peers. Students must demonstrate a competency in mathematics before they are able to enroll in a degree-credit math class.

Before fall 2016, SJSU offered two remedial English courses (Academic English I and Academic English II). Students who scored 138 or lower on the CSU English Placement Test (EPT) enrolled in Academic English I, which is a 5-unit course consisting of a three-hour seminar and two-hour activity. Students who scored between 139 and 146 on the EPT enrolled in Academic English II, which is a three-unit seminar course. A score of 147 placed students directly into Freshman Composition (English 1A) at SJSU.

Most remedial students at SJSU require multiple sections of remedial classes. These classes offer no degree credit and generally extend the time to graduation. Placement in these courses can also affect a student's confidence and persistence. SJSU students who fail to remediate within their freshman year are placed on a one-year leave of absence. For the past seven years, SJSU has had a no-repeat policy for remedial courses. Students who fail a remedial course in the fall are allowed to take courses at SJSU in the spring but must complete their remediation through a community college before the end of their first year. Any student who completes remediation within the one-year leave of absence will be reinstated, but could be subject to academic probation or disqualification based on GPA. Students who complete their remedial requirements after the one-year time limit must reapply to the university.

Table 8 displays the remedial classes offered at SJSU in the 2014-2015 academic year. Overall, there were 62 sections serving 1,727 students in Fall 2014 and 34 sections serving 840 students in Spring 2015. Except for Math 6A, 6B, and 6L (see Figure 2 for remedial mathematics course sequence), all the remedial classes have class sizes between 14 and 33 students. Math 6A and 6B are taught in a large lecture hall with an enrollment ranging between 125 and 250

students. The whole class meets twice per week, and students also meet in smaller groups twice per week with a graduate student.

Nationwide, estimates on the cost of remediation ranges from \$1.4 to \$2.8 billion dollars each year (Alliance for Excellent Education, 2006). Table 8 details an estimated cost of providing remediation to SJSU students (excluding Early Start). To estimate the cost for the remedial classes, we based our calculations on the faculty replacement rate, which is \$57,168 for a full-time lecturer. This is based on teaching a full load of 15 units each semester or 30 units each year. The cost for a three-unit section, for example, would be \$5,717. To calculate the costs for Math 6A, 6B, and 6L, we assumed that the costs for these large classes would be double that of a regularly sized section. Overall, the cost of providing remedial classes at SJSU was estimated at \$668,866 for the 2014-2015 academic year.

Pilots for Co-requisite Remediation

Historically, SJSU students in need of remediation in English were required to take not-for-credit courses described above before enrolling in first-semester composition (English 1A). Depending on their remediation need, they took either one or two courses with the lowest level remedial students taking eight units for no degree credit.

The College of Humanities and the Arts has created an alternative – Stretch English – that allows students to gain fundamental skills while completing a GE requirement and receiving degree credit. The college piloted the program in 2014-15 and 2015-16. The course is year-long and cohort based: it stretches the first-semester composition class to two semesters. Stretching first-year composition over two semesters is particularly helpful for remedial students and English language learners, both of whom comprise a significant portion of SJSU's student population. Stretch English affords students the opportunity to work with their peers and the

same instructor over an entire year to increase skills, improve their writing, and gain the confidence needed to succeed in college.

Due to the success of the pilot program at SJSU and similar programs at other universities – both in the CSU and elsewhere – a full rollout of Stretch English has replaced former remedial courses. It is open to all students, not just those classified as remedial. All students at SJSU are required to take a Directed Self Placement (DSP) test to determine for themselves which English composition option is the right one for them.

In addition to the English course, SJSU was among a cluster of four CSU campuses to pilot Statway (Statway findings by the Chancellor’s General Education Advisory Committee), an innovative way of teaching statistics developed by the Carnegie Foundation in 2010. The program provides students in certain majors a pathway to complete remedial math and their statistics requirement in two semesters. Students do this through a process called “productive persistence” that has proved to be very successful. Results of the 2011/12 and 2013/14 pilots of this program show that 95.4 percent of students received a credit in the first semester and were eligible to continue. Of the second semester students, 99.2 percent of the students passed their GE math requirement (with a D- or better) as compared with the university average of 85.7 percent. The pilot campuses reported mixed reviews of the program primarily due to concerns that the curriculum did not align with algebra and geometry concepts that make up two-thirds of the ELM. The College of Science Department of Mathematics faculty are currently looking into other co-requisite math courses to support students.

A Call for Change

According to Long (2014, p.), “Time spent in remediation can also delay completion of a postsecondary degree. Credits earned from remedial courses often do not count toward a

student's degree. Thus, it takes students longer to complete their studies, and this increases the chances that a disruption will derail them from progressing." In this study sponsored by the Brookings Institution, Long makes three recommendations:

- Improve placement in college remediation classes;
- Provide better college remediation services;
- Adopt measures to prevent the need for remediation.

While SJSU has employed strategies to support students who are admitted to the university through summer programs, remedial courses and co-requisite remediation programs, we must also work to address remediation earlier in the educational process of our students. We at SJSU want to understand the strategies K-12, community colleges, nonprofits and government officials are using to address the issue of remediation and how we can partner together.

To improve outcomes for our students, we will need a multi-faceted approach to address the issues surrounding remediation. We recommend five areas to explore:

- work with our K-12 and community college partners to reduce the number of incoming SJSU students in need of remediation;
- expand options for students to complete their remediation in the summer;
- expand remediation options for the academic year that are proven effective for SJSU students;
- explore new types of remediation; and
- expand support programs to ensure remedial students are given the support needed to be successful beyond just clearing their remediation requirements.

Work with our K-12 and Community College Partners

As shown in Table 3, the number of students requiring remediation at SJSU has been declining (from 55.4 percent in 2010 to 30.8 percent in 2015). Much can be done to continue to improve these numbers by working with our K-12 and community college partners to ensure more incoming SJSU students are college ready. Research has shown that there is a lack of alignment between K-12 and university education, making it difficult for students to know what they should be able to do to enter and succeed in college (Venezia, Kirst, & Antonio, 2003). In 2004, the CSU implemented the Early Assessment Program (EAP)--English Language Arts/Literacy and mathematics--which is taken by 11th grade students. The two tests are taken as one. After the test, reports are sent out to notify students if they have met the CSU expectations. If the student has not met the CSU expectations, the student is given an explanation as to what areas they need to focus on during senior year which allows high school juniors the opportunity to take assessment tests and utilize their senior year to address improving their scores (Naqvi, 2014). Participation in the EAP can reduce the likelihood of a student needing remediation in college; a recent assessment of EAP (Howell, Kurlaender, & Grodsky, 2010) found that participation in EAP reduced remediation by 6.2 percent in English and 4.3 percent in math.

One of the first efforts SJSU can make in working with K-12 and community college partners is better marketing CSU resources about the importance of the EAP, ELM, and EPT and offering the necessary tools to prepare for the placement tests. New SJSU marketing materials could be designed to build on the CSU's material through a class project. These materials could be integrated into all of the widespread outreach activities that already take place on our campus.

Academic Affairs will be working with the College of Education to gain a better understanding of the college readiness issues from the perspective of K-12. Through utilizing

existing expertise on campus, strategies to work with our K-12 partners on this critical issue will be developed. In addition, the development of strategic partnerships with local feeder schools and school districts provide an opportunity for us to have conversations with educators about the math and English requirements.

Some examples of existing partnerships or ones under development include College Connection Academy, Spartan East Side Promise, and Hispanic Foundation Silicon Valley's Family College Success Center. The College Connection Academy already has below average remediation statistics with only 17 percent of students in the first two cohort years requiring remediation. Through these partnerships, we could work with educators to better market and increase engagement with the CSU resources developed to improve scores on the EAP, ELM and EPT. Mandating their students take the EAP along with some level of preparation for the test could be a requirement for K-12 schools to partner with us.

We could also engage with these partners to gain a better understanding of the particular challenges of students in their school district and the support needed to increase their pass rates. Initiatives to address these challenges would be attractive funding opportunities for foundations focused on graduation rates and/or diversifying the STEM pipeline. Jointly with our K-12 and community college partners, we could pursue proposals to enhance pass rates of the EAP/ELM/EPT such as special curriculum programs during the academic year or summer programs that couple math and English preparation with other college readiness or STEM development.

Summer remediation

SJSU already has in place numerous remediation programs, including EOP Summer Bridge and the Spartan Scholars Program. The first opportunity students encounter is the summer

Early Start Program. Participation in Early Start is a CSU requirement for particular students. As detailed in Tables 6 and 7, a significant portion of students are able to reduce or remove their remediation requirements through this program. Increasing the involvement of SJSU students in this program may reduce those still requiring remediation at the start of their fall semester. Plans are already under way on how to ensure a higher percentage of required students participate. This includes greater outreach to these students during orientation.

Expand proven effective remediation options for SJSU students

Resources need to be in place for students who do not meet their remediation requirements before the start of their fall semester. The pass rates of students in the Stretch English program are comparable to those of English 1A (87.8 percent as compared with 89.5 percent). Given this success, SJSU expanded this program to be available to all students in Fall 2016.

Nearly 99 percent of students in the second semester of Statway pass their GE math course. This is more than 10 percent higher than the university pass rate overall. The program applies only to those majors with a statistics requirement and it is not a panacea for math remediation at SJSU, as described earlier. Similar programs also need to be developed for other majors. These would be year-long versions of the required GE math that also cover remedial skills taught in a just-in-time manner.

Developmental math at San Jose State University is currently undergoing an assessment of its effectiveness. Content, at this stage, will not be altered – there is general, implicit agreement among universities about content. The priority is to gather data on characteristics of developmental students and use this to inform delivery of content. We are currently conducting online surveys with students to collect information. The survey asks basic questions about

financial concerns held by the students and also comprises two established questionnaires that quantify dispositions and attitudes towards mathematics and mathematics anxiety. All students in freshmen courses were invited to complete this survey. The primary intention of offering this to all freshmen is to uncover distinguishing characteristics of developmental students relative to their college-ready peers, other than that of failing the entrance exam in mathematics. Ultimately, the data ought to inform the shape of content delivery – by assessing the students' orientations towards mathematics, instructional methods can be weighed on their effectiveness in aiding students to develop more productive dispositions towards mathematics.

Explore New Types of Remediation

A new type of remediation, co-requisite remediation, has been evaluated in several states—Colorado, Georgia, Indiana, Tennessee, and West Virginia. In this model, students enroll directly into college-level courses and receive additional support along with these regular classes rather than enrolling in remedial courses. The format allows students to immediately begin earning college credit towards their degrees rather than taking non-credit remedial courses. Additional class periods or support in a learning lab is supplied to the student. “Students enrolled in single-semester, co-requisite English courses typically succeeded at twice the rate of students enrolled in traditional prerequisite English courses. Students enrolled in co-requisite gateway math courses that were aligned with their chosen programs of study saw results at five to six times the success rates of traditional remedial math sequences” (Complete College America, 2017). For example, Austin Peay State University in Tennessee changed its two gateway courses in college mathematics; developmental math students enrolled in a core math class and a linked workshop. The pass rate for remedial math students rose from 23 to 54 percent in the section,

Elements of Statistics; and from 33 to 71 percent in the section, *Mathematical Thought and Practice* (Boatman, 2012).

Expand Support Programs to Students who Have Completed Remediation

SJSU provides access to resources and assistance for students to clear their remediation in the allotted time (90 percent of students clear their required remediation in the first year, the fourth highest in the CSU). However, this is only part of the issue. Students who are admitted with remediation requirements have lower retention rates and failure at other student success milestones (such as passing the Writing Skills Test, or WST). The WST is the Writing Skills Test at SJSU that all undergraduate students must pass, along with their major 100W course, to fulfill the Graduation Assessment Writing Requirement (GWAR). The GWAR is a CSU requirement to evaluate university-level writing across all campuses. The indication of remedial needs is indicative of deeper problems. Students need extra support throughout their academic career to ensure timely progress to degree. First, a more detailed analysis must be done of academic success after clearing remediation requirements. This needs to be followed by piloting and assessing support workshops (such as the writing support course developed as part of the Asian American and Native American Pacific Islander Serving Institution, or AANAPISI, grant).

Conclusion

Like Kevin and Amber, each first-time freshman who accepts admission at SJSU or another CSU campus starts his or her college career with optimism that they will complete their undergraduate work without roadblocks or impediments. When students require remediation, we often fail to help them attain their dream of a timely college degree. They incur more student loan debt. They enter the workforce as educated and engaged citizens later in life. We have fewer slots to admit deserving high school and community college students who apply for admission.

It is up to us to look beyond the long history of challenges surrounding remediation so that we can work together to find meaningful solutions that benefit students at every level of their schooling. We need everyone in the educational ecosystem to participate in a grand vision that goes beyond temporary fixes.

SJSU and other CSU campuses are trying to galvanize policymakers to think long-term about the strategic resources needed to transform long-standing institutions without abandoning our mission to serve underrepresented students. Our focus must remain on the success of our students, and we all need to work together for their benefit.

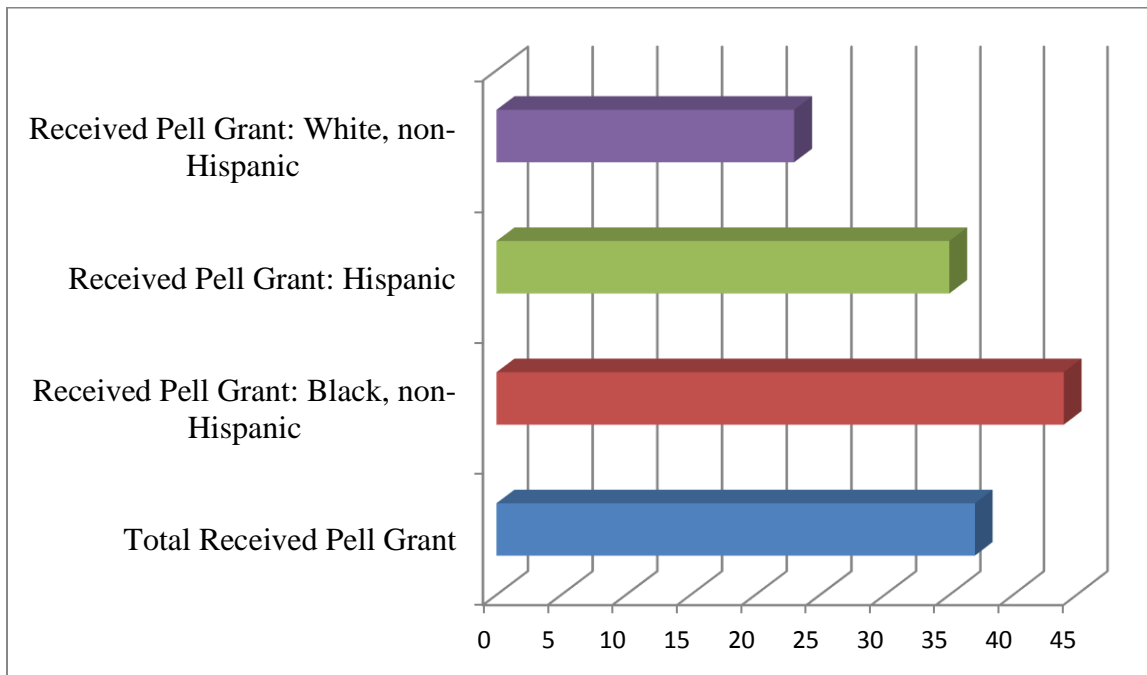


Figure 1. Percent of New Entering Students Enrolled in Remedial Education, Four-Year Non-Flagship Students [Vandal, 2016]

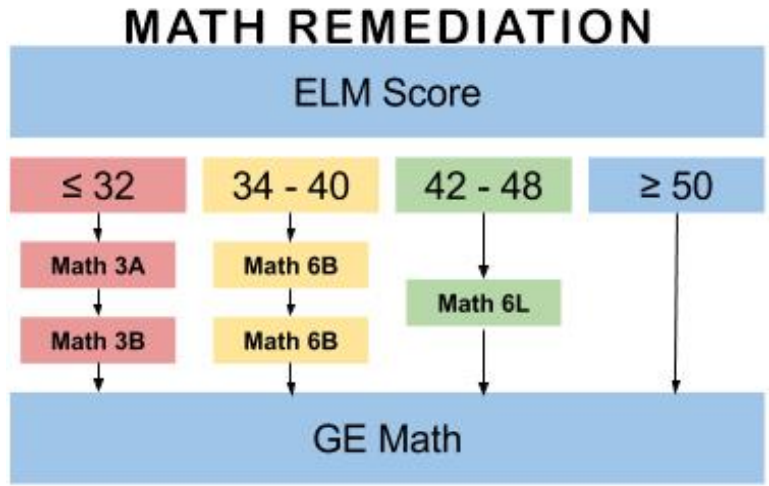


Figure 2. Traditional Math Remediation Placement at SJSU

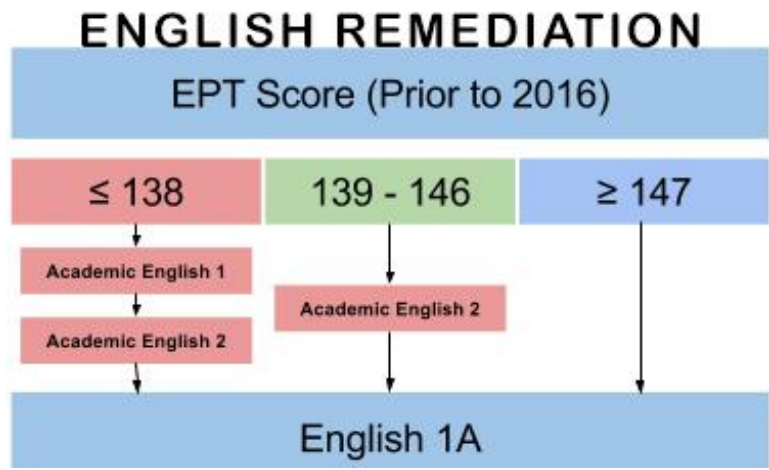


Figure 3. Traditional English Remediation Placement at SJSU

Table 1. Early Start enrollment by CSU campus in 2012. This year was only mandatory for those with math remediation requirements [29]

Campus	Students in Early Start	Total Freshmen	Percent of Freshmen in Early Start
Bakersfield	528	1,328	40%
Channel Islands	285	756	38%
Chico	459	2,714	17%
Dominguez Hills	700	1,214	58%
East Bay	690	1,572	44%
Fresno	896	3,139	29%
Fullerton	1,081	4,526	24%
Humboldt	235	1,237	19%
Long Beach	1,166	4,276	27%
Los Angeles	1,226	2,908	42%
Maritime Academy	26	198	13%
Monterey Bay	329	902	36%
Northridge	1,324	4,149	32%
Pomona	609	3,120	20%
Sacramento	1,000	3,151	32%
San Bernardino	905	2,448	37%
San Diego	223	4,240	5%
San Francisco	1,249	3,807	33%
San Jose	654	3,384	19%
San Luis Obispo	72	3,635	2%
San Marcos	643	1,783	36%
Sonoma	527	1,749	30%
Stanislaus	387	1,109	35%
Total	15,214	57,345	27%
Data shown reflects campus where students are enrolled for regular academic year, but a student may take Early Start at a different campus.			

Table 2. Remedial Programs Offered at Selected CSU Campuses

University	Program
CSU Fresno	Early Start Program/Remediation Leave
CSU Fullerton	Early Start Program
CSU Los Angeles	Early Start Program/Remediation Leave
CSU Long Beach	Early Start Program
CSU Northridge	Early Start Program/Stretch Composition
CSU Sacramento	Early Start Program
San Diego State University	FAST Program
San José State University	Early Start Program/Stretch Composition/ Statway Math/ Remediation Leave

Table 3: Percentage of Freshmen in Need of Remediation (2010-2015).

Semester	English Remedial	Math Remedial	Both English and Math Remedial	Total Remedial	Total FTF
Fall 2010	797 (28.9%)	156 (5.7%)	576 (20.9%)	1529 (55.4%)	2761
Fall 2011	693 (17.6%)	363 (9.2%)	851 (21.6%)	1907 (48.3%)	3947
Fall 2012	636 (18.8%)	258 (7.6%)	391 (11.6%)	1285 (38.0%)	3384
Fall 2013	661 (17.7%)	331 (8.9%)	391 (10.5%)	1383 (37.0%)	3736
Fall 2014	607 (17.4%)	322 (9.2%)	393 (11.3%)	1322 (37.9%)	3486
Fall 2015	465 (13.4%)	285 (8.2%)	311 (8.9%)	1061 (30.7%)	3461

Note: These numbers differ slightly from the CSU's data (Table 5) which only includes regular admits.

Table 4. Fall 2014 Remediation Data By College at SJSU

	English Needed	English Complete	% English Complete	Math Needed	Math Complete	% Math Complete	Both Needed	Both Complete	% Both Complete
Applied Sciences & Arts	53	48	90.60%	27	25	92.60%	33	19	57.60%
Business	95	81	85.30%	22	20	90.90%	57	48	84.20%
Education	12	12	100.00%	4	3	75.00%	11	9	81.80%
Engineering	107	101	94.40%	8	8	100.00%	24	17	70.80%
Humanities & the Arts	52	45	86.50%	40	32	80.00%	31	23	74.20%
Science	50	44	88.00%	15	11	73.30%	18	13	72.20%
Social Sciences	50	46	92.00%	57	49	86.00%	68	56	82.40%
Students not in any college	189	171	90.50%	65	49	75.40%	123	90	73.20%
Total	608	548	90.10%	238	197	82.80%	365	275	75.30%

Table 5. Remediation Success by CSU Campus for Fall 2014 (Vandal, 2016).

Campus	*FTF Enrolled Fall 2014	Fall 2014 *FTF needing remediation	Fall 2014 *FTF Percent Remedial	Remedial Fall 2014 *FTF who reached full proficiency before 2nd year	Remedial Fall 2014 *FTF who did not complete remedial & were disenrolled
System Wide	62,941	25,608	41%	82%	12%
Bakersfield	1,377	739	54%	78%	20%
Channel Islands	903	523	58%	73%	12%
Chico	2,889	1,087	38%	83%	10%
Dominguez Hills	1,311	969	74%	87%	13%
East Bay	1,407	966	69%	59%	16%
Fresno	3,440	2,007	58%	85%	14%
Fullerton	4,337	933	22%	88%	11%
Humboldt	1,331	597	45%	83%	14%
Long Beach	4,324	1,212	28%	87%	9%
Los Angeles	3,072	2,175	71%	84%	12%
Maritime Academy	206	38	18%	61%	16%
Monterey Bay	1,245	556	45%	90%	10%
Northridge	5,389	3,325	62%	76%	16%
Pomona	3,644	762	21%	77%	15%
Sacramento	3,620	2,113	58%	91%	9%
San Bernardino	2,601	1,526	59%	85%	8%
San Diego	5,003	607	12%	84%	6%
San Francisco	3,726	1,889	51%	83%	11%
San Jose	3,425	1,168	34%	87%	10%
San Luis Obispo	4,662	100	2%	98%	51%
San Marcos	2,141	974	45%	79%	15%
Sonoma	1,762	755	43%	76%	7%
Stanislaus	1,126	587	52%	86%	13%

*FTF is an acronym for First Time Freshman

Table 6. Participation and Success of Early Start (ES) Program for Math at SJSU in Summer 2015.

	Total	Percent	Remained at remedial Level 2	Remained at remedial Level 1	Improved from remedial Level 2 to 1	Improved from remedial Level 2 to General Education Level	Improved from remedial Level 1 to General Education Level
Non-compliant	216	26.09%					
1 unit online (no chance to retest)	150	18.12%					
Took Early Start at other campus	192	23.19%	48.44%	19.79%	9.38%	9.38%	13.02%
1 unit courses	219	26.45%	27.40%	15.98%	15.98%	16.89%	23.74%
3 unit courses	51	6.16%	11.76%	0.00%	11.76%	62.75%	13.73%

Note: The total of SJSU incoming frosh needing math remediation was 828. This number excludes those exempt from Early Start (such as non-CA residents, EOP, Athletics, or other students participating in a summer bridge program).

Table 7. Participation and Success of Early Start (ES) Program for English at SJSU in Summer 2015.

	Total	Percent	Remained at remedial Level 2	Remained at remedial Level 1	Improved from remedial Level 2 to 1	Improved from remedial Level 2 to General Education	Improved from remedial Level 1 to General Education
Non-compliant	165	23.08%					
1 unit online (no chance to retest)	173	24.2%					
Took Early Start at other campus	139	19.44%	49.64%	33.09%	NA	8.63%	8.63%
1 unit courses	215	30.07%	26.05%	46.05%	26.98%	0.47%	0.47%
3 unit courses	23	3.22%	0%	34.78%	17.39%	26.09%	21.74%
<p>Note: The total of SJSU incoming frosh needing English remediation was 776. This number excludes those exempt from Early Start (such as non-CA residents, EOP, Athletics, or other students participating in a summer bridge program).</p>							

Table 8: SJSU's Developmental Studies Courses in Academic Year 2014/15

Fall 2014									
Subject	Catalog Number	Course Title	Mode	Unit	# of Sections	Avg. Section Size	Total (Seats)	Cost/section	Estimated Cost
*LLD	001	Academic English I	SEM	5	16	19.7	315	\$9,528	\$152,448
*LLD	002	Academic Engl II	SEM	3	20	19.8	396	\$5,717	\$114,336
**HA	0096F	FYC IAF stretch	LEC	3	13	23.2	302	\$5,717	\$74,318
MATH	0003A	Intensive Learn I	SEM	4	6	27.5	165	\$7,622	\$45,734
MATH	0003B	Intensive Learn II	SEM	4	2	32.5	65	\$7,622	\$15,245
MATH	0006A	Entry Level Math I	SEM	3	1	191	191	\$11,434	\$11,434
MATH	0006L	Entry Level Math	SEM	5	1	226	226	\$19,056	\$19,056
MATH	0015A	Statway A	LEC	5	3	22.3	67	\$9,528	\$28,584
					Totals	62	1,727		\$461,155
Spring 2015									
Subject	Catalog Number	Course Title	Mode	Unit	# of Section	Avg. Section Size	Total (Seats)	Cost/section	Estimated Cost
*LLD	001	Academic English I	SEM	5	1	14	14	\$9,528	\$9,528
*LLD	002	Academic Engl II	SEM	3	8	19.5	156	\$5,717	\$45,734
**HA	0096S	FYC IAS stretch	LEC	3	13	22.1	287	\$5,717	\$74,318
MATH	0003B	Intensive Learn II	SEM	4	5	24.4	122	\$7,622	\$38,112
MATH	0006B	Entry Level Math II	SEM	3	1	159	159	\$11,434	\$11,434
MATH	0015B	Statway B	LEC	2	3	17	51	\$3,811	\$11,434
					Totals	31	789		\$190,558
*LLD is an acronym for Linguistics and Language Development									
**HA is an acronym for Humanities and Arts									

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