

RAISING THE BAR

UNDERSTANDING AND ASSESSING A-G
COLLEGE READINESS REQUIREMENTS AS
HIGH SCHOOL GRADUATION STANDARDS



Josh Freedman | Max Friedmann | Cameron Poter | Anna Schuessler

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Raising the Bar:

Understanding and Assessing A-G as HS Graduation Standards

In theory, a major goal of every educational institution is to prepare its students for the next step in life. For most high school students, that next step will be a career or a college education; however, many students in California are graduating from high school unprepared for either of these goals. Currently, a student who fulfills state and district graduation requirements does not automatically have the option of going to a 4-year public university should he or she choose to do so.¹ Many argue that adjusting the high school graduation requirements to match the level of coursework universities expect and require of incoming freshmen could help fix some of the student preparedness problems in the California public high school system.

In order to be eligible to apply to a University of California (UC) or California State University (CSU), a high school student must complete a set of 15 classes required by the public university system.² Known as the “a-g” requirements,³ these courses are separated by subject and designed to provide students with both breadth and depth as they prepare to do college-level coursework. The students must complete all 15 yearlong courses by the end of their senior year at a grade level of ‘C’ or higher.⁴ (See Appendix A for a full listing of A-G requirements.) In 2009, the college-going rate⁵ for students in California to UC schools was 7.2% and the rate to CSU schools was 10.5%.^{6,7}

There have been movements to align high school graduation requirements with the A-G requirements in some school districts to improve the high school education system. To date, six large urban school districts have either adopted or made

progress in adopting the A-G requirements as the standards under which they confer high school diplomas. In 1998, the San Jose Unified School District (SJUSD) was the first district among the six to implement this change in policy. Since then, SJUSD has been a model for other districts looking to make similar changes in their required curriculum. The following table lists the six large districts actively pursuing A-G graduation standards. For each district, it also notes the first year that a class will graduate subject to the require-

Table 1: Large Urban Districts Requiring A-G

<i>School District</i>	<i>First year that class graduates subject to A-G</i>
San Jose Unified	2002
Los Angeles Unified	2012
San Francisco Unified	2014
Oakland Unified	2015
San Diego Unified	2015
East Side Union	2015

ments. The movement to require A-G coursework is still young; SJUSD is the only district of the six to have seen a class graduate under the A-G requirements.⁸

The movement to align high school graduation requirements with A-G has not come without controversy. While we found that most communities, leaders, and advocates at least support the main goals behind requiring college-preparatory coursework of their students, some are doubtful of the policy’s benefits in practice. Proponents of A-G as graduation standards argue that raising the standards increases the number of students eligible for 4-year public postsecondary education

and thus the number who have the option of going to college. In addition, they believe that it even enhances the learning experience for students who do not choose to go to college. However, opponents argue that the raised standards will harm at-risk students and push career/technical opportunities out of the high school curriculum.

Only one study of the effects of the A-G policy has been conducted, a case study on the impact and implementation of the A-G policy in San Jose. The primary author of this study conducted by Education Trust-West was Dr. Linda Murray, who led SJUSD in implementing its A-G policy while serving as the district's superintendent from 1993-2004. Overall the study found that since the policy was implemented in 1998, SJUSD saw improvements in multiple measures of student achievement, such as AP attendance, test scores and dropout rates. The study's data analysis showed that the A-G policy and its accompanying supports, such as enhanced summer school programs and additional tutoring opportunities, positively impacted high school students in San Jose, or, at the very least, had not negatively affected them. However, there were limitations in the study as we subsequently discuss.

In our study, we build on the Ed Trust–West study to analyze the effects of A-G and pragmatic issues related to implementation of the policy. Our goal for this report is to help districts and communities more fully understand and assess the benefits and complications of A-G in high schools when deciding if and how to implement A-G policy in their district. To the right are the main research questions we address in this report.

From these two areas of inquiry, we synthesize our findings to form policy recommendations for school districts and suggestions for future research.

What is the academic impact of A-G?

We address how an A-G policy affects student academic achievement with regard to the following factors:¹⁰

1. *Access to a college-preparatory curriculum and UC/CSU eligibility*
2. *Rigor of coursework and student learning*
3. *Dropout rates*
4. *Role of Career Technical Education*

What pragmatic considerations must be addressed in implementing A-G?

We examine the following major practical concerns that accompany implementation:

1. *Political feasibility*
2. *Costs*
3. *System design elements (opt-out option, support systems, professional development, fitting A-G in the daily schedule, and creating a college-going culture).*

Methodology

To conduct our analysis, we relied on past research on A-G policy, which mainly consists of the case study on SJUSD's experience. We also examined literature on similar policies in other states and research on the effects of California high school exit exams. In addition, we analyzed data on A-G's effect on relevant student outcomes; however, we were greatly limited in our ability to conduct data analysis due to data problems that will be discussed later.

We also conducted interviews with seven school administrators, four community advocates of A-G, and five education research analysts. The questions we asked varied among the individuals we interviewed, but we asked most of the administrators and community leaders questions regarding the beginning of the A-G movement in their

districts, the policy's current implementation, and plans for the future. We geared our questions for the academic researchers towards general research on A-G and theoretical causes and effects. The list of subjects interviewed is presented below.

Because our research process was primarily qualitative, we have worked to allow the testimonies of those involved with A-G inform studies on high school standards. In doing so, we hope to contribute to the existing body of work on A-G.

Roadmap

The remainder of our report proceeds as follows. First, we discuss past research on A-G policy and similar policies in other states. Next, we build on the previous research to examine the academic impact of requiring A-G for high school students. We also explore the pragmatic issues that districts face in implementing A-G. Finally, we

bring together our findings to present recommendations on how districts should approach implementing A-G and on areas for future research and consideration.

I: Building on Past Research

The only study currently available on the impact of A-G policy is the Ed Trust–West case study of the San Jose Unified School District (SJUSD). The study's primary author was Linda Murray, former superintendent of SJUSD. In this study, the researchers evaluate the district's A-G policy by using district data to address and dispel myths about A-G. The study finds that A-G curricula were not watered down (using AP attendance and scores; see Graph 2 below) and grades and dropout rates remained steady. Minority and low-income students made major improvements in their test scores after the policy was implemented,

List of subjects interviewed

District Personnel

Jason Owens, *AVID Program Administrator, San Francisco Unified*

Dan Moser, *Superintendent, East Side Union in San Jose*

Eric Volta, *Assistant Superintendent, Liberty Union in Brentwood*

Linda Murray, *Former Superintendent, San Jose Unified*

Diana Kampa, *College & Career Readiness Office, Oakland Unified*

Bill Sanderson, *Accountability and 21st Century Learning, San Francisco Unified*

Sid Salazar, *Assistant Superintendent, San Diego Unified*

Community Advocates

Andrea Guerrero, *Executive Director, Equality Alliance of San Diego*

Kathleen Mooney, *Director, Parent & Teacher Education Program, Families in Schools*

Pecolia Manigo, *Education Equity Campaign Lead, Coleman Advocates*

Rosa DeLeon, *Californians for Justice*

Academic Researchers

David Plank, *Executive Director, Policy Analysis for California Education*

Sean Reardon, *Associate Professor, Stanford University*

Neal Finkelstein, *Senior Research Scientist, WestEd*

Eric Hanushek, *Senior Fellow, Hoover Institution, Stanford University*

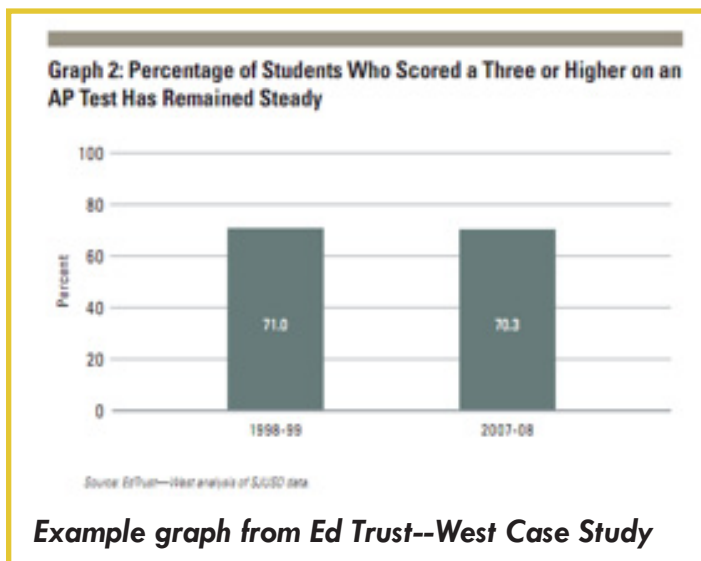
Oded Gurantz, *Senior Policy Analyst, John M. Gardner Center for Youth and Their Communities, Stanford University*

although poor grades still prevent many students from being college eligible even under an A-G curriculum.¹¹ The study also discussed all of the components of the A-G policy initiative, including changes to their summer school program and professional development.

Although the study provides a thorough analysis of SJUSD's experience with A-G and is the most comprehensive report thus far on the subject, it also has a number of limitations. We discuss three of the limitations associated with causality: lack of time series data, lack of a comparison group, and confounding factors.

Limitations of SJUSD Case Study

In the case study, the researchers estimate most of the effects of the A-G requirements by comparing student outcomes from only two school years: one from before the policy, and one after (e.g., see their graph below).¹² By using only two data points, one cannot confidently conclude that the observed effects on student outcomes are due to SJUSD's A-G policy initiative, since the difference between just two years may not be representative of the policy's effects.¹³



Example graph from Ed Trust--West Case Study

In addition, without a comparison group, such as a demographically similar district that did not have A-G, the analysis does not convincingly

show that SJUSD experienced unique outcomes because of its A-G policy. For example, although unlikely, the percentage of students that completed the A-G requirements in a demographically similar district could have increased at the same rate as SJUSD.

Another limitation of the SJUSD study is that it does not address the relative impact of the many components of the A-G initiative. In SJUSD, the A-G requirements were adopted in conjunction with other district-wide programs to help make the policy a success, including summer school reform, a summer bridge program, and enhancements to professional development for teachers. Therefore, attributing increases in student achievement to the A-G requirements alone is not possible. SJUSD's A-G policy success must be considered in light of all the initiatives that administrators implemented at the time of adopting the A-G curriculum.

In order to address these limitations to the case study, we attempted to examine data on student outcomes in SJUSD and other districts from multiple years before and after the policy was implemented. However, as addressed in the next section, we soon realized that there were major issues with data surrounding A-G, rendering nearly all of our attempts at a quantitative assessment of A-G essentially impossible.

Data Limitations in Evaluating A-G

We originally planned to analyze the effects of A-G policies in large school districts besides SJUSD to complement the Ed Trust--West study. The first roadblock we encountered was the lack of data available for large school districts other than SJUSD because they implemented A-G graduation requirements quite recently. As shown in Table 1, the first year that a graduating class is subject to A-G requirements in any other large district will not be before 2012. Thus, it is not possible to quantitatively assess the impact of

A-G because a class has not yet graduated under the new requirements. Since SJUSD is the only district to have had an A-G policy in place long enough to collect data, we moved our focus instead to expanding on the analysis of SJUSD done by The Education Trust–West.

To quantitatively evaluate the effects of the A-G policy in SJUSD, we planned to analyze data we collected related to student achievement from two public education databases in California: the California Department of Education’s Dataquest and the California Postsecondary Education Commission’s database. Unfortunately, we discovered that most of the data is unreliable due to inaccurate reporting. After speaking with Dataquest associates, we learned that all data is self-reported by districts and that Dataquest has no oversight to ensure the data’s correctness.

Not all self-reported data is unreliable, but the A-G completion rate statistics are particularly unreliable because schools can easily misinterpret A-G completion. For example, some schools counted the number of students enrolled in an A-G course, rather than the number of students who passed the A-G courses with a grade of ‘C’ or higher.¹⁴ The misreporting is perhaps unsurprising since determining proper A-G completion rates requires a thorough analysis of student transcripts. In carrying out the SJUSD case study, former superintendent Murray corrected for the errors in the public data by independently analyzing SJUSD student transcripts. She claims that errors in the public data may inflate A-G completion rates by 20 to 40 percent.¹⁵ A 2006 study by the California Postsecondary Education Commission (CPEC) states, “UC eligibility cannot be estimated reliably from A-G completions.”¹⁶ Thus California’s public data is not a credible source upon which to base our claims about A-G’s effects.

Considering these flaws in the data, we found it

problematic that multiple sources we interviewed referenced California Department of Education data as a source of credible information for evaluating A-G’s effects. These interviewees were unaware of the statistics’ accuracy issues.

After speaking with education policy experts, we discovered that the only way to obtain accurate data on A-G is to analyze individual student transcripts by hand. However, most school districts hesitate to release transcript information due to privacy and legal concerns. Furthermore, even if we had access to student transcripts, determining which classes are A-G certified and the number of students who passed the course would be prohibitively time-consuming.

Due to these data limitations, we decided to analyze the impact of A-G primarily from a qualitative perspective rather than quantitative one. Therefore, much of our research stems from academic studies and interviews with district administrators, community activists, and education policy experts.

Analysis of Similar Policies in Other States

To learn from experiences in other states with similar policies, we examined the practices and implementation approaches to increasing high school graduation standards that occurred outside California. We discovered that 20 states (and the District of Columbia) have implemented policies to either mandate that students complete similar requirements or impose a default curriculum similar to A-G to ensure that students are on track to complete the coursework required of their state public universities. However, only eight of these states have increased their graduation standards such that a graduating class will have been affected by the standards before 2012.¹⁷ The eight states are Arkansas, Delaware, the District of Columbia, Indiana, Michigan, Oklahoma, South Dakota, and

Texas.¹⁸ Preliminary data from these states can be analyzed to determine the potential effects of their curricular changes.

Of these eight areas, we chose to focus on Michigan. First, we were able to identify key characteristics of its policy implementation that made it a good comparison to the A-G policy. To date, Michigan’s policy, the Michigan Merit Curriculum (MMC), is one of the policies that most closely resembles A-G and for which there is ample data. MMC courses are nearly identical to the A-G curriculum (see Table 2), and the courses that many high school administrators describe as the largest stumbling blocks for students with A-G – Algebra II and two years of foreign language – are also required under the MMC. While most states that have adopted higher graduation standards have increased their requirements to at least 22 courses, Michigan mandates only 18 classes, which is closer to A-G’s 15 required courses (and 18 rec-

ommended courses). In addition, Michigan legislators agreed upon a provision allowing students to opt-out of the MMC with their parents’ consent, which is consistent with a few of the California districts that have included an opt-out in their implementation of A-G. Another reason that Michigan is an excellent case to examine is because the

Table 2: Michigan Merit Curriculum vs. California A-G

Course Field	Michigan Merit Curriculum	California A-G Curriculum
English	4 years required	4 years required
	English 9-12	English 9-12
Mathematics	4 years required	3 years required, 4 years recommended
	Algebra I Geometry Algebra II	Algebra I Geometry Algebra II
Science	3 years required	2 years required, 3 years recommended
	1 Biology 1 Chemistry or Physics	Biology, Chemistry, or Physics
Social Studies	3 years required	2 years required
	1 U.S. History and Geography 1 World History and Geography 0.5 Civics 0.5 Economics	1 U.S History or 0.5 U.S. History and .05 Civics or American government 1 World History, Cultures, and Geography (UC not CSU)
Electives	3 years required	3 years required, 4 years recommended
	2 Foreign Language 1 Visual Arts	2 Foreign Language 1 Visual Arts
Other	1 PE/Health Online learning experience	1 College Preparatory Elective
<i>Total</i>	18 required	15 required, 18 recommended
	Source: www.achieve.org “State College- and Career-Ready High School Graduation Requirements Comparison Table”	Source: www.universityofcalifornia.edu “The subject requirement”

state's researchers spent over five years planning the change, which allowed enough time for policymakers to design an exemplary implementation plan. The state implemented the policy with eighth graders in 2006, and expects to see its first graduating class under the MMC in 2011.¹⁹

Despite the many similarities between MMC and A-G policy, there are a number of differences that should be considered when applying lessons from Michigan to California. First, Michigan implemented a statewide policy, rather than the district-level approach that has been taken in California. Second, Michigan increased its statewide required courses from one Civics course to 18 MMC courses, whereas most California districts already require several classes and would only have to increase their course requirements by a few courses to implement A-G. Therefore many California districts should, in theory, face a lesser challenge than the huge increase in requirements that occurred in Michigan. Also, Michigan implemented the MMC along with a common assessment called the Michigan Merit Examination (MME) in order to ensure course rigor. Administered to all 11th graders across the state, it could provide ideas for how California might use standardized tests more effectively. Currently, California has a similar examination called the Early Assessment Program (EAP), but the exam is not required as it is in Michigan.

For most of our information on MMC, we rely on a major study of the policy that was published in June 2010 by The Center for Local, State, and Urban Policy (CLOSUP) at the University of Michigan's Gerald R. Ford School of Public Policy.²⁰ The research was conducted by a team of academic researchers, students, policymakers, and practitioners affiliated with CLOSUP. The study provides information on the implementation strategies and challenges that Michigan school

districts have faced with regard to MMC.²¹

II: Academic Impacts of A-G Policy

In this section, we discuss our findings on the academic issues at stake in the A-G policy debate. Specifically, we examine the effects of the A-G policy on access to A-G courses and college, academic rigor and learning, school dropout rates, and Career Technical Education.

Effect on Access to Courses and College

The primary objective of many districts that have established A-G as a graduation requirement is to increase college eligibility for high school students. Students who do not complete the A-G requirements at a level of 'C' or above are not eligible for UC/CSU enrollment. Courses in which grades of 'D' are earned must be repeated, except in the areas of math and language other than English, where grades of 'D' can be validated by successful completion of higher-level coursework.²²

One reason some students do not complete A-G is that they do not have access to all the classes. Multiple A-G policy advocates to whom we spoke cited cases in which students were unable to get into A-G approved courses because there was not enough room in the class. This is a clear equity issue: if some students cannot attain college eligibility, or do not have access to more rigorous coursework, these students are not being given equal access to educational opportunities. Currently, some schools claim to offer A-G courses to all their students, but could not accommodate all students if they chose to take them.²³ Making A-G the graduation standard would solve this access problem: if all students need to take A-G coursework to graduate, the school will have to offer enough A-G courses to accommodate all students.

Another reason students fall short of A-G is a lack of awareness. As it stands, knowledge of what it takes to be UC/CSU eligible is woefully

low. Andrea Guerrero, Executive Director of the Equality Alliance of San Diego, said, “If you’re not an AVID (Advancement Via Individual Determination) student, the chances of you knowing what A-G is are virtually nil.”²⁴ Guerrero also cited a survey her organization conducted in San Diego that showed 90% of students wanted to go to college but that 90% of students did not know what requirements they needed to complete to go to college.²⁵

Our research suggests that requiring A-G helps solve the awareness problem very directly. If students are by default required to take A-G coursework, they would not necessarily need to know exactly which requirements would make them college eligible. However, they would still need to be aware of the ‘C’ or better aspect of the state’s A-G requirements. Additionally, even in districts in which A-G is not required or not being considered, awareness increases as other districts move towards an A-G policy. One administrator explained that the push for A-G in San Jose had been widely discussed by other districts across the state.²⁶

Despite solving the access problem and the awareness barrier, however, requiring A-G does not necessarily translate into substantial increases in college eligibility. High school graduation only requires a ‘D’ or better, but UC/CSU schools demand a ‘C’ grade or better in all A-G classes with few exceptions. Therefore, students who complete A-G coursework for graduation are still not necessarily eligible for UC/CSU admission. This has a large impact on the number of eligible students. At San Jose Unified, which has had A-G requirements since 2001, fewer than half of their graduates are eligible for UC/CSU schools.²⁷ Since over 90% of students take an A-G course load (special education, English learners, and a few other students are exempt from the requirements), this

indicates that around 50% of students fail to meet the minimum A-G grade standards.²⁸

Though many students remain ineligible, the results from San Jose do indicate that there was a large increase in the percentage of students eligible for UC/CSU admission. The Ed Trust—West reports an increase from 30.3 percent in 1998-1999 to 47.9 percent in 2007-2008.²⁹ While more data needs to be collected to make a definitive conclusion, A-G requirements that are implemented properly do seem to positively impact college eligibility rates in California.

Effect on Academic Rigor and Learning

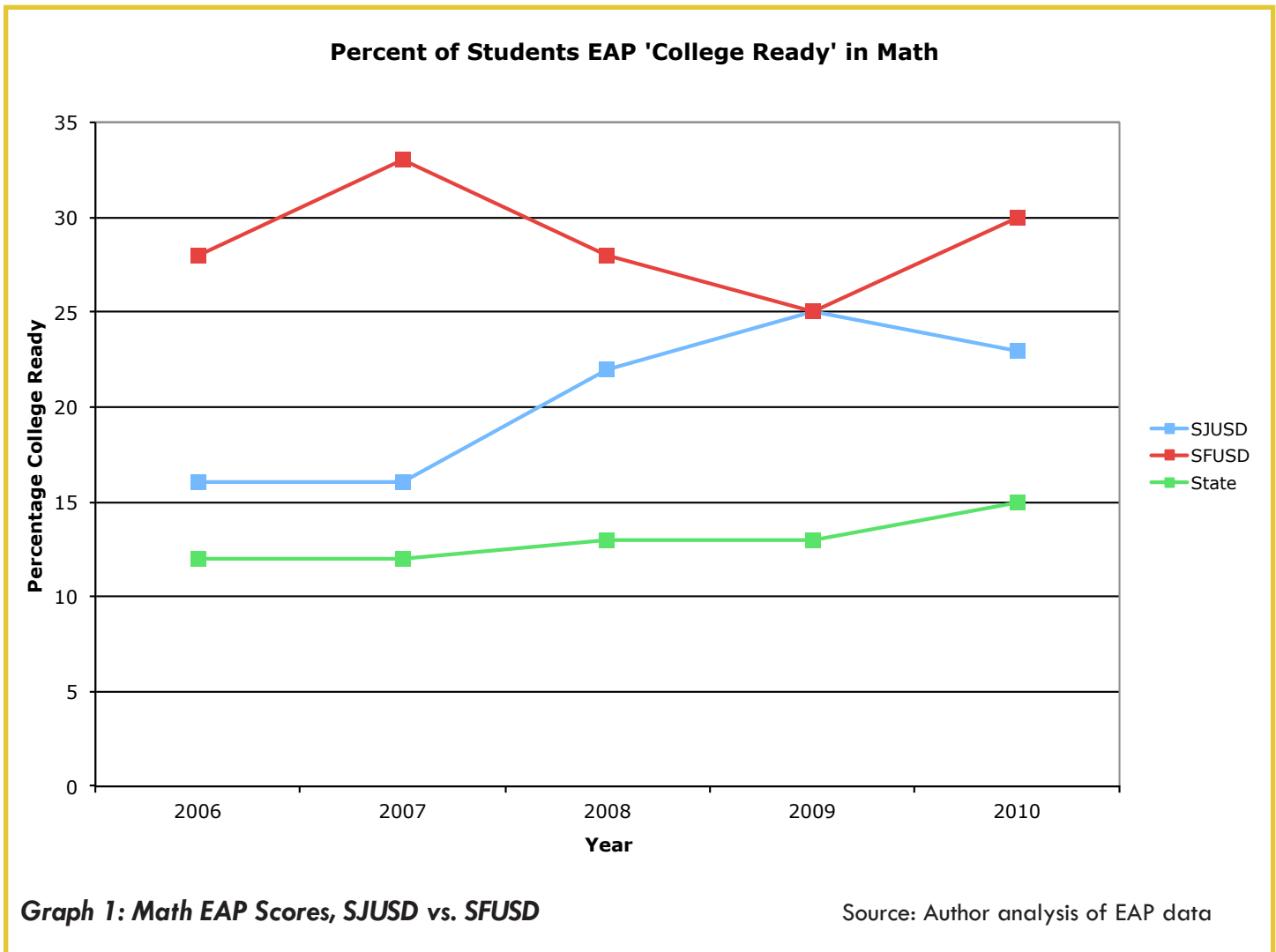
When discussing A-G policy, it is important to remember that A-G requirements are merely course requirements, not specifics about how difficult the courses are. Because of this, there can be enormous variation between the levels of rigor in the same class across different schools. For example, Algebra I at one school and Algebra I at another school both meet A-G requirements but could be vastly different in terms of rigor and instruction. Jennifer Dounay, Senior Policy Analyst at the Education Commission of the States (ECS), explained in a 2006 policy brief that empirical reports from a number of different researchers have shown huge fluctuations in rigor between similar courses at different schools.³⁰ Thus, as noted by David Plank, Executive Director of Policy Analysis for California Education (PACE), “A-G by itself doesn’t tell you whether or not students are ready for college-level work.”³¹

One common concern regarding requiring A-G for all is that it will lower the academic rigor of these core courses. Since there are no overarching standards of academic intensity for the courses, the hypothesis is that classes will be made easier to accommodate the students who would otherwise not be taking the A-G courses.

Our research on this area is inconclusive. The Ed Trust—West study suggested that rigor had not decreased because Advanced Placement (AP) and International Baccalaureate (IB) enrollment numbers increased while AP scores remained steady. However, these numbers alone do not prove that rigor has not decreased, because during the same time period, the total number and percentage of students statewide taking AP exams increased by a much greater amount than the change in San

courses.³³

Since there is limited curricular oversight in general, it is hard to tell definitively whether or not the bar is being lowered with respect to course rigor in districts with A-G requirements to accommodate students who would otherwise not be taking these courses. Even if course rigor does not change, it is possible that grading policies might become more lenient to prevent holding borderline students back from graduating. Recent New York



Jose.³² Additionally, it is unclear whether one can argue that increased AP and IB enrollment shows that academic rigor in A-G courses has remained steady, since AP and IB enrollment and scores are very indirect methods of determining rigor in A-G

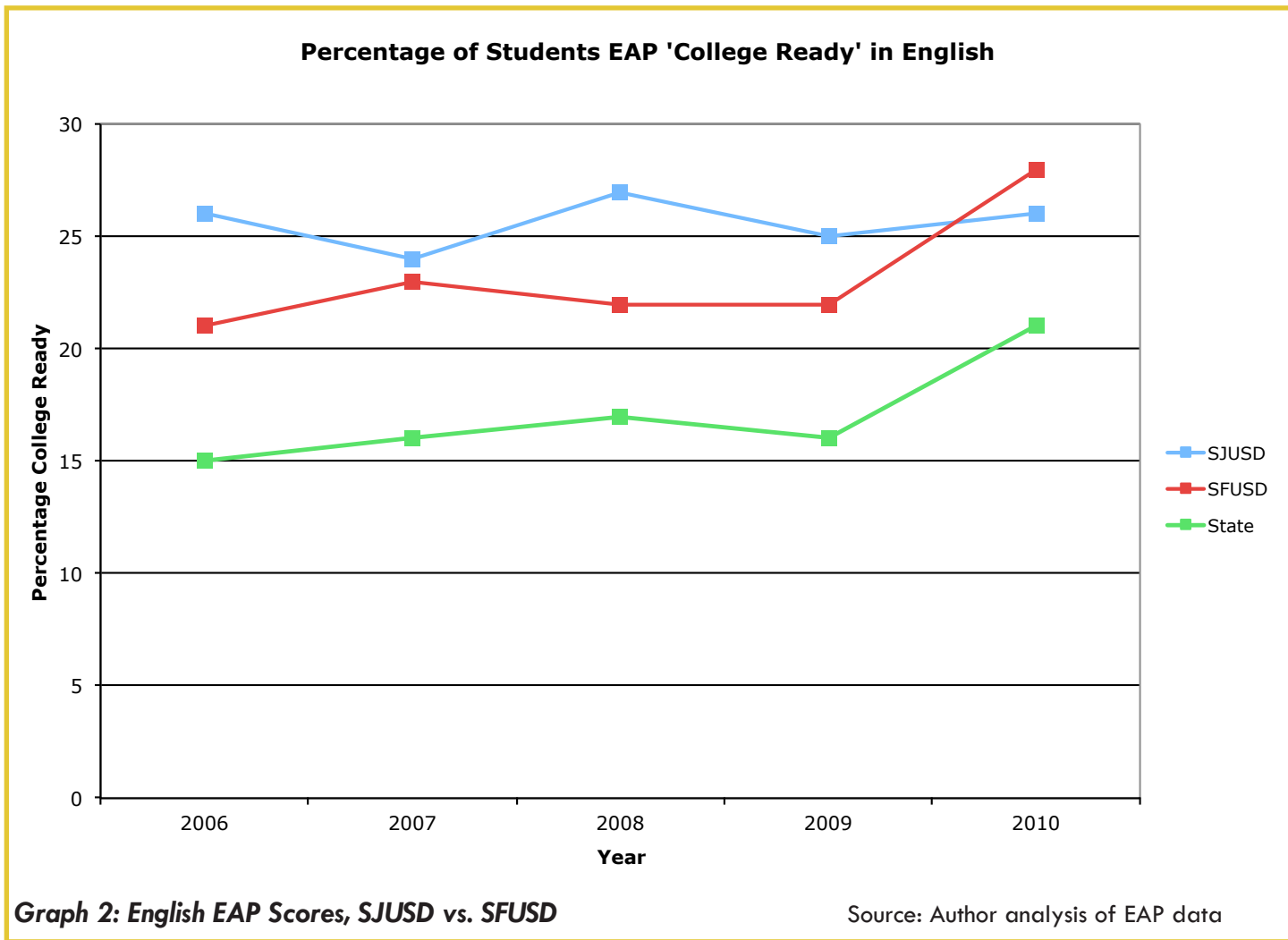
grading scores show that a statistically aberrant number of students scored the minimum passing grade on teacher-graded Regents exams, hinting at the likelihood that teachers awarded students who did not pass a passing grade to enable them to

graduate.³⁴ Most school administrators we spoke with did not believe curricular rigor or grading standards would be compromised in requiring A-G for all.

Rigor is closely related to student learning. While definitively determining how much students are learning is very difficult, perhaps the most direct and accurate way of assessing whether

can, however, draw a few conclusions from the EAP data about how well the A-G courses appear to be preparing the students.³⁶

As seen in Graph 1, math EAP scores at SJUSD have risen since 2006, outpacing the growth at the state level and in comparison to San Francisco Unified School District (SFUSD). Algebra II EAP scores for San Jose have also increased more than



an A-G curriculum means increased student learning is to look at Educational Assessment Program (EAP) scores.³⁵ EAP scores indicate how well students are actually learning the material from their A-G classes. Unfortunately, EAP data is only available from 2006 to the present, so we are not able to examine how the scores have changed due to the policy that was implemented in 1998. We

those across the state as a whole. While the percentage has risen, the number of students that are college ready in Algebra II is still extraordinarily low (between 5 and 10%) and indicate that students are struggling to grasp the Algebra II concepts. English EAP score increases do not vary significantly among SJUSD, SFUSD, and the state as a whole. While the number of students who

are college ready in English is higher than that of those who are prepared in math (between 20 and 25%), the numbers are still low, with the state average always lower than SJUSD and SFUSD. From an analysis of these raw numbers, we concluded that most students are still unprepared for college in both Algebra II and English.

Effect on Dropout Rate

The large number of high school dropouts in California is noteworthy, not to mention expensive: a 2007 study estimated that dropouts cost the state \$46 billion per year.³⁷ If course rigor is not compromised, will increased rigor in students' courses drive more students out of school and increase the dropout rate, as opponents have suggested? We find that most research indicates that dropout rates will not rise as school rigor increases provided that sufficient support systems are in place to ensure that students are prepared and able to complete more rigorous coursework.

The Ed Trust—West study of San Jose Unified showed no change in graduation rates for school years before and after the requirement of A-G.³⁸ Preliminary findings from the case of Michigan also show that drop out rates did not increase as anticipated following the implementation of higher curricular standards. However, the policy needs to be in effect for longer before determining with certainty the impact on the dropout rate in Michigan.³⁹

Existing literature also provides some support for the notion that dropout rates would not increase under A-G policy. In a study on school dropout rates, academic performance, size and poverty, the author concludes, "The results of this study do not support the hypothesis that higher levels of achievement or academic course enrollments are associated with higher dropout rates." Furthermore, "higher achievement is associated

with lower dropout rates even after statistically controlling for AFDC⁴⁰ and total enrollment."⁴¹ In its report on academic intensity, attendance patterns, and bachelor's degree attainment, the Department of Education shows that the strongest indicator of postsecondary educational degree attainment is level of academic intensity, particularly for minority groups, and that it is a much stronger indicator than other factors such as socioeconomic status.⁴²

Survey data supports the theory of many A-G advocates that raising expectations will cause students to meet the higher expectations rather than drive them out of school. In a paper, "The Silent Epidemic: Perspectives of High School Dropouts," survey results showed that students who dropped out felt overwhelmingly unchallenged and uninspired. Sixty-nine percent of respondents felt unmotivated to work hard, 70% claimed they were "very confident" or "somewhat confident" they would have been able to graduate if they had tried, and 66% said they would have worked harder had more been expected of them.⁴³

Another area of past work we investigated was the impact of a mandatory high school exit exam on dropout rates. While it is important to remember the distinction between test scores and curricular requirements, they both set a specific higher bar that students must reach in order to graduate. As such, we examined research on the relationship between California High School Exit Exam (CAHSEE) scores and dropout rates. CAHSEE is a current high school graduation requirement in California. Reardon and Kurlaender (2009) found that requiring CAHSEE had a "strong negative impact" on graduation rates for at-risk and minority students.⁴⁴ Although test scores differ from curricular requirements; it is important to note, that different forms of increased graduation standards may lead to different effects on student outcome.

A-G, Choice, and Career Technical Education

The other significant area of dispute about A-G is its relationship with vocational learning or Career Technical Education (CTE). Many industry and pro-vocational groups have expressed opposition to mandating A-G as a graduation requirement on the grounds that not all students want or need to go to college, and therefore the A-G standards will be unnecessary and unfair burdens on these students. Others argue that mandating A-G limits students' choices of courses, and that they should be free to choose the classes they would like to take.

All sources agree: mandating A-G will limit student course choice at least somewhat. It is impossible to allow students to complete A-G requirements and be allowed to choose their courses in any way they want, since a specific core of A-G courses is required and many students will need to take support classes to help them complete A-G. The extent to which choice will be limited is disputed, but the issue of choice will most affect students who would not take A-G courses if they were not required. These students are both the ones who will experience an influx of A-G courses in their schedules as well as those who are more likely to struggle with the classes. Mandating A-G will still leave room for some class choice: the minimum A-G includes 15 courses out of a normal schedule of 24 or more. Thus, students who require no support classes will still be able to choose nine classes; and those for whom support classes are necessary will choose fewer than nine.

Is the limitation of choice a bad thing? On the one hand, if lack of motivation among students is one of the biggest factors contributing to dropping out of or indifference towards school, one could argue that limiting student choice will only exacerbate this problem. If students are forced to take classes they are not interested in taking,

it seems logical that students would be even less motivated. This issue is dependent, of course, on whether students are unmotivated by the types of classes they are taking or the level of difficulty therein: if it is the rigor, not the field, that leads to student disinterest, then required A-G coursework would benefit students. If it is the types of classes, however, forcing students to take a prescribed set of classes would likely not increase student interest. Survey responses of dropouts indicate a likely combination of the two, since two-thirds of the dropouts responded that they would have worked harder if classes were more difficult and 81% said classes should be more relevant to the real world.⁴⁵

Supporters of A-G argue that it is more important that students have a solid background in the core subjects via an A-G curriculum than total student choice. Andrea Guerrero, the Executive Director of Equality Alliance of San Diego, a community activist group, offers a compelling analogy: if you were at a buffet, would you allow your child to eat whatever foods he or she wanted? Or would you ensure that they got at least some foods from each of the basic food groups first before allowing them to choose their own desserts or snacks? In the same way, she notes, a student's high school curriculum should ensure some minimum requirements in each of the core subjects—such as A-G—instead of allowing complete free reign of courses.⁴⁶

A-G proponents also argue that an A-G curriculum, while limiting student choice in the short term, actually increases it in the long run because it gives graduating students the option to pursue postsecondary education. If students in California do not pass A-G, they will be ineligible for UC and CSU schools, thus limiting their options once they graduate from high school. As former Superintendent Murray explained, requiring A-G makes high school a gateway for more options after

graduation.⁴⁷

Although one of the anticipated outcomes of a mandated A-G curriculum is a higher college eligibility rate, students will continue to choose to not pursue higher education. The Ed Trust—West data shows that ten years after A-G became a graduation requirement (six years after the first class graduated under the new standards), a majority of graduates are still ineligible for UC/CSU admission. Even if every student graduated under the A-G requirements with a C or better and was eligible for UC/CSU schools, some would still choose to not go.

The idea that typical four-year college is not the right path for everyone is at the heart of much of the opposition to A-G from the vocational and technical education sector. If students are not going to college, opponents of A-G argue, it does not make sense to require them to take a college-preparatory curriculum. This raises two distinct issues: first, whether schools should be encouraging more students to go to college; and second, whether A-G coursework is valuable regardless of a student's postsecondary plans.

Guerrero's organization, Equality Alliance of San Diego, stresses the importance of A-G as a gateway to college because they believe a college education is important for finding jobs in the 21st century economy. They write, "In California, by the year 2020, an estimated 75 percent of jobs will require college training in either a community college or university."⁴⁸ In a report by the Public Policy Institute of California the authors express the same concerns Guerrero and Equality Alliance raise. They note, "If California's children and youth do not acquire a college education before they enter the workforce in the coming decades, they face the prospect of low or no employment, a lack of opportunities for high paying jobs, and a greater likelihood of depending on public health

and social services."⁴⁹ Furthermore Eric Volta, Assistant Superintendent at Liberty Union High School District—which has not yet adopted A-G standards—mentioned that, in light of the current recession, most indicators point to needing a bachelor's degree to make money.⁵⁰ Volta's impressions are backed up by PPIC's projections, which show a widening wage gap between high school graduates with and without college degrees.⁵¹ Volta and the PPIC suggest that schools should not only be pushing their students to complete A-G but pursue postsecondary education as well, supporting the case for A-G requirements.

Regardless of future plans, if a student is not going to attend college, A-G could be a good policy for that student if taking A-G classes has value outside of preparing a student for college. Some proponents of A-G contend that completing the A-G curriculum is beneficial for all students. Having a foundational knowledge base is crucial, many argue, and A-G might provide that for college-goers and non-college-goers alike.

But what makes an adequate foundational knowledge base? PACE Director Plank notes, "A-G represents the broad base of education that we would hope young people would acquire in high school. But is [A-G] the right representation? Do all students need three years or is two years enough?"⁵² A-G might be the proper curricular representation for college-bound students, but perhaps not for others. A different source expressed doubt that Algebra II was a necessary course for all high school students, especially those who will enter even skilled jobs will have no relation to Algebra II. It seems hard to imagine, the source noted, that Algebra II would be useful for many jobs. Sid Salazar, Assistant Superintendent of Instructional Support Services at San Diego Unified, has been at the center of the A-G discussion in SDUSD. He noted that while at first glance A-G

classes might not seem all that useful, employers even in vocational fields are looking for candidates who have taken these classes. Industry leaders in all fields, including vocational ones, have been saying that more employees are needed with higher levels of math like Algebra II — more than we may think.⁵³

Are A-G and CTE Compatible?

On the surface, it seems that increased graduation standards and maximizing career technical education are mutually exclusive — a friction that has resulted in much of the opposition to A-G thus far. But many believe that A-G and CTE are indeed compatible, and that students can complete the A-G requirements and still gather career technical skills. Due to the push of districts across the state, more and more CTE-focused classes are being approved as A-G eligible courses for many of the A-G requirements.⁵⁴ According to the California Department of Education, for the current school year, there are over 7,600 CTE courses statewide that are approved for A-G.⁵⁵ Districts have also implemented a variety of programs designed to foster the relationship of A-G and CTE and make a college-preparatory curriculum both “college and career-ready.” The basic way in which the A-G/CTE combination occurs is through the idea of “Linked Learning.”

Formerly known as “Multiple Pathways,” Linked Learning combines an A-G curriculum with career-specific coursework for a particular technical field. It seeks to directly address the main source of discontent among high school dropouts (relevance of course material to other aspects of life) while also increasing the graduation requirements to a UC/CSU eligible level. A Linked Learning pathway includes an A-G curriculum⁵⁶ as well as “a technical core of at least three yearlong standards-aligned technical courses.”⁵⁷ Linked Learning can also include internships, job

shadowing, and involvement with career-focused student groups.

Bill Sanderson, Executive Director of 21st Century Learning and Accountability at San Francisco Unified, pointed to a Linked Learning project with BuildSF, a part of the Architectural Foundation of San Francisco, as an example of Linked Learning in practice. Sanderson explained, “There’s a classroom that’s housed in their building... students from all over the district take a class with them for an entire year that is A-G approved.”⁵⁸ Linked Learning certainly addresses the issue of students feeling school is irrelevant: an architect noted that the class gives students with otherwise no context for the professional world a sense of how the job market works.⁵⁹

A-G and CTE can also coexist through Career Academies. Career Academies are a type of Linked Learning that are “schools within schools”—a particular high school will have a career academy for one field, such as law enforcement, biotechnology, or healthcare,⁶⁰ and another will have one for a different field. Students in Career Academies take an A-G curriculum but have focused coursework on the academy’s particular specialization. Currently, California has over 500 state-funded career academies in place and another 500 that operate independently.⁶¹ In San Francisco, students can choose which district high school to attend, thus allowing them to choose a possible career academy when they select a school.

Summary

Many arguments and projections have been made about the academic impact of A-G as a graduation requirement in California. In this section, we discussed the main academic issues at stake. In terms of equitable access issues, requiring A-G will very likely allow more students to

take A-G classes and make students more aware of actions they must take in high school if they want to pursue postsecondary education. A-G is likely to increase the number of students eligible for college, but the size of the increase is uncertain due to the limited data and recentness of implementation make for a difficult platform from which to speculate. What we do know is that despite making A-G a graduation requirement, low grades still make many graduates ineligible for UC/CSU admissions.

The effect of A-G on academic rigor is also inconclusive. There is no specific evidence that A-G will “water-down” course content, but more lenient grading could occur. A-G is just a set of classes, so without any oversight it is difficult to track course rigor, especially across different districts. The disparity between A-G completion and college-readiness is most apparent in EAP test results: despite taking A-G courses, most students are still unprepared for college, including only single digit percentages of students who understand Algebra II well enough for college-level work.

While opponents of A-G claim it will increase the dropout rate, most available literature and results thus far indicate that this is probably not the case. Students are more likely to meet expectations, even when they are raised. The biggest reasons for dropouts (lack of interest and relevance to life) are important to remember when trying to figure out how to increase student interest and make A-G as successful as possible.

Finally, despite the fact that A-G and CTE seem to be incompatible, there are ways to provide a full college-preparatory curriculum and a career technical focus. Linked Learning offers a number of “pathways” to achieve this goal, including Career Academies and expanded tutoring hours, and San Francisco Unified has reported success thus far with both of these methods.

Overall, while all findings are preliminary due to the recentness of the A-G policies lack of sufficient data, we believe the evidence generally points to a positive academic impact from an A-G policy. The academic effects, however, are only one side of the overall A-G issue: we also need to assess the pragmatic issues at stake to have a full picture of the impact of A-G.

III: Pragmatic Issues with A-G

In this section, we describe and analyze the role of eight critical elements of A-G implementation: political support, cost, and the following six system design elements:

- 1: Deciding whether to allow students to opt-out of the A-G requirements*
- 2: Establishing support systems for students who struggle to meet A-G*
- 3: Providing professional development for teachers and counselors*
- 4: Providing oversight of course rigor*
- 5: Fitting A-G into the daily schedule*
- 6: Creating a college-going culture*

Political Support

Changing high school graduation standards is a political process: teachers’ unions and the CTE lobby often oppose A-G. Unions worry because teachers of electives fear that A-G policy will eliminate their courses and their jobs, and the CTE lobby is similarly concerned that CTE courses will be eliminated or marginalized. Some school board members also may fear that A-G will increase the drop out rate.

In school districts that have adopted or are working to adopt A-G standards, coalitions of community advocacy groups, students, parents, and businesses found it necessary to join forces in order to overcome the opposition. Coalitions mobilized support through town hall meetings

and community presentations, creating pressure on the school board to adopt the policy. Community advocacy/nonprofit groups provided critical leadership in many districts in the push for A-G and implementation planning committees.⁶² These groups continue to promote A-G awareness and reform efforts in other districts. Advocates we spoke to noted their nonprofit groups' aspirations to create a critical mass of districts requiring A-G, which could catalyze support for a statewide A-G policy.⁶³

System Design

The Opt-Out Clause

After passing an A-G policy, districts must decide whether to allow students to opt-out of A-G (i.e., graduate without meeting A-G). While there is little data on the impact of an opt-out, the expected impacts of an opt-out are shown in Table 3. Including an opt-out would theoretically reduce the percentage of students meeting A-G (since some students will opt-out) and reduce student learning (students capable of taking the more rigorous A-G could “take the easy way out”). An opt-out also gives students more choice about the courses they will take, though the impact of increased student choice on dropout rates is unclear.⁶⁴ Finally, an opt-out gives districts more room to err: districts can fail to effectively implement A-G (e.g., fail to provide adequate support systems), and graduation rates might not suffer since struggling students may simply opt-out of A-G. This cushion may reduce the district's incentive to take bold action to ensure that struggling students achieve A-G. The more ambitious option is not including an opt-out: the bar is raised, and if the district fails to properly implement A-G (e.g., establish adequate supports), more students will fail to graduate, or at worst, will drop out.

There is no data yet on what percentage of students will opt-out when they have the option.

Table 3: Theoretical Impact of an Opt-Out

	Opt-Out	No Opt-Out
A-G Completion Rates	↓	↑
Student Choice	↑	↓
Student Learning	↓	↑

PACE Director David Plank tentatively hypothesized that the number of students opting out could be quite low for two reasons: first, many parents would be uninformed about A-G and the opt-out; and second, there is stigma in declaring one's child unable or unwilling to complete rigorous coursework.⁶⁵ In addition, opting out could entail a time-consuming procedure of multiple meetings between students, parents, and staff, which could further reduce the number of students who opt-out. Other sources, however, disagree: Superintendent Murray stressed that if given an option, many students will take the easier path.⁶⁶ Pecolia Manigo of Coleman Advocates concurred, stating simply, “If there is an opt-out, students will opt-out.”⁶⁷

SJUSD, OUSD, and SFUSD are some of the districts that do not offer an opt-out. East Side Union, on the other hand, offers an opt-out. East Side Superintendent Moser highlights two reasons for the opt-out policy: first, it quells anxiety among specific teacher groups, such as CTE, about losing jobs, and second, it quells anxiety among critics about students' ability to complete more rigorous coursework. East Side Union's experience illustrates another key point: including an opt-out makes A-G more politically feasible.

Support Systems

Nearly every district adopting A-G called for increased support systems in its implementation plan. The reason is straightforward: A-G raises the bar for graduation, and without extra support, lower-achieving students will struggle or fail to reach the higher bar. This is not to say that these

students are incapable of reaching a raised bar, but rather that many of them enter high school grossly underprepared for A-G coursework. SFUSD’s Sanderson believes support systems are the *most* essential component of implementing A-G. Linda Murray mentioned, “If you can do only two things, you must have strong support systems and excellent professional development.”⁶⁸ The only way support systems are nonessential is if A-G does not increase course rigor as it should.

Of all possible supports, Linda Murray believes daily supports are most effective.⁶⁹ For example, “shadow classes” are daily support classes offered in a double block with A-G classes. In a schedule with shadow classes, an Algebra II class would be paired in the block schedule with a period of extra Algebra II help for those who need it. Direct tutoring is another effective daily support. Additionally, many districts stress the importance of a Summer Bridge Program, which helps 8th graders transition to high school by taking classes taught by high school teachers on a high school campus before their 9th grade year.

Some SFUSD high schools used to make A-G a graduation requirement, Coleman Advocates’ Pecolia Manigo told us, and the fate of these schools is a testament to the importance of supports. These high schools eventually eliminated A-G around 2002 due to an outcry among largely minority families because their children were failing. The families complained that schools were holding students to raised standards without adequately increasing support.⁷⁰ It seems that A-G policy would fail similarly in districts that do not provide adequate supports.

Unsurprisingly, support systems require time and money. For example, a common complaint among Michigan principals is that the raised standards of MMC took effect too quickly after the policy’s adoption, before support systems

were fully established.⁷¹ SDUSD chose to delay A-G implementation in part because it needed more time to roll out supports among other implementation steps.⁷² SFUSD is struggling to increase supports both because it underestimated the time needed to do so and faces severe budget constraints. Despite SFUSD’s original plans for extensive support systems, summer school 2011 had not yet been approved in the district budget as of late February, nor had tutoring services significantly increased.⁷³ Manigo explained that the critical question for SFUSD’s plans to implement A-G is simply: “Who is going to pay for it?”⁷⁴

Professional Development

As Linda Murray told us, professional development is one of the two most important A-G system design components. At the most basic level, professional development makes teachers and counselors aware of the A-G requirements. Many administrators we interviewed were concerned with how few teachers, counselors, and other staff were aware of A-G, and their resulting inability to effectively support students’ college-going aspirations. Professional development can also prepare teachers to teach material to students with a broader range of skills — such as differentiated instruction for students who used to be in less rigorous courses — and train counselors to help students complete A-G by arranging support for struggling students.

A fundamental element of effective professional development is creating or allotting the necessary time for it to occur. SJUSD lengthened four of its school days to create time on the fifth for teacher collaboration and joint planning, as did some schools in Michigan. Notable other strategies for professional development include “teachers on special assignment” to observe and coach teachers, and monthly workshops for counselors on topics like evaluating transcripts for transfer students

in order to place them on the A-G track.

Finally, most districts provide “professional development for students.” For example, SFUSD makes presentations to all eighth graders about what to expect in high school, and gives each student a t-shirt with the SFUSD graduation requirements and A-G requirements printed on them. SFUSD’s Bill Sanderson explained that A-G is a major paradigm shift, so the district must provide training and information even to students.⁷⁵

Like support systems, professional development is costly. As a result, administrators informed us that some school districts have been unable to provide as extensive professional development as they originally planned due to budget constraints.⁷⁶

Oversight of Course Rigor

While there is limited evidence thus far to support the hypothesis that A-G standards have changed the rigor of A-G courses, oversight is crucial to preventing a drop in rigor and to ensuring some level of consistency across courses. After all, A-G is merely a set of courses, not a measure of student learning.

California has moved towards more overarching consistency across courses throughout the state by adopting the Common Core State Standards (CCSS) in August 2010. The CCSS, which was created through a national reform effort, identifies the key concepts students should know in each course and grade level, and indicates what it means for students to actually understand them. Forty-one states have adopted these standards thus far. PACE Director David Plank notes that with CCSS, “There will be very explicit instructional expectations for students in different grades.”

Other states, such as New York and Michigan, have decided to implement either end-of-course or annual course assessments to ensure that aca-

demic rigor is maintained throughout the state. Additionally, Michigan released a set of statewide content expectations for each course to increase uniformity. These statewide efforts, however, have had some drawbacks. Michigan principals noted that aligning course content to high state standards can be difficult for some teachers. Moreover, the study conducted by Reardon and Kurlaender showed that high school exit exams, one form of oversight, can negatively impact students.⁷⁷ In addition, districts could take actions at the local level to ensure that the level of rigor of their courses is not compromised. Utilizing the “content specialists” mentioned above, for example, can help ensure that teachers maintain course rigor and consistency across a course’s curriculum.⁷⁸

Fitting A-G into the Daily Schedule

Making room in the schedule for A-G classes, support classes, and electives may present a challenge for some districts. Eric Volta of Liberty Union noted that A-G will likely mean fitting more classes into the day, and would probably require an extra period.⁷⁹ On the other hand, East Side Union’s Dan Moser and Andrea Guerrero of Equality Alliance in San Diego reported that their districts’ new curricula would not differ significantly from the previous ones, so fitting A-G into the daily schedule would be fairly easy.^{80,81} We expect that if a district offers in-school support and the same number electives on top of the A-G courses, it will at least need to make some scheduling changes, if not add another period or time to the schedule.

Michigan schools have devised creative solutions to address the scheduling problems created by the Michigan Merit Curriculum. For example, to create more space in students’ schedules for electives and non-MMC courses, many schools have switched from the semester system to the

trimester system. Though the trimester system reduces course length, and in many cases increases the rigor of each course, the system allows students to take more classes than they could under the semester system. The additional trimester is especially useful for students who need to repeat a course, because they do not have to wait an entire semester to take a course.

Other Michigan schools have extended their school days to seven hours so students could take more classes. Some adjusted their course sequences or timing to help students fully understand more difficult topics. For example, rather than teaching the typical sequence Algebra I, Geometry, and then Algebra II, some schools started teaching Geometry before Algebra I, so that students can carry their understanding of Algebra I directly into Algebra II. Some middle schools also began to teach a few high school classes so that students would have fewer required courses to complete in high school.

Creating a College-Going Culture

Many individuals whom we interviewed, including Linda Murray, said the ultimate measure of success for A-G policy is whether it increases the percentage of students attending and completing college. We find that creating a college-going culture is another factor that contributed to college-going rates. Even if students have successfully completed A-G and are eligible for state college, they may not see themselves as college material. Manny Barbara of the Silicon Valley Education Foundation (SVEF) told us the story of a Latino valedictorian student who was accepted into a U.C. school but chose not to attend because he felt he did not belong.⁸²

Some districts already requiring A-G have taken steps to create a college-going culture. For example, SJUSD has established a college/career

center at many of its schools. These centers are designed as one-stop shops for any information about college or postsecondary options. SJUSD also offers the College Readiness Program, which entails workshops for parents on specific colleges and financial aid. In Oakland, students are asked as early as kindergarten about *where*, not *if*, they are going to college.⁸³ SFUSD indicated in its implementation plan that it expects to create a college-going culture by recruiting college students to volunteer at its high schools, hosting college sweatshirt days, and eliminating cost barriers to college tests (e.g., AP, SAT). All of these efforts can contribute to promoting college as a viable option for any student.

The Costs of A-G

Educators and advocates disagree about the costs of A-G. Some of the administrators and superintendents whom we interviewed believed A-G to be “costless.” They argued that teachers of A-G courses would simply replace teachers of non-A-G courses, and the total budget would remain unchanged. In describing SJUSD’s program as costless, Linda Murray mentioned that outside partners, such as local colleges and businesses, helped fund SJUSD’s support systems.⁸⁴ She also discussed reallocating resources to A-G courses by eliminating some elective courses. The Ed Trust–West study also noted that part of the funding for SJUSD’s A-G supports came from cutting or changing other programs.⁸⁵ Owens of SFUSD and Moser of ESUHSD reported similar “low-cost” theories, but mentioned that they might incur unpredictable costs along the way as their programs are still young. It should be noted that Murray considers subsidies and funding reallocations when determining that the program is “costless.” Thus, a district that does not get funding from outside partners or eliminate electives will not have a “costless” program.

Table 4: Projected Costs of A-G Implementation over First Four Years, SDUSD

High-Priority Action Steps	Projected Cost (in millions)
Summer Bridge program	\$0.75
Parent workshops	\$0.275
Teachers for math support classes	\$1.8
Teachers to support students with “D”/“F” grades	\$1.74
Other Action Steps	
Teachers for additional classes	\$6.3
Counselors to support a college-going culture	\$2.0
Total Costs	
High-Priority Action Steps	\$4.6
All Action Steps	\$15.7

Through our research, we found that the costs of A-G include increasing student support systems, increasing professional development, and hiring teachers/counselors. As shown in Table 4, SDUSD, which is a very large district, projects a \$4.6 million cost over four years to implement its high-priority action steps for A-G, and \$15.7 million to implement all action steps for the policy. The high priority action steps are support for students with “D”/“F” grades, parent workshops, bridge programs, and math support classes.^{86,87}

Some cost categories will affect certain districts more than others. For example, A-G requires only two more classes than the previous graduation standards in SDUSD. Therefore, hiring teachers for additional classes will cost less in SDUSD than it would in a district whose former graduation standards vary more substantially from A-G. In addition, the costs of A-G are difficult to project. As Sid Salazar of SDUSD pointed out, a district cannot know in advance how many students will be at risk of failing their courses, which makes it difficult to project the cost of supports.

Summary

To properly implement A-G, a district must consider political support, cost, and six system design elements: an opt-out clause, student support systems, professional development for teachers, oversight for course rigor, course scheduling, and a college-going culture.

Politically, a coalition of community advocacy groups, students, parents, and businesses is critical to overcoming possible opposition from teachers’ unions, the CTE lobby, and/or skeptical school board members. Including an opt-out makes passing A-G more politically feasible. An opt-out would, in theory, decrease both A-G completion rates and student learning. However, an opt-out allows for greater student choice, which might keep students more engaged in school. It is unclear what percentage of students will opt-out if given the option. On the one hand, students might “take the easy way out,” but on the other hand, lack of information and stigma might discourage opting out.

Support systems are critical for low-achieving students who will struggle to meet the higher standards. Raising the bar to A-G without including sufficient supports can lead to failure, as evidenced by some SFUSD schools’ undoing of the A-G policy in the early 2000s. Common supports include shadow classes, tutoring, and a summer bridge program. Professional development is also important because A-G is a paradigm shift requiring new knowledge and skills from faculty and staff. Therefore, districts must make time for increased professional development, perhaps through scheduling changes.

Though no evidence suggests that A-G diminishes course rigor, oversight is essential to ensuring rigor levels are maintained. California has adopted the Common Core State Standards

(CCSS) to guarantee uniformity of course content across the state and will rely on these standards to maintain rigor, which should help ensure that A-G means more than just a set of required names of classes.

Some districts report challenges in fitting A-G into the daily schedule, while others do not. The trimester system, extended school days, and block scheduling are strategies that some Michigan schools used to address scheduling problems.

All of the initiatives to properly implement A-G can be costly. Increasing student supports and professional development are two of the clearest costs, and hiring additional faculty is another common cost. Some districts report that enacting A-G costs them very little for a number of reasons: they already have many of the supports in place, they anticipate a smooth reallocation of teaching resources when accommodating A-G courses, or they have found ways to creatively rearrange funding to push funding towards A-G programs. Before passing an A-G for all policy, districts should make sure they have sufficient funding to successfully implement it.

Closing Thoughts

As so many of our interviewees told us, the implementation of A-G is highly complex and time-consuming. When asked what component of A-G would be easiest to implement, SDUSD's Sid Salazar replied, "Nothing is easy."⁸⁸ With this reality in mind, districts should take care to ensure that they are adequately prepared to implement A-G before instating the policy.

Linda Murray emphasized that the key to A-G policy success is the *interaction* of the policy (i.e., the A-G graduation requirements) and system design (e.g., support systems, professional development).⁸⁹ Neither the policy nor the system design elements alone would be sufficient. Without the

policy, students would underachieve. Without the system design components, students would fail. She highlights support systems and professional development as the two most critical components of implementation. SDUSD identifies parent workshops, the Summer Bridge program and other support systems as its three most critical components.

Finally, it is invaluable for districts raising the bar to A-G to have a devoted leader who oversees the policy from its infancy to its maturation. Peciola Manigo of Coleman Advocates praised Linda Murray for playing this role in SJUSD.⁹⁰ Murray was SJUSD's superintendent from when A-G was first approved to several years after the first class graduated under the new policy. Murray's long-term commitment enabled her to build essential relationships with key stakeholders (e.g., unions, businesses) and to understand the new policy's impact on students. Sid Salazar echoed the importance of a devoted leader when he explained SDUSD's decision to delay the instatement of A-G largely because there had been three different superintendents over three years.

IV: Recommendations for Implementation and Future Research

In this section, we present our recommendations for school districts considering adopting A-G. We first address the question of whether school districts should enact the policy, and then provide recommendations for the implementation of A-G in the event that districts choose to implement the policy.

From our preliminary analysis of the academic impacts of A-G policy, we found that A-G likely benefits students academically if implemented properly. Implementation, however, produces a number of challenges that could be prohibitive for districts. Due to these findings, we recom-

mend that high school districts in California adopt the A-G requirements as graduation standards if and only if they have the means to implement the policy properly. A successful implementation of the A-G policy likely increases students' preparedness for postsecondary school opportunities, but if a district lacks the funding and organization to implement the policy successfully, then A-G may negatively impact students. Therefore, a district must determine whether they have the resources to properly enact A-G.

To successfully implement A-G, districts must consider the factors that we discussed in the section on practical issues. These include political support, cost, and six system design elements: an opt-out clause, student support systems, professional development for teachers, oversight for course rigor, course scheduling, and a college-going culture. Districts must ensure that they have enough funding for the two most important system design elements – student supports and professional development. Within these two factors, we believe that the most beneficial elements and thus the most important ones to implement are daily student supports, such as shadow classes and tutoring, as well as professional development strategies like providing content specialists, raising teacher awareness, and differentiated instruction.

Before enacting A-G, districts should know that implementing the policy can be a long, arduous process. Given all of the factors at play, we strongly recommend that districts think long-term and plan ahead: having committed leaders and preparing for later stages in the implementation process early on will greatly facilitate the adoption process.

We also want to underscore the need for more research on the subject of A-G. Many of our conclusions, particularly about the academic impacts

of an A-G policy, are preliminary and would greatly benefit from further research. While the current evidence points to A-G having a positive academic effect, more research, especially once more data is available, will further elucidate the impacts.

A major roadblock to a better understanding of A-G policy effects is the lack of accurate data. Since California Department of Education data is self-reported, the onus for data accuracy falls on the districts themselves. Districts can strengthen the understanding of A-G – and likely the case for the A-G policy – by improving their reporting accuracy. Without accurate data, the empirical analysis of A-G is nearly impossible. With this data, researchers should look to compare data from demographically similar districts that have enacted A-G to those that have not. Qualitatively, researchers can survey or interview administrators, teachers and students in A-G districts to gain a better sense of which aspects of A-G are more and which are less beneficial. We also recommend that districts with A-G share their best practices with other districts to make implementation more effective and efficient. Through these steps, districts can better understand how to improve the education of all students.

Appendices

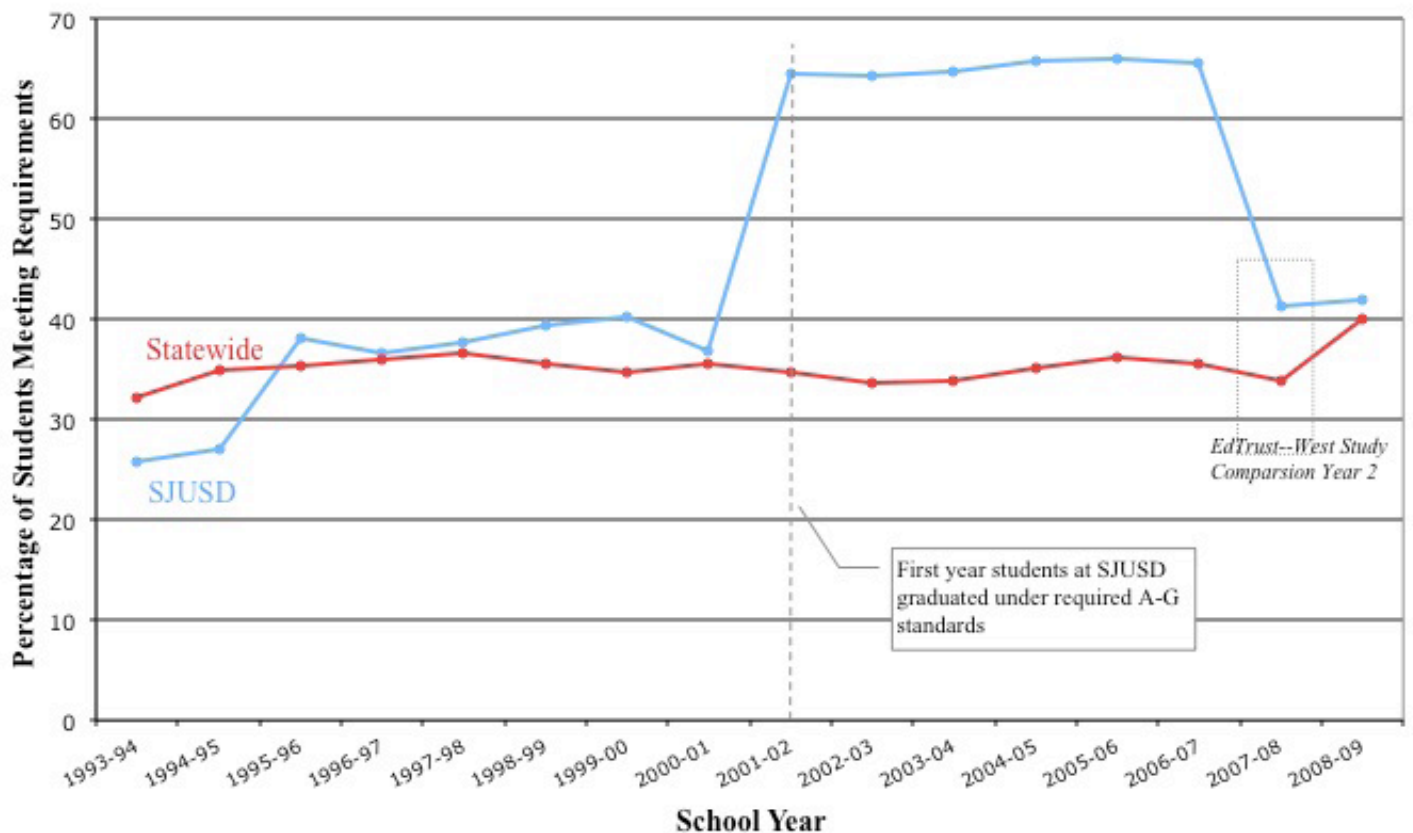
Appendix A: A-G Requirements

Subject	# of Years Required
A: History/Social Science	2 Years
B: English	4 Years
C: Mathematics (including Algebra II in most cases)	3 Years (UC recommends 4)
D: Lab Science	2 Years (UC recommends 3)
E: World Language	2 Years (UC recommends 3)
F: Visual/Performing Arts	1 Year
G: College Prep Elective	1 Year

Appendix B: Chart Showing Incorrect CDE Data on A-G Completion

We produced this chart with data on A-G completion from Dataquest, the California Department of Education public database. After discussing the data with Linda Murray and others, we found out that the reason there is a large spike in the SJUSD data and then an equally large drop a few years later is due to misreported data. Prior to the 2007-08 school year, SJUSD had reported A-G completions as any student completing the coursework regardless of grades; actual A-G completions should include only those who pass with a 'C' or better. The school district realized its mistake and began more accurately reporting data starting with the 2007-2008 school year. Data from other districts is at least as likely to be flawed. Collecting accurate A-G data is time consuming, and, according to Murray, most districts are misreporting their A-G completion numbers. Therefore, all points on this chart except for the last two dots on the SJUSD line are likely to be substantially inaccurate.

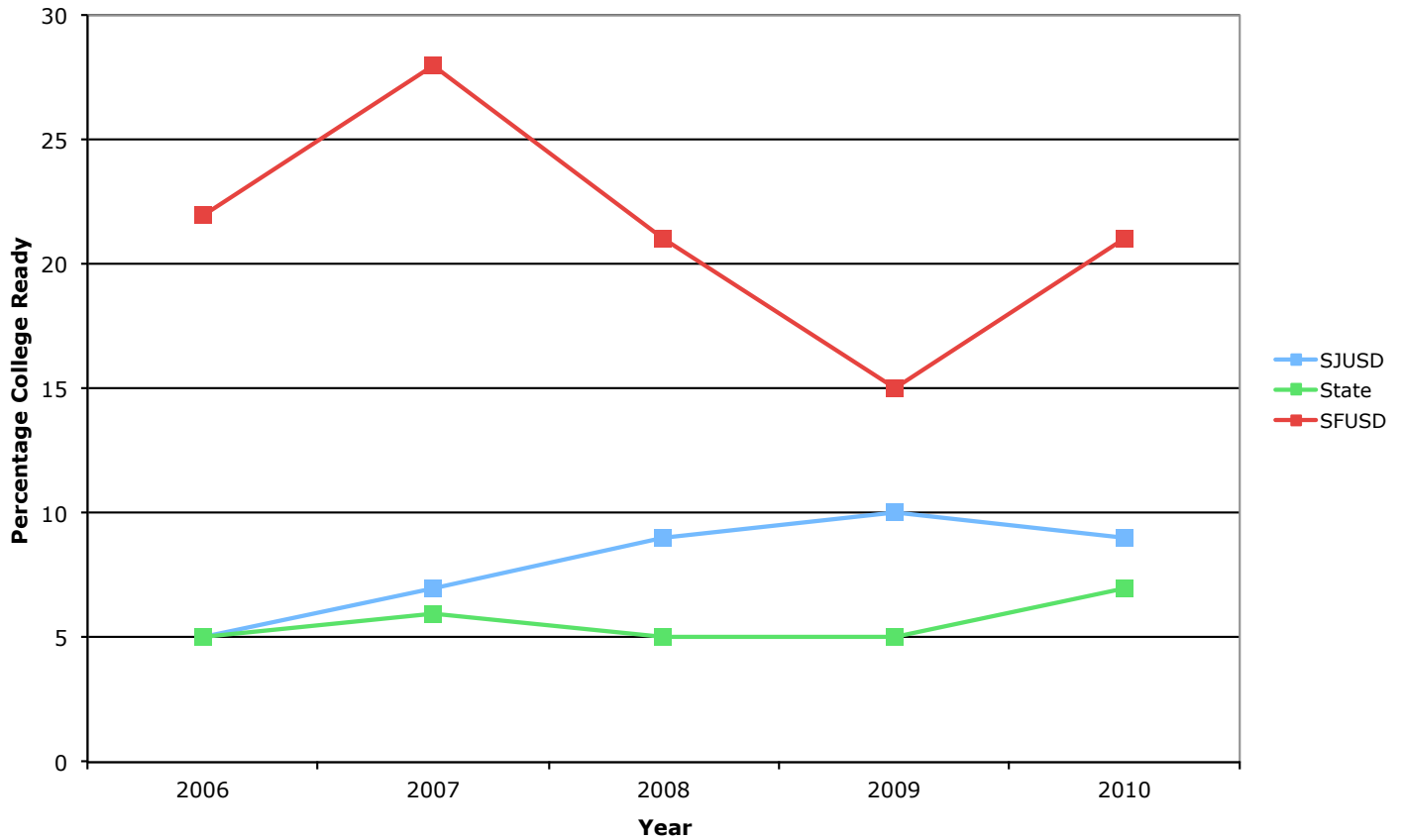
Percentage of Students Completing A-G Requirements



Appendix C: Algebra II EAP Scores

EAP scores for SJUSD, SFUSD, and the state from 2006-2010. EAP scores are one of the best measures of A-G learning since it describes whether students have mastered the content.⁹¹ EAP scores for general math and English appear in text as Graphs 1 and 2.

Percentage of Students EAP 'College Ready' in Algebra II



Appendix D: District Experiences with Implementation

Political Support

Dan Moser, Superintendent of the East Side Union High School District (ESUHSD), reported that a student group within the district, Californians for Justice (CFJ) and community advocates formed a coalition to lobby for A-G policy.⁹² According to Moser, five town hall meetings, three ESUHSD teaching staff curricular meetings, and several student focus groups were conducted by the fall of 2009 to garner support for the policy and compose a draft for a proposal for the school board.⁹³ The Silicon Valley Education Foundation (SVEF) played a critical supportive role throughout the process.

The school board rejected the first draft of the A-G proposal, demanding that the coalition gather more community support. The coalition proceeded to garner further support from the parents of students in ESUHSD. Community organizers involved with ESUHSD's adoption of A-G corroborate Moser's experience with multiple interest groups⁹⁴ and noted the wide array of participants at the town hall meetings, including school board members, teachers, principals, and students. The increased community support led the school board to pass the proposal several months later.

The A-G reform effort in SFUSD similarly witnessed the rise of a coalition that pushed for the district's A-G resolution and is now overseeing implementation.⁹⁵ AVID administrator Jason Owens reports that several interest groups came together, in part facilitated by Coleman Advocates, a nonprofit that focuses specifically on youth issues in San Francisco. Community organizations are helping to bring community members, especially parents, to the town hall meetings SFUSD will conduct to inform students and parents about A-G. Owens believes the support of community advocacy groups, school administrators, students, and parents gave the resolution necessary added force and helped cement the school board's decisions to move forward with A-G implementation.

A-G proponents in San Diego Unified School District (SDUSD) also formed a coalition of diverse groups that successfully lobbied the school board, which approved A-G policy in June of 2009. The coalition had been planning for the policy's long-term needs since they started pushing for the policy. Equality Alliance of San Diego, a nonprofit dedicated to minority issues in San Diego, played a leadership role, as did SDUSD officials like Sid Salazar.⁹⁶ The coalition researched the experience of other districts that had already implemented A-G to build on their strategies. It also called on Ed Trust–West to conduct an audit to make recommendations for successful A-G implementation. In this way, A-G proponents in SDUSD were highly methodical and well prepared to defend the policy against criticisms from opponents. According to Equality Alliance's Andrea Guerrero,⁹⁷ an integral component of SDUSD's proposal for A-G was a provision to conduct ample research and maintenance checks for the policy once it was passed. SDUSD was also concerned about the political opposition from vocational advocates, and so it made an effort to include Linked Learning classes in its resolution to address the concerns of teachers' unions and the CTE lobby.

Opt-out Clause

In non opt-out districts, only English language learners, special education students, or students en-

Appendix D: District Experiences (cont'd)

during extreme hardship may graduate without meeting A-G. In the latter case, the student's parents and counselor must approve the alternative graduation scheme, and the student will earn a certificate of completion.

LAUSD currently has unclear rules about an opt-out – students are tracked into A-G coursework by default. There are no clear rules about who may opt-out, although the opt-out does seem to exist.

Support Systems

SJUSD introduced the most robust set of supports of any district. Perhaps because it was the first district to require A-G, SJUSD was determined to minimize any harm that might come to their students from this experimental policy. Its supports included but were not limited to:

- § “Shadow classes,” which are support classes offered in a double block with A-G classes (e.g. a period of extra help in math coupled with the actual math class)
- § Extended school day, made possible by staggered teacher schedules
- § Cross-age tutoring program
- § Summer bridge program, in which 8th graders transition into high school by taking classes taught by high school teachers on a high school campus
- § Summer school “revamped” with smaller class sizes and newly recruited, high-quality teachers
- § Saturday academies⁹⁸

SFUSD has implemented a portfolio of credit earning options, including:

- § Dual enrollment
- § Credit recovery
- § Dual scheduling
- § Online courses

Schools in Michigan implemented a number of supports in conjunction with MMC, such as:

- § Making Algebra II a two-year course, as Algebra II tends to be a serious challenge for many students
- § Identifying low-achieving students at a young age
- § Transition programs
- § Focus and study skill classes
- § Guided academic classes

Professional Development

SJUSD provided robust professional development. Some examples include:

- § A coaching/mentoring program to support teachers in the classroom

Appendix D: District Experiences (cont'd)

§ Schoolwide trainings on teacher-generated topics, such as:

- Differentiated instruction
- Scaffolding techniques
- Improving grade calibration
- Improving content knowledge
- Increased teacher collaboration and joint planning, made possible by lengthening four of the school days to create time on the fifth day⁹⁹

The professional development SFUSD has provided includes, for example:

§ Teacher focus groups

§ Deploying supervisors to observe and coach teachers

§ Monthly workshops for counselors on such topics as evaluating transcripts for students from other districts and placing them on the appropriate A-G track

When Michigan raised its graduation standards, principals similarly increased intra- and interdisciplinary communication among teachers by setting aside time for teachers to meet and plan courses together. As a result, teachers supported each other more, creating a low budget form of professional development. In addition, “Professional Learning Communities” have developed in which teachers share best practices in education. “Team Teaching” has also increased among Michigan schools. The teaching team usually consists of a special education teacher and a general education teacher that teach a group of students from both special and general education levels.

Oversight of Course Rigor

One possible way to ensure course rigor is to administer end-of-course exams. New York, for example, requires Regents examinations in each academic subject. Unlike grading, exams offer a somewhat more objective assessment of student learning; however, exams are also problematic because, as Reardon and Kurlaender found, exams can be unfair to female and minority students due to stereotype threat.

The Michigan Department of Education developed a new set of High School Content Expectations (HSCEs), which specify content and standards for each course in order to ensure rigor will not decrease because of the raised standards. The state also administers the Michigan Merit Examination at the end of grade 11 to measure students’ learning. The HSCEs were designed to help increase uniformity across all Michigan high schools. Researchers at the University of Michigan surveyed principals and found “54 percent said that their teachers had not had difficulties aligning their courses to state standards, 39 percent reported some difficulties and 7 percent reported extensive difficulties.”¹⁰⁰ Furthermore, responses varied with demographic. Researchers found that urban districts had less trouble than rural

Appendix D: District Experiences (cont'd)

districts in aligning their course content with HSCEs.

Issues of Cost

Some components of implementation, SDUSD predicts, will be costless, such as reforming master schedules. On the other hand, SDUSD acknowledges that the three most expensive programs will be hiring/compensating teachers for additional classes, creating a college-going culture by increasing the number of counselors, and hiring/compensating teachers to support students with “D”/“F” grades.

Eric Volta, Assistant Superintendent of the Liberty Union High School District in Brentwood, speculated that while elective classes might not help students progress toward graduation, they might be the classes that keep students in school and engaged in their studies.¹⁰¹ In this sense, eliminating electives in order to cut costs is risky.

In addition, schools implementing A-G must prioritize the development and expansion of some courses over others. Almost every school administrator we interviewed identified English and math, especially at the freshman level, to be critical determinants of students’ success. As such, districts often prioritize these courses by hiring more math and English teachers (both for the main courses and support courses) and phasing out elective teachers. Hiring more world language teachers is also common. Even after phasing out elective teachers, the influx of math and English teachers often results in higher teacher salary costs. However, paying these costs helps keep A-G class sizes manageable. Because it is the districts’ goal that students earn a ‘C’ or better in their A-G courses,¹⁰² reasonable class sizes are essential to ensure that student-teacher interaction either increases or remains the same as before the policy.

Endnotes

- 1 California state graduation requirements include 13 yearlong courses, whereas eligibility to attend a University of California or California State University is not granted unless 15 yearlong courses are completed. “California High School Graduation Requirements” (California Department of Education, 2010).
- 2 “The Subject Requirement.” *University of California*. Web. 03 Mar. 2011.
- 3 Hereafter referred to as “A-G.”
- 4 Courses in which grades of D are earned must be repeated, except in the areas of math and language other than English, where grades of “D” can be validated by successful completion of higher-level coursework (UC Berkeley, 2009).
- 5 College-going rates were calculated by dividing the number of entering students from public schools in the county by the total number of graduates from public schools in the county. (CPEC)
- 6 “2009 College-Going Rates to University of California.” California Postsecondary Education Commission. <http://www.cpec.ca.gov/StudentData/CACGRCountyGraph.asp?Segment=A>.
- 7 “2009 College-Going Rates to California State University.” California Postsecondary Education Commission. <http://www.cpec.ca.gov/StudentData/CACGRCountyGraph.asp?Segment=B>.
- 8 All districts in Table 1 have separate provisions for special education students or English Language Learners. Some students within these groups may choose to complete coursework toward a certificate of completion instead of a high school diploma under the A-G requirements.
- 9 The East Side Union School District office is located in San Jose.
- 10 We derive these factors from the major criteria for evaluating educational achievement in the areas of contention with A-G that we encountered most often in our interviews and research.
- 11 Education Trust—West. *A Case Study: Preparing Students for College and Career*. Oakland: Education Trust—West, 2010. Print.
- 12 Graph 2. Ibid.
- 13 Campbell, Donald T., and H. L. Ross. “The Connecticut Crackdown on Speeding: Time-Series Data in Quasi-Experimental Analysis.” *Law & Society Review* 3.1 (1968): 33-54. Web.
- 14 Murray, Linda. Interview. 14 Feb. 2011.
- 15 Ibid.
- 16 “University Eligibility: Are Locally Reported Figures Comparable to the Commission’s Estimates?” California Postsecondary Education Commission. June 2006. FS 06-03.
- 17 “State College- and Career-Ready High School Graduation Requirements Comparison Table” www.achieve.org.
- 18 The areas that will not have a graduation class impacted by higher standards until 2012 or after include Alabama, Arizona, Florida, Georgia, Kentucky, Minnesota, Mississippi, Nebraska, New Mexico, North Carolina, Ohio, Tennessee, and Utah.
- 19 “State College- and Career-Ready High School Graduation Requirements Comparison Table,” www.achieve.org.
- 20 “Mandating Merit: Assessing the Implementation of the Michigan Merit Curriculum.” The Center

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for Local, State, and Urban Policy. Gerald R. Ford School of Public Policy. University of Michigan. June 2010.

21 Data illustrating the policy's effect on student achievement is limited due to the recentness of MMC's implementation.

22 UC Berkeley, 2009.

23 Guerrero, Andrea. Phone Interview. 18 Feb. 2011.

24 Ibid.

25 Ibid.

26 Volta, Eric. Phone Interview. 18 Feb. 2011.

27 Ed Trust—West reports 47.9% A-G completion at SJUSD for the 2007-2008 school year. (Ed Trust—West 2010). Perhaps indicative of the extent of the data issues, San Jose reported 41.3% for the 2007-2008 school year to Dataquest (California Department of Education). The public data on A-G at SJUSD was supposed to be corrected starting with the 2007-2008 school year (when Linda Murray and Ed Trust—West realized that the data was misreported), but the numbers still do not match up. Thus, there still appear to be some data problems with public data on A-G completions.

28 Approximately 93% of students in comprehensive high schools in the San Jose Unified district took an A-G courseload in 2007-08. (Ed Trust—West 2010).

29 Ibid.

30 In her report Dounay states, "At ECS' National Forum on Education Policy last July, Jean Rutherford of the National Center for Educational Accountability reported that in Texas, 57% of Hispanics, 65% of African Americans and 60% of low-income students who had credit on their transcripts for both geometry and Algebra II failed the state test covering Algebra I...A substantial number of high school students who had completed California's 'A-G curriculum' – which is aligned with entrance requirements for the state's two university systems – required remediation in English and/or math in their first year of college." (Dounay, ECS. 2006)

31 Plank, David. Phone Interview. 22 Feb. 2011.

32 Numbers derived from College Board Data and CDE Enrollment Data.

33 Ed Trust—West explains the use of AP and IB in rigor determination: "If expectations in the core college-preparatory curricula were indeed being lowered, [district leaders] would expect to see enrollments drop in the most rigorous coursework, AP and IB, and pass rates decline on AP and IB exams." (Ed Trust—West 2010)

34 Otterman, Sharon. "City to Toughen Auditing of Test Scores." New York Times. 18 February 2011.

35 EAP is a voluntary addendum to the mandated California Standards Test (CST) written by college professors aimed at determining whether students are actually ready for college-level work. It is administered in the 11th grade. EAP scores by district are publicly available from the California State University system. <http://www.calstate.edu/pa/News/2010/release/EAP.shtml>

36 EAP scores are in four areas: English, Math, Summative High School Math, and Algebra II.

37 Belfield, Clive R. and Henry M. Levin. 2007. "The Economic Losses from High School Dropouts in California." California Dropout Research Project.

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- 38 Education Trust—West. A Case Study: Preparing Students for College and Career. Oakland: Education Trust—West, 2010. Print.
- 39 Mandating Merit: Assessing the Impact of the Michigan Merit Curriculum. June 2010. The Center for Local, State, and Urban Policy. Gerald R. Ford School of Public Policy, University of Michigan.
- 40 AFDC = Aid to Families with Dependent Children.
- 41 Fetler, Mark. 1989. "School Dropout Rates, Academic Performance, Size, and Poverty: Correlates of Educational Reform." *Educational Evaluation and Policy Analysis: Summer 1989*, Vol. 11, No. 2, pp. 109-116.
- 42 Adelman, Clifford. 1999. "Answers in the Tool Box: Academic Intensity, Attendance Patterns, and Bachelor's Degree Attainment." Washington, DC: U.S. Department of Education.
- 43 Bridgeland, John M., John J. Dilulio, Jr., and Karen Burke Morison. 2006. "The Silent Epidemic: Perspectives of High School Dropouts." Civic Enterprises.
- 44 Reardon, Sean and Michael Kurlaender. "Effects of the California High School Exit Exam on Student Persistence, Achievement, and Graduation." 2009.
- 45 Bridgeland, John M., John J. Dilulio, Jr., and Karen Burke Morison. "The Silent Epidemic: Perspectives of High School Dropouts." Civic Enterprises. 2006.
- 46 Guerrero, Andrea. Phone Interview. 22 Feb. 2011.
- 47 Murray, Linda. Interview. 14 Feb. 2011.
- 48 "Preparing for the Future." Education Consortium of San Diego, Spring 2010. The data is from a report from the Public Policy Institute of California (PPIC) entitled "California's Future Workforce: Will There Be Enough College Graduates?" The claim that 75% of jobs will require community college or 4-year college is, however, not explicitly written in the text; the only way we can derive this number is from extraction from graphical representations in the original text, but the validity of the number is unclear. The paper does emphasize the point, though, that some 41% of future jobs will require a bachelor's degree, and at current rates California will not meet that demand.
- 49 Baldassare, Mark and Ellen Hanak. "California 2025: Taking on the Future." Public Policy Institute of California. 2005.
- 50 Volta, Eric. Phone Interview. 18 Feb. 2011.
- 51 Baldassare, Mark and Ellen Hanak. "California 2025: Taking on the Future." Public Policy Institute of California. 2005.
- 52 Plank, David. Phone Interview. 22 Feb. 2011.
- 53 Salazar, Sid. Phone Interview. 01 Mar. 2011.
- 54 Sanderson, Bill. Phone Interview. 25 Feb. 2011.
- 55 "Since the 2001-02 year, the number of CTE courses accepted for 'a-g' approval has increased dramatically. In 2001, UC had approved just 258 CTE courses. Today, over 7,600 CTE courses are approved to meet UC "a-g" Admission requirements or about 32.4 percent of the 23,600 CTE courses offered in California schools. Moreover, it is expected that the number of approved CTE courses will continue to climb. Pursuant to SB 1543 (2006), UC has developed model uniform academic standards for CTE courses to provide more guidance to teachers and administrators who want their CTE courses

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- approved by UC.” California Department of Education. (“California High School Career Technical Education Courses Meeting University of California ‘a-g’ Admission Requirements for 2010-11.”)
- 56 “Although only a percentage of high school students will enroll in UC and CSU, it is desirable for students to complete the minimum eligibility requirements to leave that option open. Doing so also better prepares students for coursework at the California community colleges, other training options, and the workforce.” ConnectEd FAQ.
- 57 ConnectEd FAQ.
- 58 Sanderson, Bill. Phone Interview. 25 Feb. 2011.
- 59 Rapaport, Richard. “Immersing Students in Civic Education.” Edutopia.
- 60 Owens, Jason. Phone Interview. 17 Feb. 2011.
- 61 Career Academy Support Network. “Career Academies: A Proven Strategy to Prepare Students for College and Careers.” CASN Berkeley.
- 62 E.g. Silicon Valley Education Foundation in ESUHSD, Coleman Advocates in SFUSD and Equality Alliance in SDUSD.
- 63 For district-specific information on political support, see the “Political Support” section in Appendix D.
- 64 Students who opt-out may be more engaged in their studies and less likely to drop out because they choose classes that most interest them. On the other hand, students who opt out may simply choose to take the easiest classes, which will leave them unengaged and more likely to drop out.
- 65 Plank, David. Phone Interview. 22 Feb. 2011.
- 66 Murray, Linda. Personal Interview. 14 Feb. 2011.
- 67 Manigo, Pecolia. Phone Interview. 23 Feb. 2011.
- 68 “Recommendations for Implementation: Draft Proposal.” SFUSD Superintendent’s Study Team. 08 April 2009. Web. 03 Mar. 2011.
- 69 Murray, Linda. Personal Interview. 14 Feb. 2011.
- 70 Manigo, Pecolia. Phone Interview. 23 Feb. 2011.
- 71 Middle schools especially had little time to transform their own curriculum in order to adequately prepare students for the more rigorous MMC courses, as the first cohort to graduate with MMC requirements was in eighth grade when the policy was adopted. In fact, 55% of Michigan high school principals cited eighth grade students’ lack of prerequisite knowledge as one of their most serious concerns about implementing MMC.
- 72 Salazar, Sid. Phone Interview. 01 Mar. 2011.
- 73 Manigo, Pecolia. Phone Interview. 23 Feb. 2011.
- 74 For district-specific information on support systems, please see the section “Support Systems” in Appendix D.
- 75 SFUSD graduation requirements and A-G requirements are highly similar but not identical. For example, the former includes a “College and Career Education” course.
- 76 For district-specific information on professional development, see the section “Professional Development” in Appendix D.

Endnotes (cont'd)

opment” in Appendix D.

77 Reardon, Sean and Michael Kurlaender. “Effects of the California High School Exit Exam on Student Persistence, Achievement, and Graduation.” 2009.

78 For district-specific information on oversight, please see the section “Oversight of Course Rigor” in Appendix D.

79 Volta, Eric. Phone Interview. 18 Feb. 2011.

80 Moser, Dan. Phone Interview. 18 Feb. 2011.

81 Guerrero, Andrea. Phone Interview. 18 Feb. 2011.

82 Barbara, Manny. Personal Interview. 14 Jan. 2011.

83 Kampa, Diana. Phone Interview. 23 Feb. 2011.

84 Murray, Linda. Phone Interview. 14 Feb. 2011.

85 “The district did not have new sources of revenue to fund the reforms. Administrators reallocated existing resources, which often involved curtailing or cutting some popular programs to free up money for student safety nets.” (Ed Trust—West 2010).

86 “Summary of Preliminary Budget Implications [DRAFT].” SDUSD Career Ready and College Preparatory Taskforce. 22 Feb. 2011. Web. 06 Mar. 2011.

87 For the transition from middle to high school, *and* from elementary to middle school.

88 Salazar, Sid. Phone Interview. 01 Mar. 2011.

89 Murray, Linda. Phone Interview. 14 Feb. 2011.

90 Manigo, Pecolia. Phone Interview. 23 Feb. 2011.

91 Plank, David. Phone Interview. February 22, 2001.

92 Moser, Dan. Phone Interview. 18 Feb. 2011.

93 By “curricular,” Moser means to indicate that the topic was approached from a subject-by-subject perspective when looking at how it might fit into the rubric of ESUHSD high schools.

94 De Leon, Rosa. Phone Interview. February 22, 2011.

95 Owens, Jason. Phone Interview. February 17, 2011.

96 Sid Salazar is the Assistant Superintendent for Instructional Support Services, SDUSD.

97 Guerrero, Andrea. Phone Interview. 18 Feb. 2011.

98 Education Trust—West. A Case Study: Preparing Students for College and Career. Oakland: Education Trust—West, 2010. Print.

99 Ibid.

100 “Michigan Merit Curriculum High School Graduation Requirements.” Michigan Department of Education. Nov. 2007:4. Web. 03 Mar. 2011.

101 Volta, Eric. Phone Interview. 18 Feb. 2011.

102 UC universities require a ‘C’ or better of their applicants while CSU universities have room for exceptions to this stipulation. “*CSU-UC Comparison of Eligibility Requirements for 2011 12 Freshman Admission.*” (University of California Admissions, 2010).

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