SDP FELLOWSHIP CAPSTONE REPORT

Charting a Path through the Numbers: Three Efforts to Help Schools Translate Data into Action

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SDP Fellowship Capstone Reports

SDP Fellows compose capstone reports to reflect the work that they led in their education agencies during the two-year program. The reports demonstrate both the impact fellows make and the role of SDP in supporting their growth as data strategists. Additionally, they provide recommendations to their host agency and will serve as guides to other agencies, future fellows, and researchers seeking to do similar work. *The views or opinions expressed in this report are those of the authors and do not necessarily reflect the views or position of SDP or the Center for Education Policy Research at Harvard University.*

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Section I. Introduction

In recent years, states and districts have become more effective at collecting and distributing performance data. As a result, school leaders often have more data that are of better quality than ever before. However, despite these improvements, many school leaders still struggle with the challenge of translating their schools' data into concrete action. Similarly, once states and districts have invested in the data systems or analyses that they believe their schools need, continuing support for data usage is often thin. This report explores efforts at the state, district and school levels to help school leaders analyze and then act on performance data.

In Howard County, school counselors are using data and a new tool, Naviance, to move students closer to the Superintendent's "Promise of Preparation." The Promise underscores the district's commitment to have every graduate prepared to go to college. Naviance usage and student survey data are being used to better understand how school counselors help students prepare for, apply to and matriculate at college or university. Hetal Thukral and Linda Wise are using these data to develop Key Performance Indicators to gauge the district's progress towards the Promise.

Hawaii, which acts as both a state and district, has invested heavily in new data and performance management systems, with the unintended effect of overwhelming some school leaders with too much data. Dave Moyer is developing a data use framework that differentiates which data are most useful at certain points in the year and emphasizes the daily use of attendance, behavior and course marks data to monitor performance during the school year.

In San Jose Unified School District, school leaders are learning how to use data for more effective decision-making. Emalie McGinnis and Kristen Rohanna lead OpStat teams supporting principals on how to move the needle on the district's Key Performance Measures. Through a problem-solving cycle of inquiry framework, principals use data to identify root causes, develop a theory of action, create an action plan, and evaluate their plan's efficacy. A key component to this model involves accountability and support at all levels of the system.

In Tennessee, the state has analyzed its college-going pipeline, and has found that its high schools can be classified into several distinct groupings that suggest specific actions for preparing certain groups of students for college and career. Nate Schwartz is working on an effort designed to help Tennessee's districts understand these differences and triage their support to the schools appropriately.

Section II. Literature Review and Project Context

There has been a large increase in the amount of data available to school districts, teachers and educational leaders, however, usage of those data has not risen proportionally. The technical challenges in being able to use data are relatively straightforward; Schmoker (2008) cites the lack of good comprehensive and longitudinal data systems that provide meaningful data to stakeholders to raise questions, identify issues, and make informed decisions. Other challenges to the effective use of data—perhaps more complex—include the misalignment of social and cultural systems and technical skills. Lipton and Wellman (2012) argue that the entrenched cultures and systems of individualism in public schools, alongside a lack of personnel with the requisite skills to access and sift through datasets to find meaningful insights, contribute to the bottleneck between data availability and data use in schools.

To address these challenges in the use of data in schools, districts around the country are experimenting and finding ways to update the social, technical and human systems to move towards better use of data. These efforts include (but are not limited to): empowering school counselors to use data, identifying key metrics in a sea of data, implementing accountability systems, and sharing data effectively to compel action.

A. Empowering School Counselors

School counselors support student's social, emotional and academic progress. The work of the school counselor, according to the American School Counselors Association (ASCA), is driven by student data and based on standards in academic, career and personal/social development. As members of the educational team, school counselors use their skills of leadership, advocacy and collaboration to promote systemic change and to promote choices appropriate for each individual child's needs, aspirations and abilities (ASCA, 2014). Lapan et al., (2006) found that the school counselor's role significantly impacts students' 10th Grade academic achievement, which has also been linked to outcomes in college and later in life (College Board, 2012).

At the Howard County Public School System, the Superintendent's *Promise of Preparation* sets an expectation that all students graduate college- and career-ready. To this end, the district is investing in school counselors through improved tools and professional development. School counselors, parents, teachers and students have access to a college- and career-exploration and application tool called Naviance. Naviance is a platform through which school counselors can better advocate for student's but also understand student and student-group data in ways to promote systemic change. Coupled with

targeted professional development, the school district is focusing on improving the use of data to improve post-secondary outcomes for its graduates.

B. Identifying Key Metrics

An effort is underway in Hawaii to focus stakeholders on key metrics that are simple to track, yet are predictive of important outcomes like graduation from high school. Much work has been done to determine which metrics are most predictive, including an ambitious study by Bowers, Sprott and Taff to try to collect the universe of proposed indicators and compare their effectiveness (2007).

In trying to keep the scope of the data analysis manageable Hawaii has promoted a focus on attendance, behavior and course marks data during the school year. This emphasis is based on research demonstrating that these metrics are found at the core of most of the most accurate early warning systems (Allensworth & Easton 2007, Balfanz, Herzog, & MacIver 2007), and because the metrics are easy to calculate, interpret and act upon. Through focused monitoring of these key indicators, the school district is building capacity across its staff to use data and identify critical action steps.

C. Implementing a Data-based Accountability System

In the fall of 2012, San Jose Unified School District (SJUSD) began work on a process known as OpStat. In the first year of implementation, SJUSD's OpStat process was constrained to high school AP/IB participation rates, with a focus on data exploration. At the conclusion of the school year, the department of Data, Research, and Assessment was tasked with restructuring OpStat, shifting it into an accountability mechanism for SJUSD that better aligned to the district's strategy to, "Create a results-driven district-wide accountability system that identifies students' needs in schools, departments, and divisions." M-Stat (from Montgomery County Public Schools) and Boston Public School's (BPS) Stat process emerged as districts with with clear, published structures in place that might inform SJUSD's OpStat model.

The M-Stat Process (Weast, 2008) describes an analysis process based on the Baldrige model of Plan, Do, Study, Act. The Office of School Performance (OSP) leads the STAT process, and data teams meet to review progress, form guiding questions, and use district created tools with the purpose of standardizing successful practice. The focus on common metrics and use of an inquiry-based process provide interested Local Educational Agencies (LEAs) with two foundational components of a STAT process, though the STAT process is not described in detail.

Kuder describes, in greater detail, a related set of accountability and support structures within BPS. The four phases of the BPS STAT model, "Align District Resources and Establish Credibility, Design and Communicate the Plan, Pilot the Process, Full Implementation at Turnaround Schools," provide other LEAs with considerations for launching STAT to scale. The support mechanisms are an essential additional consideration for LEAs, especially with regard to building a balanced STAT model. Chen, et al. (2011) directly address a significant gap in existing publications with regard to assessing and building the capacity of educators with regard to data-based decision-making and data analysis. Though the report focuses on teachers, the deconstructing of data conversations and educator understanding of data use provides powerful implications for districts interested in implementing cycle of inquiry work. Districts must consider the components of data literacy and teachers' data capacity when planning for and providing support to educational leaders overseeing inquiry models. The identified data literacy components include data location, data comprehension, data interpretation, data use, and question posing. SJUSD is focusing on improving the use of data through data conversations that build data literacy and the skills necessary to identify and take critical next steps.

D. Using Statewide Data to Target School-based Interventions

Tennessee lags considerably behind the nation in both Advanced Placement (AP) participation and success. Nationwide, 33% of students in the graduating class of 2013 took at least one AP exam during their high school career and 20% earned at least one passing score. In comparison, 19% of Tennessee seniors took at least one exam at some point during their schooling, with a success rate of just 10% (College Board, 2014).

The AP program, offered by the College Board, provides an opportunity for students to experience college level curriculum and coursework while still in high school. If a student succeeds on a subject-specific AP exam, generally defined as scoring a 3 or higher out of a total of 5 potential points, he or she is eligible to receive credit for college coursework. Research on the effects of AP course-taking on long-term student outcomes suggests that AP coursework, especially among students who are academically qualified, increases the likelihood that students go to college, earn high marks while in college, and eventually graduate from a four-year institution (Geiser & Santelices, 2004; Hallet & Venegas, 2011; Jackson, 2010a; Jackson, 2010b; Keng & Dodd, 2008; Scott, Tolson & Yi-Hsuan, 2010).

The Tennessee project begins from the premise that AP coursework and tests can provide substantial opportunities to academically qualified students and that Tennessee schools can do more to ensure that such students have the opportunity to earn AP credit. Through a strategic use of student-

and school-level data, the Tennessee project provides a new framework for targeting state programs to the schools that need them most.

Section III. Agency Case Studies

A. Supporting Students to Successfully Prepare For, Apply To, and Matriculate at a Post-Secondary Institution: Examining the HCPSS School Counseling Program as the Means to the End

i. Context

Howard County, Maryland is a suburban community of over 290,000 situated midway along the Baltimore-Washington corridor. The Howard County Public School System (HCPSS) consistently ranks among Maryland's top school districts based on student performance on the Maryland School Assessments. HCPSS serves 76 schools and has a total enrollment of 51,681 students; 18% Asian students, 21% Black or African-American, 9% Hispanic, 46% White and 6% two or more races.

In 2012, Superintendent Renee Foose launched an exciting new era for HCPSS with the 2013–2018 Strategic Plan, *Vision 2018: Fulfilling the Promise of Preparation*. This vision organizes system initiatives under four goals:

Goal 1 - Every student achieves academic excellence in an inspiring, engaging, and supportive environment.

Goal 2 - Every staff member is engaged, supported, and successful.

Goal 3 - Families and the community are engaged and supported as partners in education.

Goal 4 - Schools are supported by world-class organizational practices.

The School Counseling Program is a critical piece towards realizing Goal 1 of the superintendent's "Promise of Preparation," underscoring the districts' commitment to preparing students to leave high school ready for college.

A key step towards enhancing the School Counseling Program is the implementation of Naviance, an online tool that supports students in the college exploration, selection and application processes. Counselors, students, parents and teachers use Naviance to explore careers, better understand students' interests and strengths, and explore colleges and universities according to students' personal and career goals. In the first year of implementation, Naviance was introduced to students during school hours, when school counselors conducted a minimum of three grade-appropriate lessons with Grade 9 to 12 students. For example, students in Grade 9 completed lessons and homework on strengths assessments and used this information to explore careers; students in Grade 11 conducted college searches according to their interests and academic profile.

To better understand the work of the school counselors and their role in supporting students prepare for college using Naviance, an evaluation of the School Counseling Program was conducted. Evaluation results along with Naviance usage and student reports were used to identify how school counselors support students for post-secondary success. The results are and will be used to target professional development and other resources for school counselors in the coming years, to model school-level 'data discussions', and to develop and monitor Key Indicators for the School Counseling Program.

ii. Policy/Research Questions

The following questions guided the School Counseling Program Evaluation:

1. What are the key areas in which school counselors support students to prepare for, apply to and matriculate in post-secondary institutions?
2. What does the data from Year 2 suggest as areas of continuing need in the School Counseling Program (at the district, school, and student-group level)?
3. What strategies will be used at the district- and school-level to translate research findings into practice?

iii. Project Scope and Timeline

To understand the status of college-support services provided by the Counseling Program, the Research and Program Evaluation office conducted surveys with high school students, staff and parents in May 2013. The surveys were developed using the *Eight Components of College and Career Readiness Counseling* by the National Office for School Counselor Advocacy (NOSCA). During the summer and fall of 2013, staff received training on Naviance and began lessons with students in September 2013. Student and staff log-ins to Naviance, lesson completion and assessments were monitored during this first year of implementation. Beginning in January 2014, survey results and usage/completion data were shared with school administrators and counselors during school-level data discussions. Follow-up student surveys were conducted in May 2014.

As a result of the Year 1 survey results and data discussions with school administrators and counselors, a plan for aligning the work of the school counselors with the districts goals emerged (Appendix A, Figure 1). Year 2 results were used to assess the extent to which the short term and mid-term goals were achieved.

iv. Results/Impact

What are the key areas in which school counselors support students to prepare for, apply to and matriculate in post-secondary institutions?

More than 88.2 % of Grade 9 to 11 students (underclassmen) and 91.6% of Grade 12 students in Year 1 of the evaluation (SY2013) reported that they planned to continue their education beyond high school.[1,2] Among Grade 11 students, those who had taken at least one rigorous course (i.e. Advanced Placement or Gifted and Talented course) were more likely to have post-secondary plans (97.0%) than those who did not take any rigorous courses (85.9%). These results signaled a need to partner with parents and teachers to increase awareness of, preparation for, and participation in rigorous coursework.

In addition to identifying student's post-secondary plans, the surveys measured the level of support that students were receiving from their school counselors. The scales on which students were asked to rate the level of support they received from their school counselor, included:

1. Academic planning for college and career
2. College and career exploration and selection
3. Preparing for college assessments
4. College admission process
5. Financially preparing for college

Year 1 data was used as a baseline for the evaluation, and as the foundation for 'data discussions' held with each high school throughout the first year in support of Naviance. The data, along with the data discussions, were used to develop short-term and mid-term outcomes to guide the work of the School Counseling Program (Appendix A, Figure 1).

What does the Year 2 data suggest as areas of continuing need in the School Counseling Program (at the district, school, and student-group level)?

Using the Logic Model for the HCPSS School Counseling Program Evaluation (Appendix A, Figure 1) as a guide for the second year of the evaluation (Year 2), surveys were revised and re-administered to

[1] 24.2% of Grade 9–11 students responded to the survey. Due to constraints in time and computer lab availability, underclassmen classes were selected for the survey based on the following criteria: In a given subject for each grade level, select 2 below grade level sections, 2 at grade level sections, and 2 above grade level sections. The subjects selected at each school varied from English to Science. No responses were received from underclassmen at Atholton HS or River Hill HS. 88.2% of Grade 9, 90.8% of Grade 10 and 92.0% of Grade 11 survey respondents reported that they planned to continue their education beyond high school.

[2] 66.2% of seniors responded to the survey. All seniors were asked to participate in the survey.

Grade 9 to 12 students in May 2014. A comparison of the Year 1 and Year 2 data yielded insights regarding the effectiveness of the rollout plan for Naviance and identified areas of continuing need.

Post-secondary Aspirations: More than 93% of seniors in Year 2 reported that they planned to continue their education beyond high school.[3] Comparing post-secondary intentions of the 2014 graduating class to these same students' intentions in the previous year as juniors, the majority of students who planned to go to a 4-year college as juniors still had the same plan as seniors; approximately one out of five students, however, changed their plan from a 4-year to a 2-year college.[4] These data show that students' post-secondary aspirations are relatively stable from Grade 10 to 12, suggesting that getting students academically and socially prepared for college starts before Grade 10. Partly due to these findings, the School Counseling Program is expanding the use of Naviance to middle schools beginning in fall 2014. Middle school students will focus on using Naviance to explore interests and careers, and complete personality and strengths assessments.

Short Term Outcomes: Student, staff and parent log-ins, as well as student completion of Naviance lessons were tracked during the first year of implementation. Data suggest that Naviance usage and lesson completion steadily increased between September 2013 and the end of the school year. Student log-ins increased ten-fold between September 2013 when the tool was first launched and July 2014; parent and staff log-ins increased by more than eight-fold during this same period.

Students' lesson completion rates also increased in the first year, with almost all students in Grades 10–12 completing career and personality assessments, career clusters and career interest profiles, and resumes.

Mid-Term Outcomes: Year 1 and Year 2 data were also compared on the Academic Planning, College and Career Exploration and Selection and Financial Preparation Scales to determine the extent to which Naviance enhanced services that students received in preparing for, applying to and matriculating at college. Seniors in Year 2 gave slightly higher ratings on the Academic Planning Scale than seniors in Year 1. Specifically, seniors (those who planned to continue their education beyond high school and those who did not), gave an average rating of 3.2 out of 4 points in Year 2 compared to an average rating of

[3] Underclassmen survey results for Year 2 were not received and analyzed as of the writing of this report.
[4] Percentages may not total to 100 due to non-respondents in either 2013 or 2014.

3.1 out of 4 points in Year 1. The scale included six items that were common across Year 1 and Year 2, including items such as "I feel comfortable meeting with my high school counselor" and "My high school counselor has been an effective advocate for me."

While this increase from Year 1 to Year 2 in student perceptions of the academic support received from their counselor is small (0.1 points), it is important to interpret these results in the context of other data. Between Year 1 and Year 2, the number of times that counselors were meeting individually with students had actually decreased (from 83% of seniors in Year 1 reporting that they had met with their counselor at least three times in the year to 77% of seniors in Year 2). Taken together, these data suggest that through the implementation of Naviance, counselors were also changing the way they delivered services to students. Previously, counselors primarily provided academic planning support to students during individual meetings, whereas after the implementation of Naviance and the class-based lessons, counselors may be delivering these services in a more efficient method while still achieving the same (or slightly better) results.

On the College Exploration and Selection Scale, seniors in Year 2 reported more positive perceptions of their counselors support than in Year 1. Seniors gave an average rating of 2.9 out of 4 points in Year 2 compared to an average rating of 2.8 out of 4 points in Year 1. The scale consisted of eight items that were common across Year 1 and Year 2, and included items such as "My high school counselor helped me understand my college options" and "My high school counselor discussed my readiness for college-level work."

Although students' perceptions of their counselors support in Academic Planning and College Exploration and Selection Scales improved slightly from Year 1 to Year 2, students gave notably low ratings when asked about the level of support they received from their counselor to financially prepare for college. Across six items, students who planned to continue their education beyond high school gave their counselors an average rating of 1.6 out of 4 points on the Financial Preparation Scale in Year 2; data from Year 1 were not comparable because of a difference in the scale. The scale consisted of six items in Year 2, and included items such as "My high school counselor has helped me financially prepare for college by helping me find resources to complete scholarship applications" and "…to find resources on how to plan for college expenses."

The low ratings reported by students were also compared to completion rates for the Free Application for Federal Student Aid (FAFSA) as reported by the US Department of Education (USDoE). Comparing these data helped determine the extent to which HCPSS students may be getting college financial preparation support from sources other than their school counselors. Using data reported by

USDoE, FAFSA completion rates for HCPSS students were approximately 64%; furthermore, this rate remained relatively similar in Year 1 and Year 2. These results suggest that there is a need for additional supports to students to financially prepare for college, and may include professional development and resources for school counselors so that they can first understand college financial aid materials and the process and in turn, can help students navigate these resources.

What strategies will be used at the district- and school-level to translate research findings into practice?

One of the key successes of the School Counseling Program during the first year of the Naviance roll-out has been its focus on school-level 'data discussions.' These discussions allowed central office counseling staff to work directly with School Counseling Teams to identify challenges and successes in Naviance rollout and share strategies across schools. The discussions also allowed school-level staff to engage with the results rather than feel accountable or 'watched.' The depth of engagement with the data allowed counselors to use the data to identify initiatives and target student groups. The flavor of these discussions will be retained in the second year of Naviance implementation, when high schools will continue to participate in school-level meetings but will feature additional data points for discussion (outside the results of the survey). For example, Research and Program Evaluation staff will share school-level data that is also being used by school administrators for School Improvement Planning to further explore these data from the perspective of the school counselor. Similar level-appropriate discussions are also planned with middle schools, alongside technical assistance as they implement Naviance for the first time.

v. Next Steps

In addition to improving school counseling services at the high school level, survey results will be used to improve the rollout of Naviance to middle schools in September 2014. Second, experiences from high school and middle school data discussions will be used to examine the role of the elementary school counselor in supporting students' academic preparation, and to engage parents and families with these data. Third, the process of data sharing (and data discussions at the high schools) will be documented to support similar data-based discussions across other programs. Fourth, the translation of the evaluation findings into practice is an ongoing process. To support this process, Key Indicators for the School Counseling Program were identified and will be monitored on an annual basis. The indicators presented in Appendix A, Table 1 are based on results from Year 1 of the evaluation, school-level discussions in Year 1, district goals, and preliminary results from Year 2. The indicators are listed

according to their alignment to the District's Vision 2018 Strategic Plan, the *Eight Components of College and Career Readiness Counseling* by the National Office for School Counselor Advocacy (NOSCA), and the Short-Term and Mid-Term Outcomes presented in Appendix A, Figure 1 (Logic Model for HCPSS School Counseling Program Evaluation).

B. Identifying Key Metrics in Hawaii

i. Context

In Hawaii, efforts to reform a historically fragmented data collection and reporting structure have begun to pay dividends, but have also created the unintended consequence of overwhelming end users with data. Hawaii's school-level data are captured in a number of source systems that arose at different moments, to serve somewhat different needs. Recently, leveraging federal longitudinal data system grants and Race to the Top funds, the Hawaii Department of Education (HIDOE) has overhauled its data infrastructure. Among a number of improvements, HIDOE created a centralized data warehouse and invested in a reporting system attached to the data warehouse, providing users at all levels of the system secure access to student data.

These changes have been positive, with more data accessible to a broader array of users across the state. However, the task of expanding access and improving the technical infrastructure has proven simpler than providing user support. Put differently, users were told to use a host of new tools and data that they did not necessarily understand or know how to use. Additionally, almost none of the older systems and tools went away, but new tools were added. To the trained eye, the data warehousing and new reports were enormous steps forward, but to the average user, they simply layered more information onto already time-starved educators and school-leaders. As a result, many users reported feeling overwhelmed and confused rather than empowered by the new resources.

ii. Policy Question

This situation presented the department with a dilemma. The department needed to make improvements to antiquated data architecture and reporting functions, but these changes needed to help rather than alienate users.

iii. Solution

One of the biggest expansions of data has been that some data are available in nearly real-time. These data are arguably the most useful to educators and school leaders as they allow for mid-course corrections, but they also represent the biggest departure from the old paradigm of one-time analysis of annual student test scores. One of the most effective ways to help users make sense of the volumes of data at their disposal has been to emphasize the temporal nature of education data. This often involves appealing to users' common sense notion that test scores from last year's students are not necessarily a

good indicator of how the school is progressing this year. This shift is important for two reasons: 1) it reduces the number of metrics for users to follow and track, and 2) it focuses analysis on conditions that educators have a stronger ability to impact.

To address the problem, Hawaii chose to focus on a small number of metrics that regularly change during the school year. Specifically, this focus has been on attendance, behavior and course marks, which are useful for a variety of reasons. All three types of measures are regularly used in early warning systems because of how well they predict longer-term outcomes like high school completion. Additionally, the data change nightly or quarterly, allowing users to observe how their actions in the classroom or school impact the data, which provides real-time feedback that repays an analytical approach to teaching. Finally, these data can be directly impacted by work at the school-level, which gives users a sense of agency and efficacy when examining the data.

First Phase: Chronic Absenteeism

Given the numerous ways to interpret and analyze attendance, behavior and course marks, HIDOE is providing deep support and emphasis one metric at a time. The first phase of this effort has been around chronic absenteeism, which is an applied measure of attendance that tracks whether student absences are concentrated among specific students. Increasingly, it is clear that even schools with otherwise impressive attendance records have groups of students that miss significant portions of school and are very likely to fall behind as a result.

To support this emphasis the department has created a place in the new reporting system that highlights these three metrics and creates a list of students at risk for chronic absenteeism. In addition to making the data available, department staff have worked to teach stakeholders what chronic absenteeism is, and the negative effects that chronic absenteeism has on students. HIDOE has also made a point of emphasizing chronic absenteeism statistics whenever data are being shared. This has meant that chronic absenteeism is part of the school accountability framework, academic planning at the school level, and a part of the quarterly stock-take meetings between the Deputy Superintendent and his direct reports.

iv. Preliminary Conclusions

These efforts are producing promising results. Choosing a discrete set of measures and then drilling down on one has changed the discussion around the state. Anecdotally, we find many more conversations around chronic absenteeism happening, with schools requesting training on reporting

tools and asking for help to analyze their data. Most encouragingly, the preliminary data suggest that the chronic absenteeism rate has declined a statistically significant five percent over the past year, which HIDOE expects will have a positive effect on student outcomes for many years in the future. While gains like these are incremental and are unlikely to provide a drastic shock to the system—the collection of incremental efforts like these could produce significant changes in student outcomes.

C. Implementing a Data-Based Accountability System in San Jose

i. Agency Profile

San Jose Unified School District (SJUSD) is a mid-sized district in the heart of California's Silicon Valley. The district serves 42 schools with over 32,000 students. SJUSD attends to a diverse population including both urban schools in the north and suburban schools in the south-end. The population is 53 % Hispanic, 27 % White, 14 % Asian, and 6 % Other. Almost half of the district's students are low income, and about a third of the students are English Learners.

In May 2012, SJUSD adopted a new five-year strategic plan, *Opportunity 21*, with the mission of eliminating the opportunity gap and providing every student with the finest 21st century education. As part of that plan, SJUSD identified eleven Key Performance Measures (KPMs). The purpose of the KPMs is to focus district leadership efforts and monitor progress on the strategic plan's goals. The KPMs are shown below.

- Early Literacy Attainment (Pre-K–2nd grade)
- Advanced Reading Achievement (3rd–8th grade)
- Advanced Mathematics Achievement (3rd–8th grade)
- English Learner (EL) Reclassification (Within six years of enrollment)
- Academic Perseverance
- Writing Performance
- Middle School Mathematics Attainment (8th grade)
- AP/IB Enrollment and Success
- SAT, ACT Success
- UC/CSU A-G Course Completion (Graduation)
- Exhibiting 21st Century Skills

ii. Policy/Research Question and Discussion

While SJUSD has had a long history collecting, housing, and accessing data at the central office, the district struggled to turn that data into effective decision-making at the school and instructional level. SJUSD's previous data warehouse was robust, comprehensive, *and complex*. Many school leaders never accessed the data in it. It was difficult for principals to understand the warehouse application, along with how to apply data to their daily work. Previous efforts to incorporate cycle of inquiries or data review worksheets were unsuccessful. Additionally, school leaders were not being held

accountable to using the data. And, in the day-to-day life of a principal, which involves responding to numerous student issues and emergencies, analyzing data was not a priority. Thus, SJUSD needed to find a new approach for incorporating the KPMs and data-driven decision-making into the district's culture.

The new approach was called OpStat. "Op" stood for Opportunity 21, while "Stat" stood for statistics. Modeled after the New York City Police Department's COMPSTAT, Boston Public School's Stat program, and Montgomery County Public School District's M-Stat process, OpStat was a combined cycle of inquiry and school STAT process. OpStat's primary objective was to provide support for, and accountability to, SJUSD's identified KPMs.

A key component of the OpStat design was the recognition that school leaders were not data analysts, and should not be treated as such. Their role is to lead the school and understand what questions need to be asked in order to make data-drive decisions. Data, Research, and Assessment staff became responsible for supporting all of the data needs of sites as well as assisting the principals with their analysis and data visualizations.

The OpStat process includes two types of sessions. During support sessions central office staff (Data, Research, and Assessment, and Curriculum and Instruction) help school teams review data, determine root causes, develop a theory of action, create an action plan, and monitor progress. During the accountability sessions, school leaders use data to report out on their action plan progress. The Superintendent's Council (Superintendent, Assistant Superintendent Division of Instruction, Assistant Superintendent Community Engagement and Accountability, Assistant Superintendent Human Resources, and the Chief Business Officer) and relevant department directors ask questions and engage in a structured dialogue with school leaders during these meetings.

OpStat was launched during the fall of 2013. Since focusing on all of the KPMs simultaneously was not practical, OpStat addressed three KPMs in year one. The three levels (elementary, middle school, and high school) were separate from one another, and each KPM had its own cycle of meetings.

1. Early Literacy – Elementary
2. Middle School Mathematics Attainment – Middle School
3. UC/CSU A-G Course Completion (Graduation) – High School

Appendix B, Figure 1 shows the process during the first year. Support sessions and accountability sessions were staggered throughout the year.

With this new approach in place, the research question was asked: *Would SJUSD's OpStat initiative result in school leaders applying data-driven solutions at their sites?*

iii. Project Scope

This research question was particularly important to ask, not only because SJUSD needed to create a culture where school leaders were incorporating data into their decision-making, but also due to the fact that the district was investing heavily into this new OpStat process. All of the district's 42 schools participated in OpStat.

Staff time was the primary resource during the first year; Data, Research and Assessment (DRA) staff coordinated and led OpStat support meetings with support and collaboration from Curriculum & Instruction (C&I). Each school site was appointed a central office lead from either DRA or C&I. Site leads met with school teams on a regular basis (usually monthly). Site leads served as thought partners, and often helped school teams think through what data to collect and analyze.

Additionally, DRA staff led all of the support and accountability sessions. They prepared the agendas, collected and analyzed data, and visualized data for all of the meetings. These preparations were quite time intensive, especially due to the high number of schools participating.

SJUSD invested in a new data warehouse during 2013–14. The old data warehouse was difficult to access and comprehend. It was crucial to create a system that principals could easily access, and find valuable, in order for OpStat to be successful. The new data warehouse met those criteria. DRA staff built custom reports, which meant that principals no longer needed to query data, but rather click on a link, to get the information they needed. These reports could be exported to Excel as well. This investment included a warehouse vendor, software, hardware, and programmers.

iv. Results/Impact

Did SJUSD's OpStat initiative result in school leaders applying data-driven solutions at their sites?

The year one results are mixed. While most principals began to think differently about data, there was a learning curve in their data literacy. Overall, more principals were accessing and reviewing data than in previous years. Some principals were reviewing it regularly, and responding with instructional changes in the classroom. In many cases, data was rolling down from the central office, to the principal, and to the teacher. By the end of year two, this group of principals will expand, with additional leaders becoming more comfortable with this process and more data literate, resulting in them applying data more effectively.

Elementary principals tended to be more successful than other levels in applying data-driven strategies. Part of their success was due to the fact that elementary principals also had access to more timely and relevant data. Additionally, within SJUSD, Title 1 funds were allocated exclusively to elementary sites. As a result, NCLB accountability fell largely to K–5 sites in SJUSD, creating increased familiarity with student performance data and planning for student performance outcomes. It is also important to note that middle school and high school principals reviewed grades and intermittent performance based assessments, while elementary school principals had more frequent Children's Progress Academic Assessments (CPAA) and Lexia Learning data. The importance of having timely leading data, in addition to summative data, cannot be overstated. Additionally, the C&I department spent a considerable amount of time coaching teachers on how to review the CPAA and Lexia data.

Appendix B, Figures 2 and 3 show the impact of elementary OpStat on early literacy for 2nd graders. The first chart (Appendix B, Figure 2) shows the closing of the opportunity gap for 2nd graders district-wide. SJUSD measures the achievement gap between its White and Hispanic students. The gap closed by 42% over the course of the school year. The gap spread was 33 percentage points in early fall, and 19 percentage points in the spring. The second chart (Appendix B, Figure 3) compares this year's CPAA assessments to last year's. While this year's 2nd graders had a lower percentage of incoming students at or above grade level (61% compared to 70%), they experienced more growth over the year. (Please note that this is just preliminary evidence investigating the impact of OpStat. A more robust evaluation will occur over the 2014–15 school year.)

v. Next Steps

The OpStat process is an ongoing initiative. Each year a new cycle will begin, with both support and accountability sessions. During the 2014–15 cycle, school teams will continue to focus on the same three areas: early literacy, middle school advanced mathematics, and high school graduation. In the elementary cases where principals achieved 95 to 100% of students performing at grade level in early literacy, principals will be given another KPM to focus their efforts.

Stakeholder feedback was collected throughout year one. DRA conducted surveys, informal interviews, and observed sessions, with the goal of continually improving the process. Three next steps resulted from that research:

1. Engage principals in the 2014–15 planning process.
2. Create and provide a 2014–15 schedule for principals.
3. Create exemplar action plans that principals could use as models

The socio-emotional KPM also will be created and validated during the 2014–15 school year. Potential interventions or strategies to boost students will be determined, piloted, and evaluated. These measures and strategies will be incorporated into OpStat during the 2015–16 school year.

D. Using Statewide Data to Target School-Level Interventions in Tennessee

i. Context

In 2013, the Tennessee state legislature passed a bill aimed at increasing Advanced Placement success across the state by paying the cost of student exams in a budget-constrained number of pilot schools. At that point, there had been little research done about why AP testing and pass rates were low or which schools might benefit the most from a new pilot program. The Office of Research and Policy was asked to analyze the landscape of AP testing in Tennessee to determine how to structure the pilot program.

ii. Research Questions

The aim of this project was to understand the different types of AP supports that would provide the most benefit to schools across Tennessee. Specifically, we wanted to know:

- How do schools across the state differ in their success at moving students along the AP pipeline?
- To what extent do the school-level challenges identified in the data differ according to student free/reduced-price lunch status?

iii. Predicting AP Success

The College Board publishes expectancy tables that use student scores on the PSAT to predict student success on Advanced Placement (AP) tests. Unfortunately, Tennessee is an ACT state, so few students take the PSAT and the state is unable to take advantage of the College Board's expectancy tables. The state's first step was to determine whether it could make use of Tennessee state tests to create meaningful predictions of student performance on AP exams.

Appendix C, Figure 1 shows the percentage of students passing at least one AP exam broken down by student performance decile on the 8th grade TCAP tests. The figure demonstrates that nearly all students who performed in the top decile in 8th grade and then go on to take an AP test pass this test. Note that this relationship was tested in several different ways, including with logistic regressions and a full range of controls. The analysis method shown in Figure 1 was chosen to illustrate the relationship since it felt particularly easy to explain.

The students in the top decile range became the units of analysis for the rest of the project. While students with lower 8th grade test scores also had high chances of passing AP exams, the analysis

team felt that no one could argue that the top decile students were "AP-ready" and should without question have access to the most rigorous course offerings.

iv. Charting the AP Pipeline

Once students were identified from across the state each year who fit the definition of "AP-ready," the next step was to determine how these students fared along the AP pipeline (see Appendix C, Figure 2). Were the majority of top decile students enrolled in schools that offered AP classes? Did these students take courses that might earn them early college credits? Did they sit for AP exams?

Appendix C, Figure 3 displays how AP-ready students in the 2013 senior cohort fared along the AP pipeline. Broadly speaking, AP-ready students are in schools where they have access to AP courses. Around 92% of these students were enrolled in schools where they had broad access to AP courses, with the number dropping to 83% for economically disadvantaged (ED) students. But only 70% of all the students and only around half of the economically disadvantaged students actually enrolled in these courses. The numbers drop still further when it came to actually sitting for AP exams. Thus, even though over 80% of the students who sat for an AP exam passed the test, the state was left in 2013 with only half of the AP-ready students and less than a third of economically disadvantaged AP-ready students in the cohort actually earning college credits. At every point along the pipeline, the percentages dropped, and at every point along the pipeline, the gap widened between economically disadvantaged students and their peers.

v. Digging into School-Level Differences

While the above findings were informative, they did not yet feel like actionable analysis. To make the information useful, the analysis team needed to further determine school-level needs and how state resources could be targeted to best address AP challenges.

Following the pipeline model described above, the AP pipeline was charted for each of the high schools to determine the particular challenges that different schools are facing—and to use this data to identify the central problems that the state might begin by addressing.

The report documented six major problem areas in schools across the state. Two examples of these areas are provided below to give a feel for the full analysis.

Example 1: Low Access High Schools

A high school with a low access issue provides little to no opportunity for students to enroll in AP coursework, offering either no AP courses or only coursework in a single subject area.

One major challenge that leads to lower AP success in Tennessee is access. Out of 180 high schools in Tennessee with sufficient AP-ready students to justify course offerings, 46 or one-quarter of the schools fall into the low access category. Appendix C, Figure 4 illustrates the pattern for one such school. This school has a critical mass of AP-ready students but offers no AP courses to these students. Although many of these schools are located in smaller, rural districts, nine of these high schools are located in districts with enrollments larger than 10,000 students.

Example 2: Differential Enrollment High Schools

A high school with a differential enrollment issue is a school where AP-ready, economically disadvantaged students enroll in AP classes at a rate 10 percentage points below that of their AP-ready, non-economically disadvantaged peers in at least two subject areas.

Sixty-six Tennessee high schools fall into the differential enrollment category. In schools with a differential enrollment problem, low income students whose test scores suggest that they are just as likely to succeed as their more affluent peers enroll in these classes at vastly different rates. Thirty-six of these 66 schools are ones that also have low overall enrollment of all AP-ready students. However, the other 30 schools are schools that successfully enroll large percentages of AP-ready students but do not achieve the same success with equally prepared economically disadvantaged students. Appendix C, Figure 5 depicts the AP pipeline at a school with an enrollment differential problem. As this figure illustrates, although schools have sufficient numbers of both ED and non-ED AP-ready students and offer AP courses, they enroll far fewer AP-ready ED students in AP coursework than their non-ED peers.

vi. Building an Intervention Strategy

Based on the above analysis, the Tennessee Department of Education chose to spend the money set aside by the legislature for student test payments in the set of schools identified as having large numbers of AP-ready students enrolled in AP courses but not sitting for AP exams. At the same time, the department launched an additional pilot in partnership with the College Board aimed at encouraging AP start-up and teacher training in the schools with large numbers of AP-ready students

and no AP course offerings since the analysis identified this issue as the most widespread AP challenge faced in Tennessee. Over the course of the next two years, the Office of Research and Policy will track and evaluate the impact of these pilot programs.

vii. Conclusion

Too often, state-level policy solutions and interventions are crafted as one-size-fits-all policies that fail to differentiate based on the highly variable data coming from individual schools and districts. The work described in this study attempts to provide an analysis framework that could easily be expanded into other areas to identify schools for targeted intervention strategies.

Section IV. Lessons Learned

Though each organization's work in "Helping Schools Translate Data into Action" focused on different levels and metrics, common themes emerged across all agencies when reflecting on the implementation of all four projects. These takeaways are essential for all organizations or individuals when considering undertaking data-driven decision-making.

General

- Keep data reporting manageable to the end user.
- Be deliberate, parsimonious, and consistent when considering metrics and tools.
- Keep the focus on supporting educational leaders in using data for change.
- Scope the work across the course of an academic year or calendar year. Failing to plan will result in little to no traction or action.
- Look for and build on early, small wins.
- Identify key players and work to create buy-in.
- Over-communicate outcomes and expectations.
- Data is the tool that drives the work. If the focus becomes data in isolation, outcomes for students will never change.

Agency Specific

Hawaii Department of Education

- Assume very little and start from the most basic points, but don't teach adults like you'd teach children.
- Break the project into very small, manageable chunks, as the scope always seems to broaden.
- Easy stuff first—get a win—and then move to harder stuff.

Tennessee Department of Education

- State-level data hides important variation; one should not assume that most schools show the same average trends as we see in the aggregate data.
- Creating "buckets" from analysis results—in this case, categories that each contain a manageable number of schools—allows policymakers to easily turn analysis into action.
- When you turn data into stories, you can create something that can take on a life of its own.

Howard County Public School System

- Keep it simple. HCPSS chose to focus on Naviance and stayed the course.
- Data is a tool, rather than a stick. HCPSS used school-level data discussions to engage schools with their data and keep people on track. By engaging with rather than being held accountable to the data (in Year 1 at least), schools were able to increase their comfort level with data. This was very effective and worth the time and effort.
- Having the right people supporting the project is critical. HCPSS could have never accomplished this without "all hands on deck." This included having leadership (central and school based) in-the-know about the tool (Naviance), the activities (school-based data discussions), and expectations.

San Jose Unified School District

- Be clear about roles and expectations from the outset. Many in education fear data/aren't data analysts. Build reports that allow instructional leaders to focus on instruction.
- Map out the work ahead of time, check in with the key leaders and supporters, and always look several steps down the road to ensure things don't get missed. Don't underestimate the importance of calendaring.
- Meet people where they are, especially in the first year/launch year. You don't want people to disengage or not buy in because you're being too rigid. It's not about perfection but rather about building capacity and trust.

Section V. References

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Appendix A: HCPSS Case Study Figures and Tables

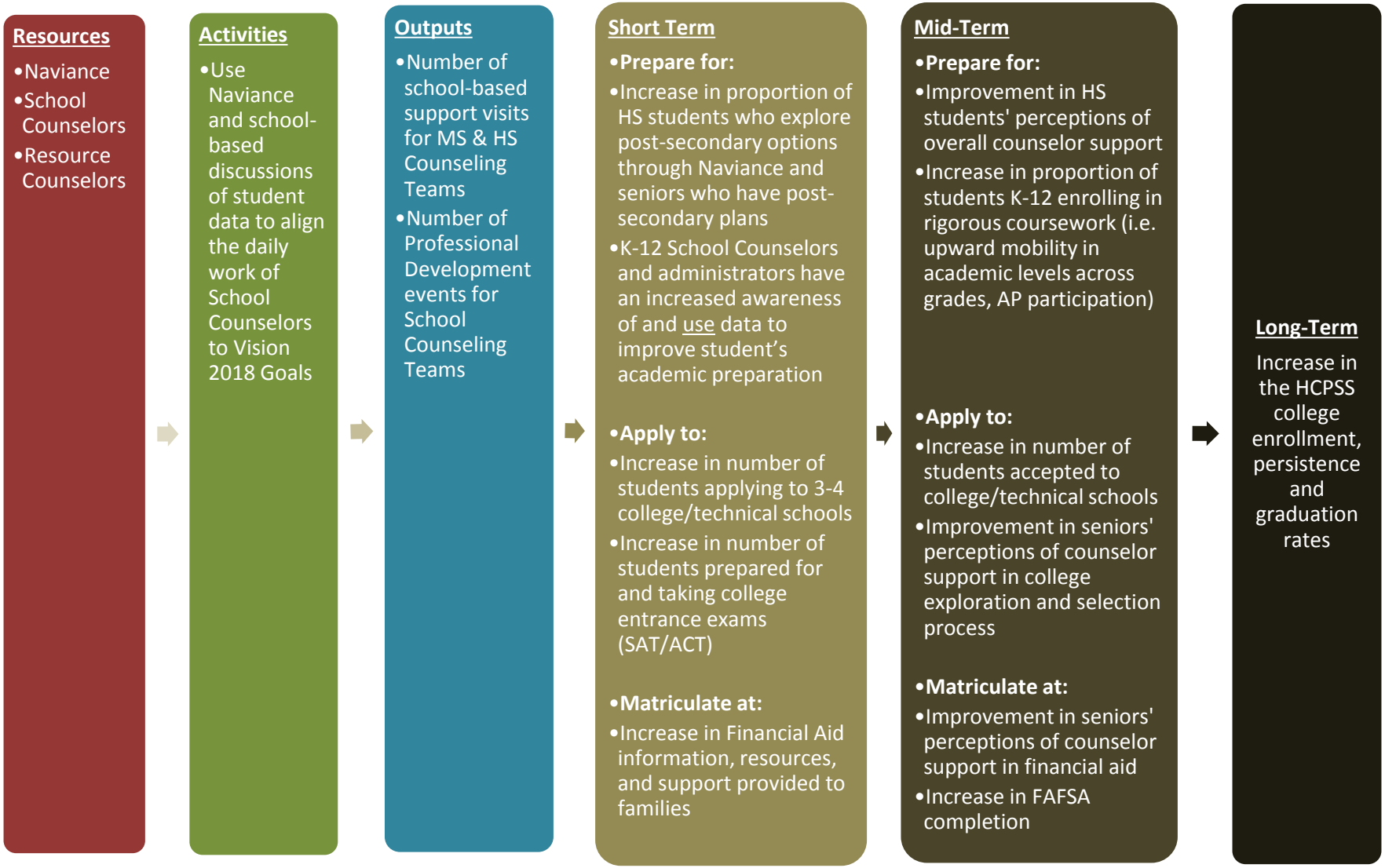


Figure 1. Logic Model for HCPSS School Counseling Program Evaluation

Table 1. Key Indicators for the HCPSS School Counseling Program

Alignment to the HCPSS Vision 2018	***Alignment to NOSCA College Readiness Counseling***	***Outcomes (see Fig. 1: Logic Model)***		***No.***	***Indicator***
Outcome 1.1 The instructional program is rigorous, globally-relevant, and aligned with international and/or nationally recognized college and career readiness standards	Component 1: College Aspirations Component 2: Academic Planning for College and Career Readiness	**Prepare for**	**Short-Term Outcomes:** • Increase in proportion of HS students who explore post-secondary options through Naviance and seniors who have post-secondary plans • K-12 School Counselors and administrators have an increased awareness of and use data to improve student's academic preparation	1A	Proportion of students in Grades 9-12 that aspire to go to college (Source: Student surveys)
				1B	Increased participation in college and career exploration programs in Naviance (G9-12)
				1C	Increase in proportion of seniors who have post-secondary plans (2, 4 year college, technical or vocational school, apprenticeship or Military/Reserves)
				1D	Proportion of HS students who have met their School Counselor 3 or more times in the year (Source: Student surveys)
				1E	Number of data discussions held with HS and MS School Counseling Teams in 2014-15 SY
			Mid-Term Outcomes: • Improvement in HS students' perceptions of overall counselor support • Increase in proportion of students K-12 enrolling in rigorous coursework (i.e. upward mobility in academic levels across grades, AP participation)	2A	Increase in Grade 9-12 students' average ratings for overall level of counselor support (Source: Student surveys)
				2B	Proportion of MS and HS student, parents, teachers, and administrators that log on to Naviance (Source: Naviance)
				2C	Proportion of K-12 students moving across academic levels at ES, MS, HS (Source: ASPEN)
				2D	Proportion of G10-12 AP Potential[5] students enrolling in AP courses; AP test participation and performance (source: ASPEN, College Board)

[5] AP Potential is based on students grade 10 PSAT scores; AP course enrollment in grades 11 and 12.

	Component 3. College and Career Exploration and Selection Process[6] Component 6. College Admission Process Component 4. College and Career Assessments	**Apply to**	**Short-Term Outcomes:** • Increase in number of students applying to at least 3 college/technical schools • Increase in number of students prepared for and taking college entrance exams (SAT/ACT)	3A	Increase in number of colleges (across selectivity ratings, geography, cost) that seniors apply to (Source: Naviance)
				3B	Number of HCPSS seniors that apply to at least 1 post-secondary institution (Source: Naviance)
				3C	Number of college-bound seniors who apply to at least 3 post-secondary institutions (Source: College Board, Naviance)
				3D	Proportion of college-bound Juniors taking the SAT/ACT[7]
			Mid-Term Outcomes: • Increase in number of students accepted to college/technical schools • Improvement in seniors' perceptions of counselor support in college exploration and selection process	4A	Increase in number of seniors accepted to at least 1 post-secondary institution (Source: Naviance)
				4B	Increase in Grade 9-12 students' average ratings for level of counselor support in college exploration and selection (Source: Student surveys)
	Component 5. College affordability planning Component 7. Transition from HS graduation to college enrollment	**Matriculate at**	**Short-Term Outcomes:** • Increase in Financial Aid information, resources, and support provided to families	4A	Proportion of Counselors that participate in financial aid professional development
			Mid-Term Outcomes: • Improvement in seniors' perceptions of counselor support in financial aid	4B	Increase in Grade 9-12 students' average ratings for level of counselor support in financial aid (Source: Student surveys)
				4C	Proportion of seniors completing the FAFSA

[6] At HCPSS, this component was adapted to only address college exploration and selection.
[7] College-ready will be based on benchmarks in the HCPSS College trajectory.

Appendix B: SJUSD Figures

Figure 1: OpStat Process Year 1 (2013-14)

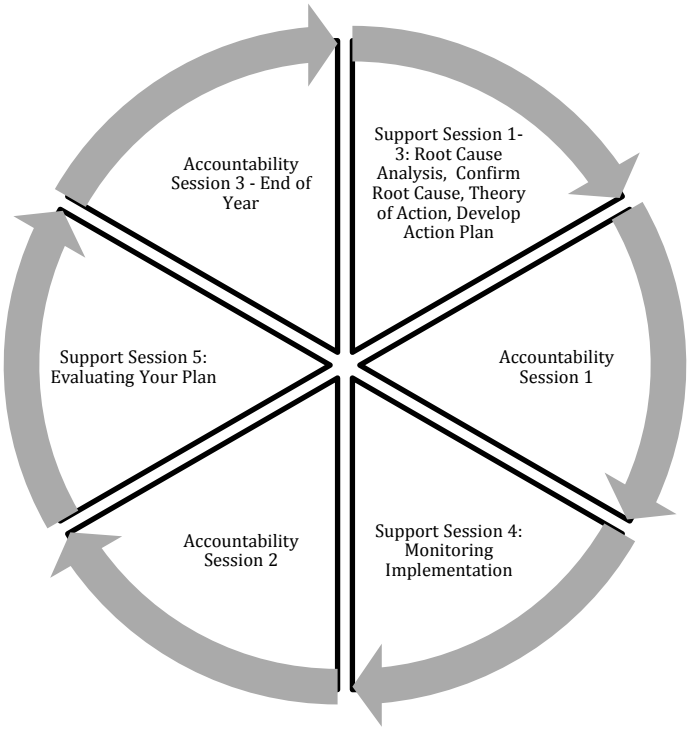


Figure 2: Early Literacy: Percent of 2nd Grade Students At or Above Grade Level
CPAA Literacy Assessment
SJUSD, 2013–14

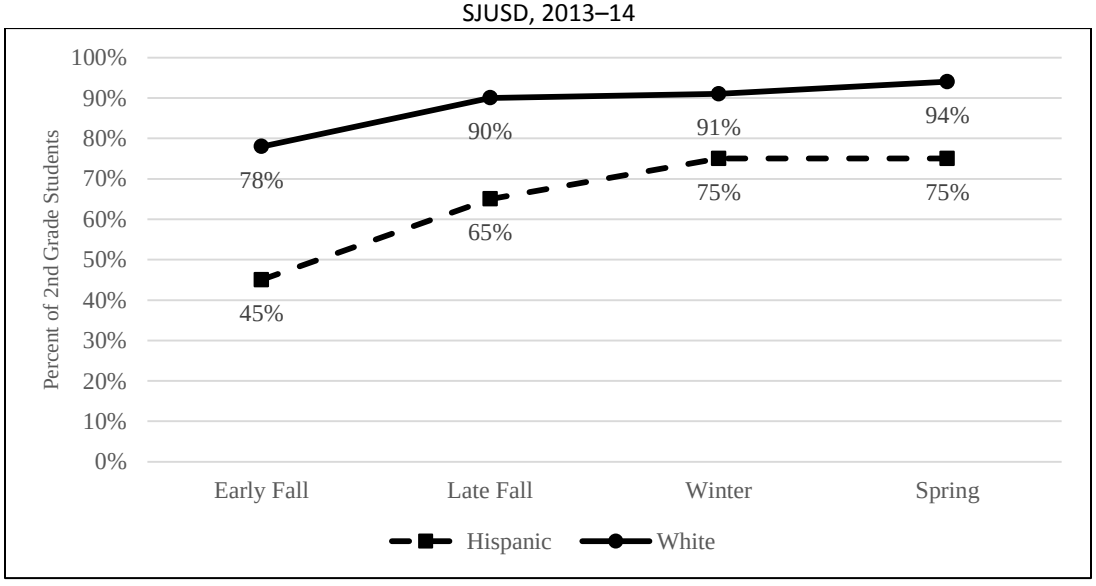
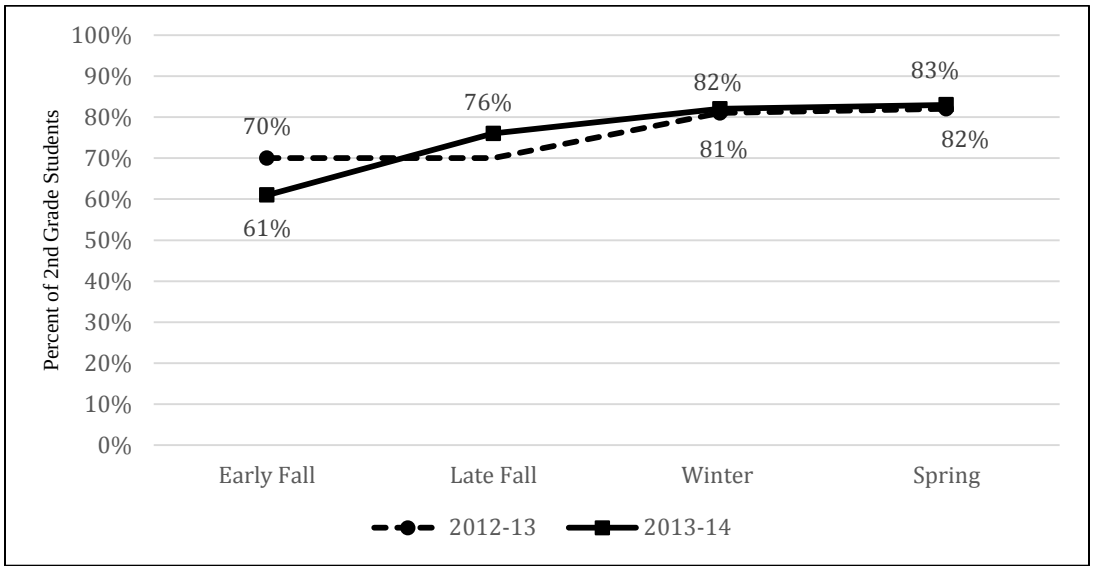


Figure 3: Early Literacy: Percent of 2nd Grade Students At or Above Grade Level
CPAA Literacy Assessment
SJUSD, 2013–14 Compared to 2012–13[8]



[8] The late fall CPAA is not included for school year 2012-13 because students were only tested once in the fall.

Appendix C: TDOE Case Study Figures

Figure 1:

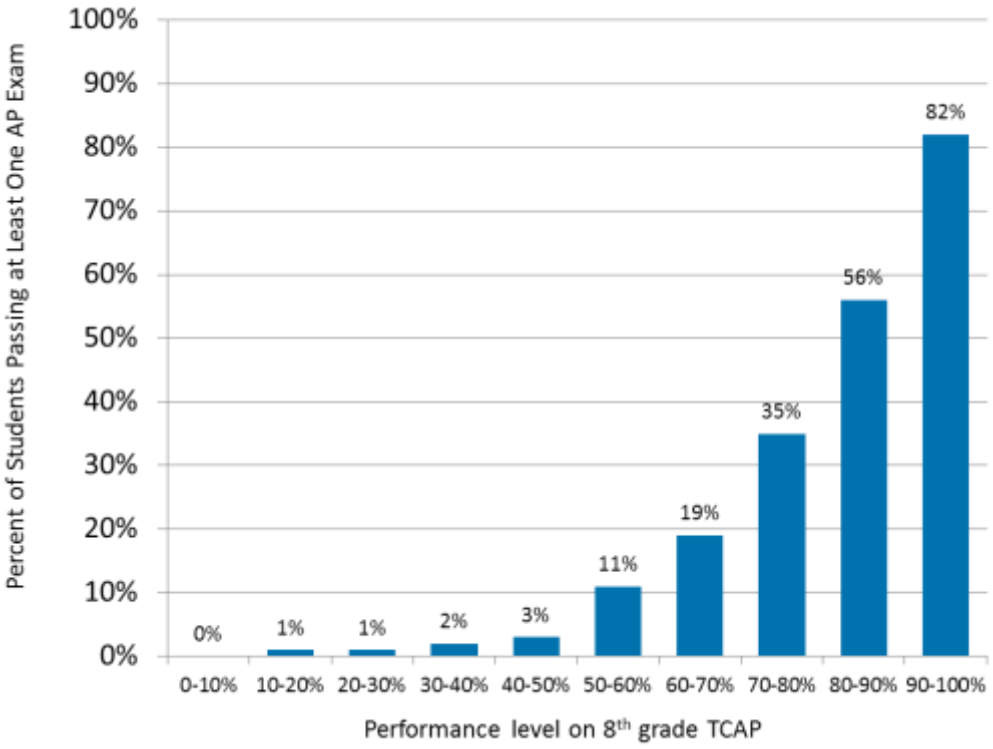


Figure 2: Student Progress along the AP Pipeline

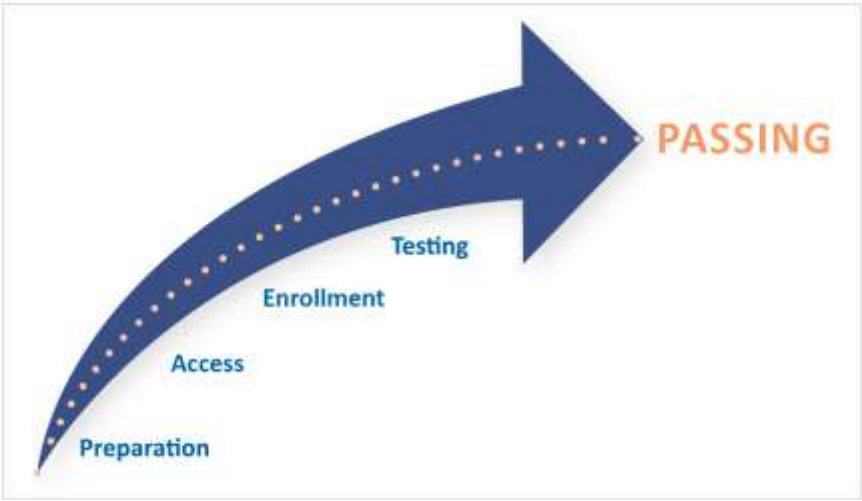


Figure 3: The Statewide AP Pipeline in Tennessee by Economically Disadvantaged (ED) Status

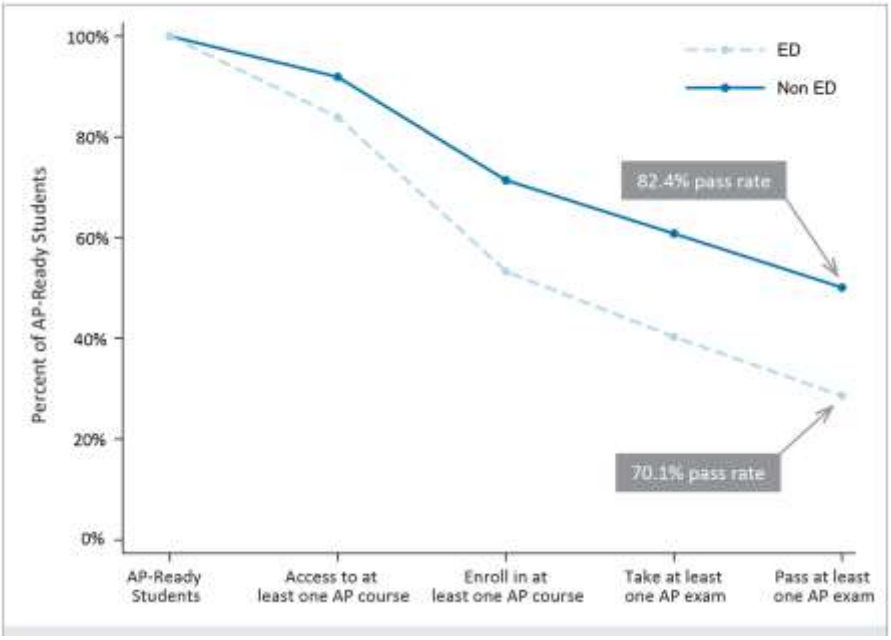
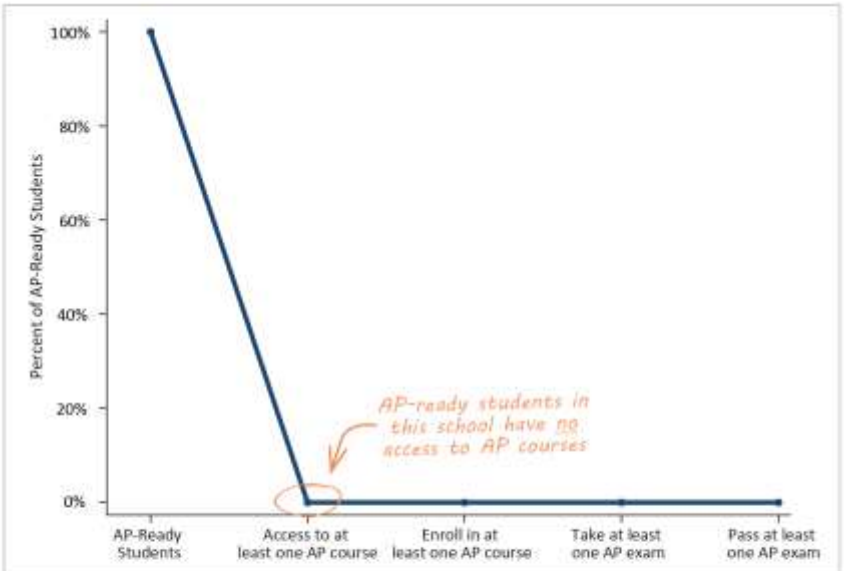


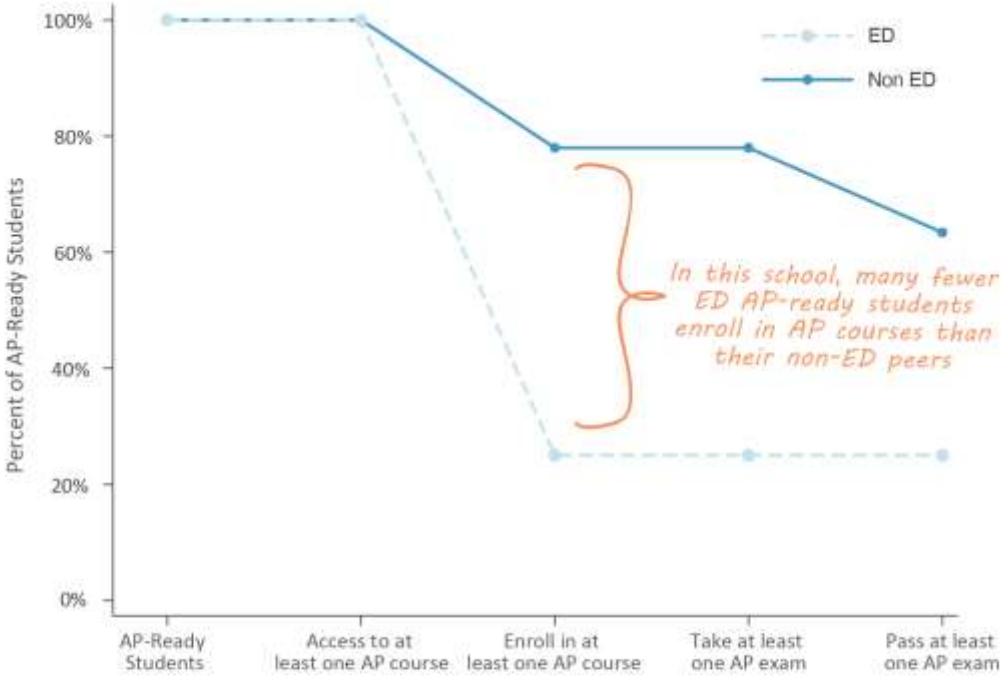
Figure 4: The AP Pipeline in a High School with No Access to AP Coursework



An Example of the AP Pipeline in a High School with No Access to AP Coursework

No Access High School, shown here in the graph, provides a clear example of a high school that offers no AP coursework. This school, located in a small, rural county, serves less than 700 students. It is the only high school in its district and is located approximately 70 miles away from a large metropolitan area. Roughly half of its student population is classified as economically disadvantaged. In 2013, the school's senior class included 20 AP-ready students, with half of these qualifying for free or reduced-price lunch. But since the school offers no AP classes, these 20 students did not have access to the rigor of AP coursework or the opportunity to earn college credit through this route.

Figure 5: An Example of the AP Pipeline in a High School with Differential AP-Ready Student Enrollment



An Example of the AP Pipeline in a High School with Differential AP-ready Student Enrollment

Differential Enrollment High School, shown in the graph here, provides a clear example of a school that offers AP coursework but enrolls economically disadvantaged AP-ready students at different rates than their non-economically disadvantaged counterparts. This school, located in medium sized district that includes several high schools, serves over 1,400 students. Approximately 28 percent of its student population is classified as economically disadvantaged. In 2013, the school's senior class included 49 AP-ready students, with 8 of these students qualifying for free or reduced-price lunch. In 2013, the school offered 11 AP courses, including at least one in math, English, science, social science, and foreign language. Although the majority of its AP-ready students took at least one AP course, only a quarter of its economically disadvantaged AP-ready seniors enrolled in at least one AP course during their high school career. This means only a small percentage of these students had the opportunity to experience the rigor of AP coursework and the opportunity to earn college credit via this route.