



STRATEGIC DATA PROJECT
SDP FELLOWSHIP CAPSTONE REPORT

**Tracking Indicators of Graduation and
Postsecondary Readiness**

Ali Korkmaz, Long Beach Unified School District, California

Alison Gros, St. Bernard Parish Public Schools, Louisiana

Mary Lumetta, St. Bernard Parish Public Schools, Louisiana

Ashley Pierson, Education Northwest, Portland, Oregon

SDP Cohort 5 Fellows

Strategic Data Project (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 the Center for Education Policy Research at Harvard University.*

Framing the Problem

Ensuring that all students graduate from high school and are ready for success in postsecondary education and a career has increasingly become a priority for school districts and state education agencies. Many districts are interested in indicators that can help schools identify which students may need additional support as well as track school and district progress to graduation and postsecondary readiness targets. Data can provide important information about what students need which types of support programs and interventions. It can also provide information about how the system could better support students. This capstone project seeks to identify and validate indicators of high school graduation and college enrollment to provide information on student needs to school and district staff, parents, and other education stakeholders.

Tracking leading indicators of graduation and postsecondary readiness will allow for identification of issues while there is still an opportunity to provide timely support to students. Key strategies for selecting and validating indicators to track graduation and postsecondary readiness have been outlined by the College Readiness Indicator System (CRIS) work (see, for example, University of Chicago Consortium on Chicago School Research, 2014a) and Conley (2012).

This type of tracking system is often called an early warning system, or EWS. The leading indicators used in an EWS are data elements present in the K–12 system that are predictive of success in high school and college, such as student attendance, grades, and disciplinary infractions. These indicators provide a snapshot of progress toward graduation and postsecondary readiness and help identify appropriate supports, interventions, and system changes.

Many districts have created their own EWS for graduation and college readiness, but few have validated the indicators they use. Perhaps this is because analytic capacity to validate indicators is low in many districts and cleaning data to prepare for validation can take significant time. Challenges to setting up an EWS include that K–12 student data systems are not typically connected to the outcomes of college enrollment, persistence, and completion, making it challenging to track these postsecondary outcomes. Additionally, the data available

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may not be of high quality, and data quality tends to worsen in earlier years. Reporting indicators is also challenging; a data system and reporting structure for the EWS needs to be in place that can provide useful and timely information to stakeholders at the individual student, classroom, school, and district levels.

This capstone project seeks to answer the following research questions:

1. What indicators are predictive of graduation and/or college readiness in each district?
2. What are the percentages of on-track and off-track students according to the indicator thresholds for graduation and/or college readiness?

The districts included in this report are Long Beach Unified School District in Long Beach, California; St. Bernard Parish School District in Louisiana; and Portland Public Schools in Oregon. Only selected indicators were considered for this project due to data availability and scope. One caveat to note is that these indicators only predict the likely outcome for a student based on prior cohorts' outcomes; individual students may not follow the likely trend, and the relationship between the indicator and the outcome may shift for each cohort. However, using past data to help identify current students in need of support is a step in the right direction for improving graduation and postsecondary readiness outcomes.

Literature

We examined the literature regarding the use of indicators in early warning systems as well as the broader literature regarding indicators that are statistically related to high school graduation and college outcomes. The three districts in this report build upon the literature in this area and validate some of the more commonly cited indicators on their individual district data: attendance and grade-point average (GPA). We will first explore which indicators have been found to be predictive of high school graduation and college outcomes in the literature and then explore if and how EWSs have used these indicators.

Effective indicators are those that are valid for the intended purpose, actionable by schools, meaningful and easily understood by practitioners, and aligned with the priorities of the district and schools (University of Chicago Consortium on Chicago School Research, 2014b). Testing the validity of indicators against district data is key to ensuring the indicator has a

relationship with the desired outcome for the given district. An indicator is valid if it shows a statistical relationship with the desired outcome (i.e., is a predictor of the outcome). Using an indicator that is not valid would not appropriately identify students as on track or in need of interventions. Research can give an idea of which indicators have been shown to be valid in multiple settings, and it is likely these indicators are valid in other districts, but testing that validity on district data is important due to differences across regions and districts and is explored further in the case studies presented here.

High school graduation

According to Allensworth and Easton (2007), student on-track status, GPA, and course failures are the most predictive of all indicators, at 80% predictive, for high school graduation in four years. On-track status is defined as students earning enough credits to move from ninth grade to tenth grade. The predictive rate only increases to 81% predictive when test scores and background characteristics are included with on track in ninth grade. The background characteristics that were added with on-track status were: eighth-grade test scores, mobility, over-age status, race, economic status, and gender. For the case studies in this report, GPA and attendance rates were used for all districts, and one district also used course failure (earning a D or F letter grade) in English and math.

A body of literature on high school graduation indicators focus on EWS in Chicago Public Schools in order to determine if the use of these indicators can improve student achievement and increase graduation rates (Allensworth, 2013; Bridgeland, Dilulio, & Morison, 2006; Balfanz & Legters, 2004). This work found that GPA declined from eighth to ninth grade while absences were four times higher, pointing to eighth and ninth grades as crucial years to intervene to reduce dropout. Chicago Public Schools learned that using graduation rates in the accountability system and the knowledge of on-track indicators were not sufficient to increase graduation rates, but that graduation rates increased when schools were provided with tools to make their data actionable when working with students and parents (Allensworth, 2013). When data reports are used, schools can be more systematic about how they address students who may be at risk of dropping out and needing intervention. In addition, having the data report as

an objective piece of information can help counselors and other school staff avoid bias when working with parents and students (Allensworth, 2013).

This work highlights the importance of using an EWS that is composed of valid indicators, as well as the importance of connecting the EWS to interventions and providing actionable data reports to staff. In these case studies, we have focused on eighth and ninth grades as key transition and intervention years while validating selected indicators for each district.

College readiness

There is a fundamental distinction between college readiness and college eligibility. A student may graduate high school with the credits to enroll in a postsecondary institution (eligibility), but still lack the academic skills, study habits, and understanding of college to succeed (readiness). Understanding the skills that lead to college readiness and the indicators that can signal readiness are important for districts to appropriately prepare students for success in life after high school.¹

The districts included in this report use both the Conley and CRIS frameworks to shape their work on college readiness. Conley (2007; 2011; 2012), based on research and field practice, defines college and career readiness (CCR) as qualifying and succeeding in credit-bearing college courses (i.e., not needing developmental education upon entering college). Conley (2007; 2011; 2012) developed a CCR framework that is useful for exploring college readiness. This framework consists of four dimensions: cognitive strategies, content knowledge, learning skills and techniques, and transition knowledge and skills. Indicators of readiness in all of these four dimensions are often not available for use in EWS due to limited data collected in certain areas, such as cognitive strategies and learning skills.

The CRIS framework conceptualizes college readiness into three dimensions: academic preparation, academic tenacity, and college knowledge (University of Chicago Consortium on

¹ Career readiness is also an important concept, though typically more challenging to measure and define due to a lack of data on career outcomes such as wages and job satisfaction. The case studies in this report do not attempt to examine career readiness due to a lack of data available in the selected districts.

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Chicago School Research, 2014c). Academic preparation is the content knowledge in the subject, such as math or English. Academic tenacity is the attitude driving student achievement, such as perseverance and growth mindset. College knowledge is defined as the knowledge, beliefs, and attitudes students need to access college and be successful once in college, such as filling out their financial aid forms. Additionally, CRIS identifies and approaches the indicators at three levels: individual (student), setting (school), and system (district and partners).

The indicators explored here relate most strongly to academic preparation and tenacity, as data were not available on college knowledge factors. Attendance may be considered an indicator of academic tenacity (using the CRIS framework), as it demonstrates perseverance. GPA and course grades in the CRIS framework relate to the academic preparation dimension as well as academic tenacity, as high grades over a period of time demonstrate consistent effort.

Case Studies

The following sections detail the experience of validating indicators for each of the three districts: St. Bernard Parish Schools, Portland Public Schools (PPS), and the Long Beach Unified School District (LBUSD). Each of the fellows examined attendance and GPA for our districts and validated these indicators with high school graduation and college enrollment to address the first research question. Using thresholds for each indicator that were grounded in the literature and practice from our own and other districts, we examined the percentages of on-track and off-track students for the outcomes of interest to address the second research question. In addition to examining high school graduation and college enrollment, LBUSD examined whether students met the California state university entrance requirements and looked at course grades in math and English as an outcome. The other two districts, St. Bernard Parish Public Schools and PPS, examined GPA and attendance as indicators for this case study, but may examine other indicators in the future. All districts may consider setting their own thresholds based on district data in the future rather than using thresholds discussed in the literature.

St. Bernard Parish Schools, Louisiana

Agency Profile: The mission of the St. Bernard Parish Public Schools is to provide quality educational instruction so that our students are responsible and productive citizens and

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life-long learners. The school system is located in St. Bernard, Louisiana, which is 10 minutes east of New Orleans. In August of 2005, the entire parish was destroyed by Hurricane Katrina, including all 14 schools.

As the community repopulated, its demographics shifted. The system now has a 79% free or reduced-price lunch eligibility rate compared to 49% in 2005. The student population level of 8,800 prior to Hurricane Katrina has nearly returned, with 7,300 students in the school system today in one comprehensive high school, three middle schools, six elementary schools, and one alternative school. These students are 66% White, 31% African American, and 2% American Indian, Asian, or Hawaiian/Pacific Islander.

The St. Bernard Parish School System has been featured by the Louisiana Department of Education for the past five years for academic growth. In the 2013–14 school year, the district ranked 11th in the state for student proficiency on state standardized tests despite a 79% free and reduced lunch rate (higher than the state average of 58%). With the release of value-added scores in the 2013 school year, St. Bernard Parish teachers were ranked first in the state with no teachers deemed ineffective. In 2014–15, the district was ranked eighth in percent-proficient scores on end-of-course exams. Despite high student achievement scores, the district high school cohort graduation rate lagged behind. For this reason, the focus was on using data to determine which students were in need of interventions to increase their likelihood of on-time graduation.

Mary Lumetta and Alison Gros are SDP Fellows for the St. Bernard Parish School System. Mary Lumetta is a district supervisor of the middle and high schools, state-standardized testing, and accountability. At the beginning of the two-year SDP Fellowship, Alison Gros was the district Data Specialist. One year into the project, Alison Gros became the district Title I English/Language Arts Facilitator and is currently the Special Education Coordinator. Mary Lumetta has continued to work closely with the district high school administrators and guidance counselors, along with the Superintendent and Assistant Superintendent, to use data to identify students who need interventions in order to successfully complete graduation requirements. The team reviewed graduation rates, procedures, and programs to determine if the programs and interventions provided were addressing the needs of students.

Research Question: What is the relationship between ninth-grade attendance and GPA with later high school graduation and college enrollment?

Role of Data & Research: Data regarding attendance rates and GPAs for students in ninth through twelfth grade were reviewed by ninth-grade cohort. Tables and graphs were created to show graduation rates of students who are college ready, graduation ready, at risk, and critical.² A review of the data showed while it is imperative to provide interventions for students who are in the at-risk and critical categories, it is also necessary to provide interventions for students in the graduation-ready and college-ready categories. Intervention programs such as grade recovery, credit recovery and flexible scheduling have been implemented with the goal of increasing graduation rates. Interventions have always been used for students with obvious needs (e.g., failing all courses), but additional interventions are needed for other groups of students.

Project Scope: The major goal at the beginning of the two-year Strategic Data Project Fellowship Program was to increase the cohort graduation rate from 75% in 2013 to 85% by 2015. In addition, there was a goal to provide actionable data to administrators, counselors, and teachers to help them identify need and intervene with students in a timely manner.

Stakeholder Engagement: For the graduating class of 2014, the cohort graduation rate increased to 79%.³ Student interviews and a data review indicated scheduling over-aged students in a more accelerated fashion would increase their likelihood of earning a diploma. In addition, meetings and trainings were held for guidance counselors regarding scheduling.

A plan was developed with high school administrators and counselors to track all students by cohort, age, and diploma type. This plan included creating a system to collect, enter, and track ninth-grade entry year, diploma type and the college/career pathway for each student. In order to increase accuracy in course scheduling, a single report was created to display all scheduling information in one place.

² Critical refers to students who are highly at risk.

³ The rate for 2015 was not available at time of publication.

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Timeline: In 2013, a goal was set to increase the cohort graduation rate from 75% to 85% in two years by targeting students with appropriate interventions. Within the first six months, a plan was put into place to collect, enter, and standardize data collection regarding student cohort information. In the following six months, the plan was implemented and reports were created to diagnose the needs. Data was reviewed by cohort, and dropout data was analyzed. Guidance counselors were trained on scheduling, cohort, and graduation rate data. This included names of students who were at risk of not graduating. In addition, scheduling was done according to student age. By the end of the first year, a summer grade recovery program was started to help students catch up to their expected grade level based on their age. In addition, grade recovery initiatives began in the middle and elementary grades.

Results: Results of this investigation are discussed below and include the key findings from the analysis of GPA and attendance for ninth grade in the district.

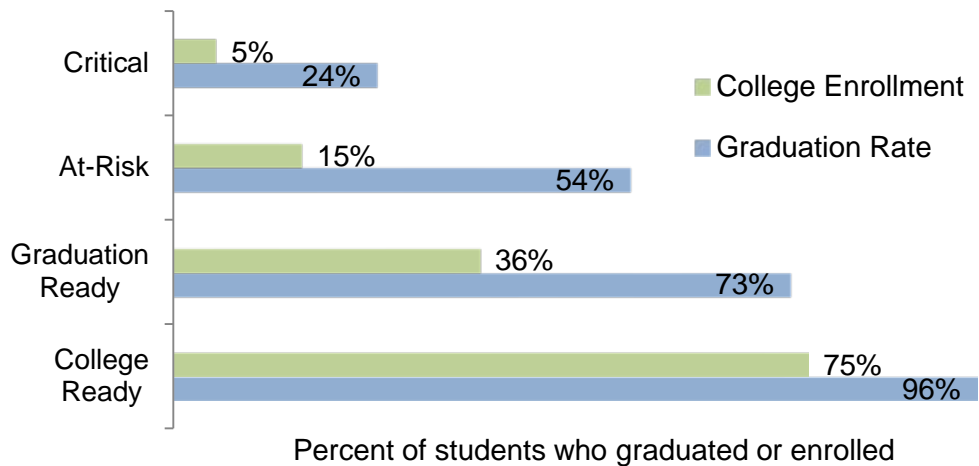
Key Findings: GPA and attendance were chosen as indicators based on the literature review, and the thresholds were determined by analysis of prior cohorts. Based on the analysis of 2009 ninth-grade cohort data and thresholds in the literature, we determined attendance rate and GPA thresholds (see table 1) for predicting whether students are ready for college enrollment and graduation or at risk or critical for these outcomes. The graph (see figure 1) represents the freshmen cohort of 2009–10 and shows 362 students in our district based on the GPA and attendance thresholds in table 1. There are clear differences between the outcomes of student groups based on these thresholds, with only 24% of students in the critical category graduating compared to 96% of the college-ready students. In particular, there is a large jump in college enrollment percentage between the graduation-ready and college-ready groups (36% compared to 75%).

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Table 1. Thresholds for GPA and Attendance for College Enrollment and High School Graduation

| On-Track Status for 2010 Ninth Graders | | | |
|--|------------------------|--------------------------|-----|
| Category | GPA | Attendance | |
| College Ready | ≥ 3.0 | $\geq 90\%$ | AND |
| Graduation Ready | ≥ 2.0 AND < 3.0 | $\geq 85\%$ AND $< 90\%$ | AND |
| At Risk | ≥ 1.5 AND < 2.0 | $\geq 75\%$ AND $< 85\%$ | AND |
| Critical | < 1.5 | $< 75\%$ | OR |

Figure 1. Ninth-Grade Cohort of 2009 High School Graduation and College Enrollment Rates for GPA and Attendance Categories



A key finding was that students of all ability levels and students in many demographic subgroups were not earning a diploma within four years of high school. Efforts were originally focused on students who were at risk of not graduating based on achievement data, but students who were academically ready were also appearing on the non-graduate list more often than was perceived. This helped change the way students and support programs were

viewed and expanded awareness of the need for differentiated support for students at all levels.

Key Successes and Challenges: Some key successes were improvements in collecting, entering, and reporting student-level data. Another key success was the increase in the cohort graduation rate from 75% to 79% in the first year. Some key challenges moving forward include identifying students in need of interventions and implementing effective interventions in earlier grades.

Next Steps: Next steps will be to continue to implement and explore interventions for students in the middle and elementary grades in order to decrease the number of over-age students entering high school. College persistence rates will also be added to data visualizations.

A software package has been purchased to make assessment and intervention data more available to teachers and administrators. In addition, the software will allow students to be grouped based on common intervention needs. Using this software, student progress can be viewed and tracked to better connect students to interventions and to determine the effectiveness of the interventions.

Education Northwest, Portland, Oregon

Agency Profile: Education Northwest is a nonprofit organization based in Portland, Oregon that helps states, schools, districts, and communities find, develop, and implement evidence-based solutions to meet their challenges. Our research, evaluation, and assessment work ranges from measuring the effectiveness of individual school programs to analyzing statewide initiatives and carrying out large-scale experimental studies. This project outlined here highlights work done with Portland Public Schools (PPS), the largest school district in Oregon, with over 48,000 students in 81 schools who speak more than 60 languages. In October 2014, PPS reported that its student body was 56% White, 16% Hispanic, 10% African American, 8% Asian, 1% Native American, 1% Pacific Islander, and 8% multiple ethnicities (PPS, 2014).

Ashley Pierson is a Senior Researcher at Education Northwest who was placed with the organization as an SDP Fellow in September 2013. Pierson began working with PPS in February 2014 to help facilitate the selection of indicators to prioritize for inclusion in an EWS. She then

validated two indicators from this list, explored thresholds from the literature and from the PPS data, and developed a guide for data staff on how to validate indicators and set thresholds.

Policy/Research Question Discussion Specific to Agency: This project explored ninth-grade attendance and GPA and those indicators' relationship to graduation, college enrollment, college persistence, and college completion. Thresholds presented here are those used in other districts and based on the literature. Although district-specific thresholds were explored using PPS data, these results are not shown as they are outside of the scope of this report.

Research Question: The research questions for the work presented here were:

1. In PPS, how predictive of graduation and college outcomes are ninth grade attendance and GPA?
2. What percentages of students are predicted to be on track and off track based on thresholds found in the literature and used in other districts?

Role of Data & Research: PPS data were reviewed and cleaned in order to conduct the validation work on the two selected indicators: GPA and attendance. The high school graduation outcome information came from the PPS data, while college outcome information came from the National Student Clearinghouse data owned by PPS that was previously matched to PPS students. Ninninth grade was identified by the stakeholder group as a key year to examine and thus the work presented here focuses on the relationship between ninth grade attendance and GPA with student outcomes.

Thresholds for these indicators are needed to determine whether a student has on-track, sliding, and off-track status in terms of the desired outcome. That is, after validating an indicator, the data analyst needs to determine appropriate thresholds or cutpoints that can categorize students for the reporting system. For example, for grade point average, the data could determine that students who are below a 2.0 are off track to graduate from high school, students between a 2.0 and 3.0 are sliding, and students above a 3.0 are on track. Thresholds used in the work presented here were taken from the literature and from practice in other districts.

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This study tested the validity of attendance rate at the student level as a predictor for high school graduation and for college outcomes. The validation work involved conducting logistic regression analysis, modeling the relationship between the indicator of interest and an array of student and school characteristics (e.g., demographic characteristics) following the CRIS technical guide to validating indicators (University of Chicago Consortium on Chicago School Research, 2014). The outcomes used for this validation were:

- High school graduation
- College enrollment at any time after high school
- Persistence to the second year of college
- College completion

For high school graduation and all college outcomes, we restricted the analysis to only those students who have a record of being in ninth grade for the first time in 2004–05 to 2010–11 and used ninth-grade cohorts to examine the data. For college enrollment, we only examined those who graduated from high school and who had at least one year of potential college enrollment in the data. For college persistence, we only examined those who graduated from high school, enrolled in college, and had two years of time after high school (so it would be possible to persist to the second year of college in the data). We also removed students who showed they already finished a college degree (e.g., one-year certificate program) from the persistence analysis. For college completion, we examined students who graduated from high school, enrolled in college, and had enough time to be in college for four years in the data.

For each of these outcomes, we conducted regression analysis (using logistic regression) of attendance rate and GPA on the outcome and included the following student-level variables as control variables: grade, year, female, Asian, Black, Hispanic, multiple races, White, ESL (English as a second language), FRPL (free or reduced-price lunch), special education, OAKS (Oregon Assessment of Knowledge and Skills) math quartiles or missing OAKS math score, OAKS reading quartiles or missing OAKS reading score, and student mobility (switching schools). Separate regression analyses were conducted for each eligible ninth-grade cohort for each outcome.

Project Scope: The scope of this project was to validate indicators, set thresholds, and provide a guide and training to PPS data staff. However, this project is embedded in a larger

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district-wide initiative to examine the graduation and college readiness levels of all students. This district-wide initiative seeks to identify students in need of support and connect students to appropriate interventions to increase their high school and postsecondary success.

Stakeholder Engagement: The first stage in this project was to develop consensus on a set of indicators between a group of district staff. These district staff represented multiple departments and met in a series of six meetings from May to June 2014 to discuss these topics. Including a group of staff in the planning process was purposeful to provide multiple perspectives in selecting the indicators and create support for the work. In addition, the validation and training portion of the project has involved PPS data staff.

Timeline: Pierson began to work with PPS in February 2014 in a team with other Education Northwest staff. The first months of the work focused on convening a group of district staff to discuss graduation and college readiness and EWS. This group selected a list of indicators to examine as predictors of graduation and college readiness. Pierson then received data including these indicators from PPS data staff, cleaned the data, validated and set thresholds for two selected indicators to provide example analyses, and drafted a guide for data staff to replicate these analyses. She conducted training with PPS data staff on how to validate and set thresholds for indicators in July 2015.

Results: This work examined high school graduation and college readiness based on attendance and cumulative GPA for Portland Public Schools. Results are shown for the ninth-grade cohort of 2008–09; high school graduation is within five years of ninth grade and college enrollment is within two years of high school graduation.

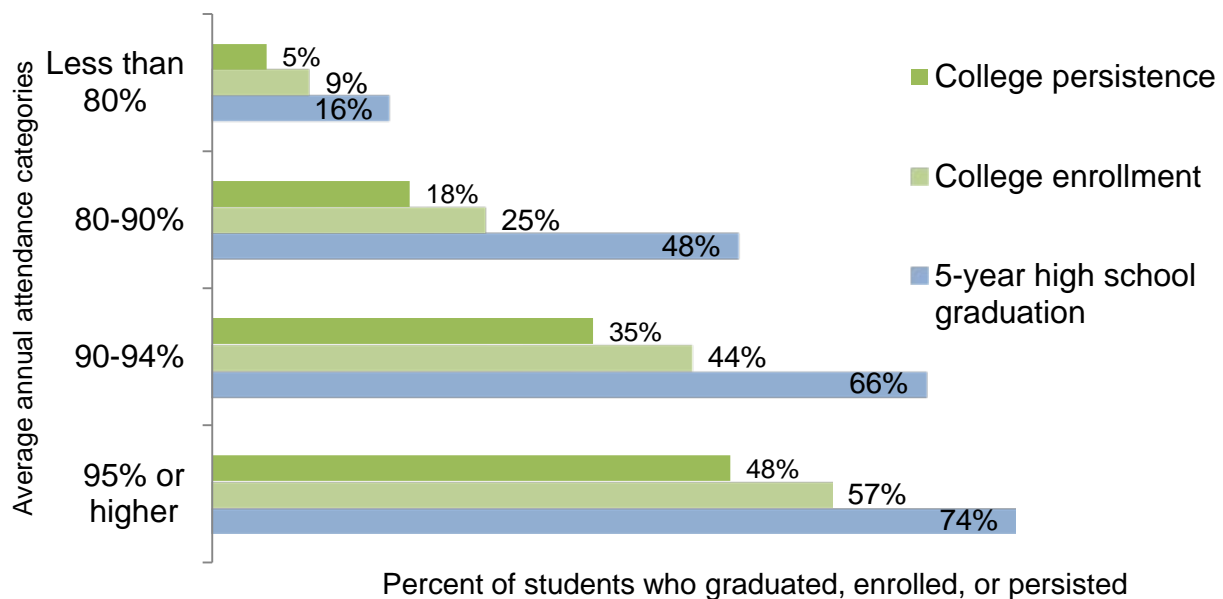
Key Findings: Logistic regressions were run to validate the selected indicators (GPA and attendance) for all ninth-grade cohorts of students. All cohorts showed a statistically significant relationship with the indicator and the outcomes in question. This validates the attendance and GPA indicators for the general PPS population by demonstrating a statistically significant relationship with both high school graduation and with college enrollment, persistence, and completion.

Figures 2 and 3 display the percentage of students in the ninth-grade cohort of 2008–09 who graduated high school within five years, enrolled in college, or persisted in college from

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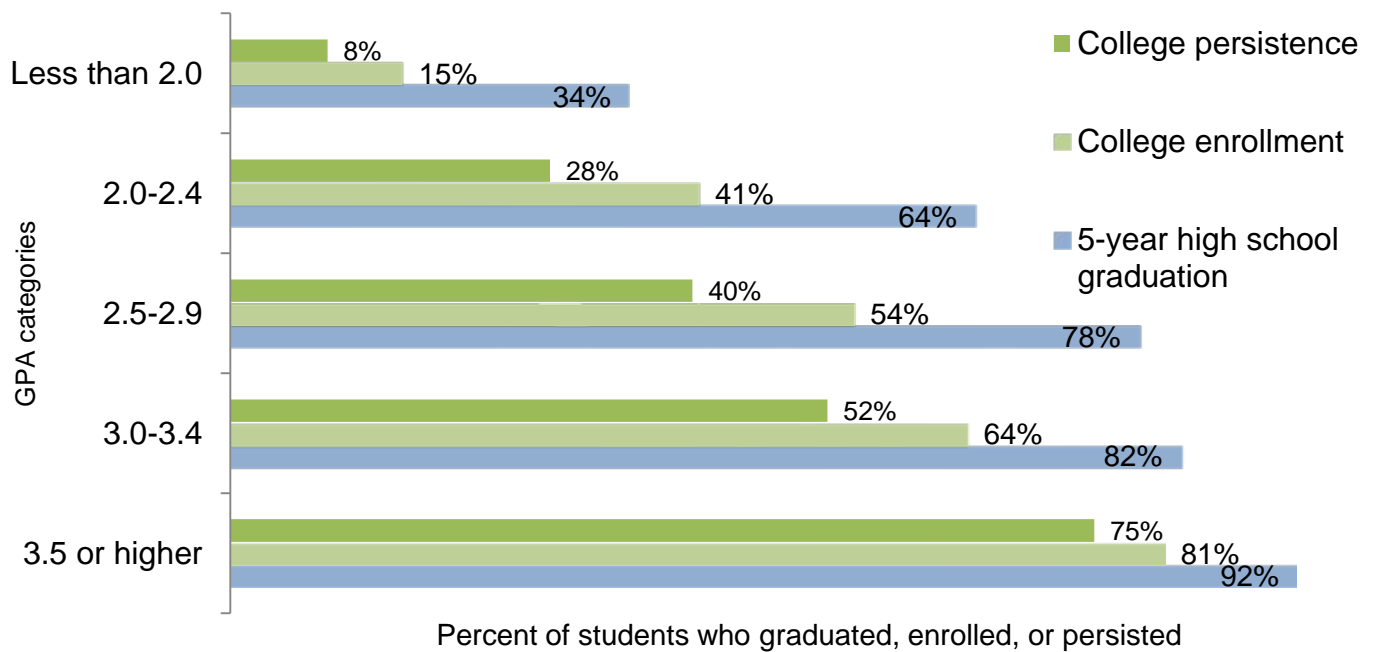
the first to the second year. Figure 2 shows the percentage by attendance categories while figure 3 shows this by GPA categories. Only 74% of PPS students in this cohort who had a high level of attendance—95% or greater—graduated from high school within five years, while in the lowest attendance category—less than 80% attendance—only 16% of students graduated. There is a clear relationship with attendance and the outcomes in question, but relatively low percentages of students achieving the outcomes in the higher attendance categories. The highest GPA category, 3.5 or higher, shows that 92% of PPS students in this category graduated, while 81% enrolled in college and 75% persisted.

Figure 2. Percentage of the ninth grade cohort of 2008–09 who graduated, enrolled, or persisted based on their average annual attendance



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Figure 3. Percentage of the ninth grade cohort of 2008–09 who graduated, enrolled, or persisted based on their average annual attendance



Key Successes and Challenges: A key success of this work was using local data to validate indicators based on national literature as well as adding to the body of work on graduation and college readiness indicators and how they can be used to support students. One feature of this work was the training of the data staff on how to conduct these validation and threshold determination exercises, as well as the drafting of a written guide that can be used to train staff hired later. This will help to ensure that the knowledge of how to conduct this process will not be lost.

Challenges involved in this work included issues in setting thresholds that were appropriately sensitive to false positives (e.g., erroneously flagging students as in need of an intervention when they would have gone on to achieve the outcome) and false negatives (e.g., not flagging students who needed help and later did not achieve the outcome). This challenge was compounded by attendance data with a large standard deviation which made it imprecise to work with from a data standpoint.

Next Steps: Next steps of the work will be to create an indicator system that will be flexible and useful, with the ability to reprogram the thresholds if they shift between cohorts. The district will need to decide what types of reports are most useful for different types of stakeholders. In a setting with many stakeholders, it can be challenging to reach consensus on what information should be available and displayed and these decisions will likely involve additional group discussions.

Long Beach Unified School District, California

Agency Profile: The mission of LBUSD is to support the personal and intellectual success of every student, every day. The LBUSD has earned a reputation as one of America's finest school systems, winning many awards as a national model of excellence. The district was named a national winner of the Broad Prize for Urban Education and also has been a five-time finalist for the prize.

LBUSD has over 80,000 students at 83 schools, with a student population that is 55% Hispanic, 15% African American, 15% White, 8% Asian, 3% Filipino, and 2% Pacific Islander. Around 22% of the students are English learners and 67% of the students are eligible for free or reduced lunch. More than 75% of high school students are in a Small Learning Communities (SLC) or a similar program (pathway) in 12 high schools. The SLC program is part of the Academic and Career Success for All Initiative that started in 2007 to increase the college and career readiness of all students. These programs are being expanded and work collaboratively with the local community college (Long Beach City College), state university (California State University Long Beach), and community businesses to help increase student postsecondary success. As part of this initiative, the Long Beach College Promise started in 2008 and various indicators were instituted to monitor the progress of the initiative. With these initiatives and other programs that have been put in place, the high school graduation and college enrollment numbers increased consistently in the last decade.

LBUSD is one of the seven districts that received a waiver from No Child Left Behind in California. LBUSD and other California Office to Reform Education (CORE) waiver districts have developed a new School Quality Improvement system. Additionally, California has recently changed the funding and accountability system for public schools which require school districts

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and schools to develop, adopt, and annually update a three-year Local Control and Accountability Plan (LCAP). Moreover, the schools are adopting the Common Core State Standards. To ease these processes, LBUSD has adapted an understanding by design framework to guide the instructional shifts in teaching and learning to align all changes.

Ali Korkmaz, SDP Fellow, was hired to work on the Supporting the Teacher Effectiveness Project (STEP). STEP is a teacher-driven community of practice that uses a positive deviance approach in discovering on-site solutions to on-site problems. Ali Korkmaz's role in STEP was to design, co-create, and implement new practical measures to address the needs of the identified problems of practice. His role was also to build data collection processes, and analysis procedures to support the further scale the STEP work in the district. Ali Korkmaz worked on this project to validate and check eighth-grade college readiness indicators for the new School Quality Improvement (SQI) system.

Policy/Research Question Discussion Specific to Agency: The Long Beach College Promise laid out the foundations to build structures and processes to streamline programs across different levels to prepare students at LBUSD for college and career. The new accountability frameworks from CORE and LCAP emphasize measures and goals such as high school dropout, graduation, and college enrollment outcomes, but they also include indicators such as attendance, chronic absenteeism, suspension, enrollment in algebra, AP course enrollment and pass rates, GPA, and social emotional and cultural factors.

At the high-school level, on-track and off-track reporting for graduation and college readiness have been in use for multiple years in Long Beach. The reporting system and structure has been in a constant improvement process. However, at the middle school level, even though different indicators have been used for accountability and improvement processes, these indicators were not connected to high school graduation or college readiness. One of the CORE's academic measures for middle schools includes a high school readiness index that measures the percentage of eighth graders on track to graduate high school. It includes the following measures:

- eighth-grade GPA of 2.5 or better, AND
- Attendance 96% or better in eighth grade, AND

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- No D's or F's in English language arts (ELA) or math in eighth grade, and
- Never suspended in eighth grade.

As outlined in the literature section, these indicators are important for educators to assess whether middle school students are on track to succeed in high school, to graduate on time, and enroll in college. In order to raise awareness and act on these key indicators, we needed to look at how LBUSD students performed based on historical data.

Research Question: This project specifically examined the following indicators' impact on graduation, college enrollment, and college readiness: eighth-grade academic GPA, ELA and math course grades, and attendance. Our research question was: How do these key eighth-grade academic and non-academic indicators inform educators and the public about students' readiness for high school success and college?

Role of Data & Research: Data regarding attendance rates, GPA, and ELA and math course grades for students in eighth through twelfth grade have been reviewed for students by cohort. We found that the attendance data prior to 2008 were collected differently and were not comparable to attendance in the current data collection system. Given this, we decided to use the 2009 eighth-grade cohort to validate and determine thresholds for each of the indicators. Thresholds should be both statistically supported as well as easy to interpret and act upon when presented to stakeholders. The intent of determining these thresholds is to help middle school educators easily identify at-risk and critical students for high school graduation and college enrollment.

Project Scope and Timeline: The goal of the SDP Fellow in Long Beach, Ali Korkmaz, is to help and support the STEP project's data and measurement needs. Most of the STEP project participants are from the middle school level. Korkmaz helps middle school teachers and administrators in identifying a problem of practice in their schools. Even though teachers work on the new CCSS (Common Core State Standards) and College and Career Readiness Anchor Standards, middle school teachers do not have any data about how their students' progress through college. The data and reporting system (LBUSD Research Office Intranet, or LROIX) in LBUSD can be used to track students' progress in later grades in terms of course grades, but there is no link to college outcomes. Moreover, teachers and administrators are not aware of

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the full capabilities of the LROIX. The fellow's indicator work supports both STEP's overall goal and LBUSD's continuous work on improving students' readiness for college and career.

The CORE's first SQI index scores will be released in the fall of 2015 to the school sites and in winter 2015 to the public. Certain elements of the framework will not be fully implemented until mid- to late 2016 due to a shift to the Smarter Balanced Assessment and the need to wait for two years of test results to calculate growth measures. However, schools have been introduced to all of the indicators, including the high school readiness index. In order to embrace and act on these new measures and results, administrators and teachers need to see the relationship of these new measures to high school graduation and college enrollment for Long Beach students.

In order to raise the awareness of middle school administrators and teachers about these key indicators, the data fellow worked closely with the Assistant Superintendent of Research, Planning, Evaluation, and School Improvement throughout the project. In addition, Korkmaz worked closely with the K–12 Counseling Program Administrator to understand LBUSD's high school graduation and college enrollment support system at all levels. The Program Administrator and the data fellow outlined key priorities in terms of data and reporting support for counselors.

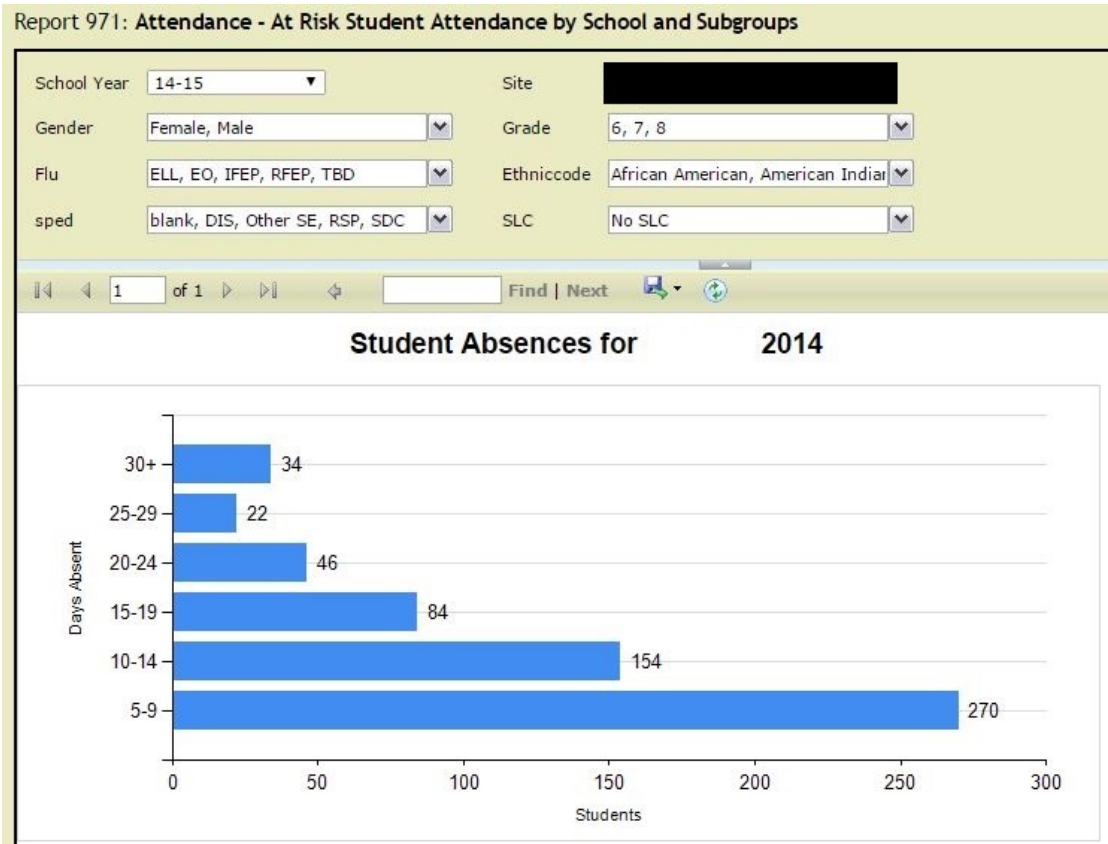
During the fall and spring of the 2014–15 school year, historical data was reviewed and analyzed. The results have been shared with the middle and K–8 school administrators. However, since these indicators will be part of the new accountability measures for schools outlined in the No Child Left Behind (NCLB) waiver, the integration of these elements to LROIX and middle schools' corresponding adaption will start in the fall of 2015 while schools are setting up new goals for the LCAP and adjusting resources for high-need areas.

Stakeholder Engagement: The new LCAP has established a new level of engagement with school priorities from multiple stakeholders, including parents, teachers/staff, students, and administrators. The data review, new goals, progress indicators, actions, and expenditure alignment are done based on the indicators established in the two-year LCAP. For high schools, the on-track and off-track thresholds for high school graduation and college readiness are an integral part of the LCAP reporting. The counselors and SLC support teams periodically review

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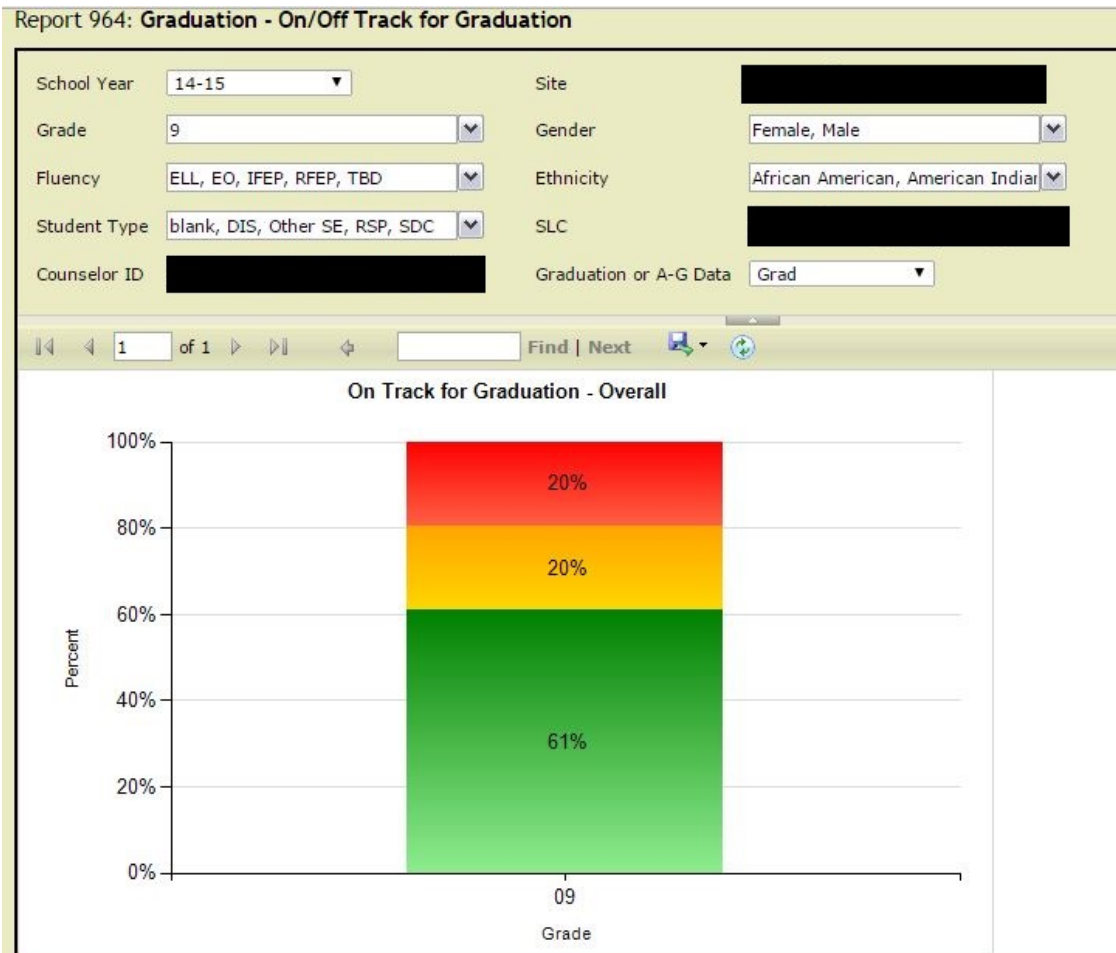
these measures and thresholds using LROIX data visualizations (see figures 4 and 5), identify students (see figure 6), and provide support to the identified students.

Figure 4. Attendance Report for Anonymized School Site



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Figure 5. LBUSD Sample On /Off Track for Graduation Report for Schools



| Grade | N | % On Track | # On Track | % Off Track | # Off Track | % Off Track Including Work In Progress | # Off Track Including Work in Progress |
|--------------|------------|--------------|------------|-------------|-------------|--|--|
| 09 | 871 | 61.0% | 531 | 39.0% | 340 | 19.5% | 170.0 |
| TOTAL | 871 | 61.0% | | | | | |

Filters:

Gender: Female, Male

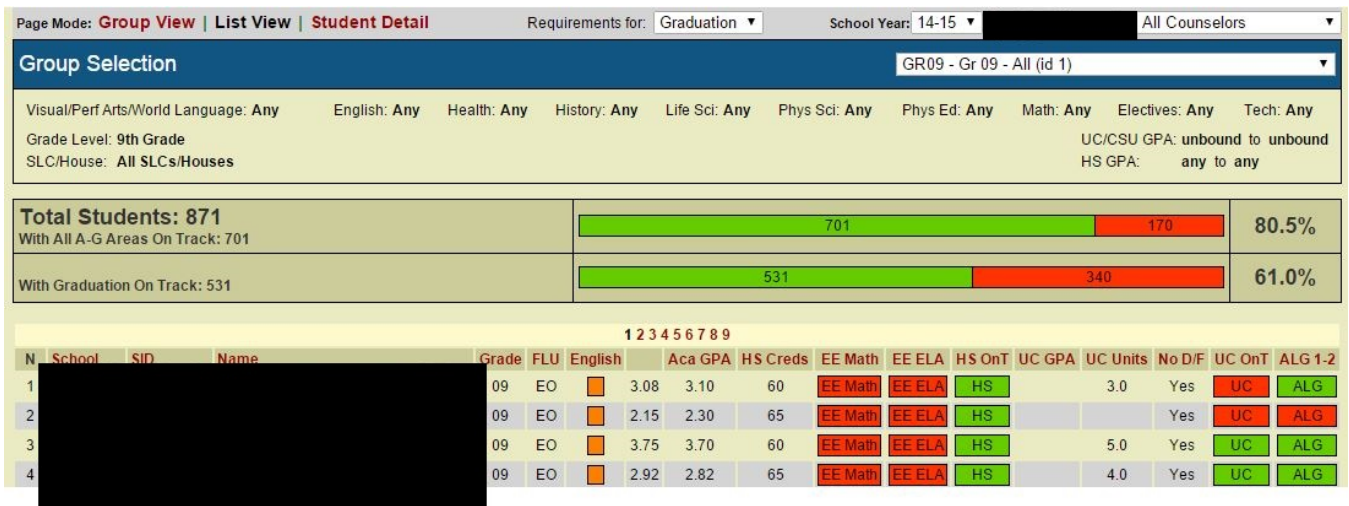
Ethnicity: African American, American Indian, Asian, blank, Declined, Filipino, Hispanic, Multiple, Pacific Islander, Unknown, White

Fluency: ELL, EO, IFEP, RFEP, TBD

Student Placement: blank, DIS, Other SE, RSP, SDC

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Figure 6. LBUSD Sample Student Level Report for On/Off Track for Graduation for Schools



For middle schools, the 2015–16 school year will be their first time receiving a score for how well they prepare students for high school graduation. The LCAP report already tracks the monthly attendance rates. In LROIX, there is an easy reporting structure for schools (see figure 4), in which administrators can click on one of the categories and see the student names for that category. Schools have a system to monitor students who have missed a significant number of days. Students identified as missing days are counseled and supported. The addition of two new indicators for middle schools—GPA and D/F course grades for ELA and math—will build on their prior inclusion in the high school on-track and off-track indicators (see figures 5 and 6). The high school counselors and SLC mentors have extensive experience with use of these measures. The need for additional counselors will expand as there will be an increased responsibility of identifying and supporting students at risk of not graduating high school on time. The counseling support will increase for K–8 and middle schools for the 2015–16 school year, based on the past two years of data and the needs identified in each school’s LCAP.

The fellow worked closely with the data team of the Research, Planning, Evaluation, and School Improvement department. The team has already revised some of the on-track/off-track reporting tools to easily identify at-risk students for graduation. The team is in the process of revising the LCAP report to capture the measures and longitudinal data.

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The data fellow and several principals introduced the high school readiness indicators to K–8 and middle school administrators during a data story workshop before the beginning of the school year. Principals want to introduce these indicators to their incoming sixth-grade students and parents during orientation. Principals also plan to access sixth- and seventh-grade indicators as well as use these indicators to better support students in a timely manner by monitoring current grades and attendance records for every student.

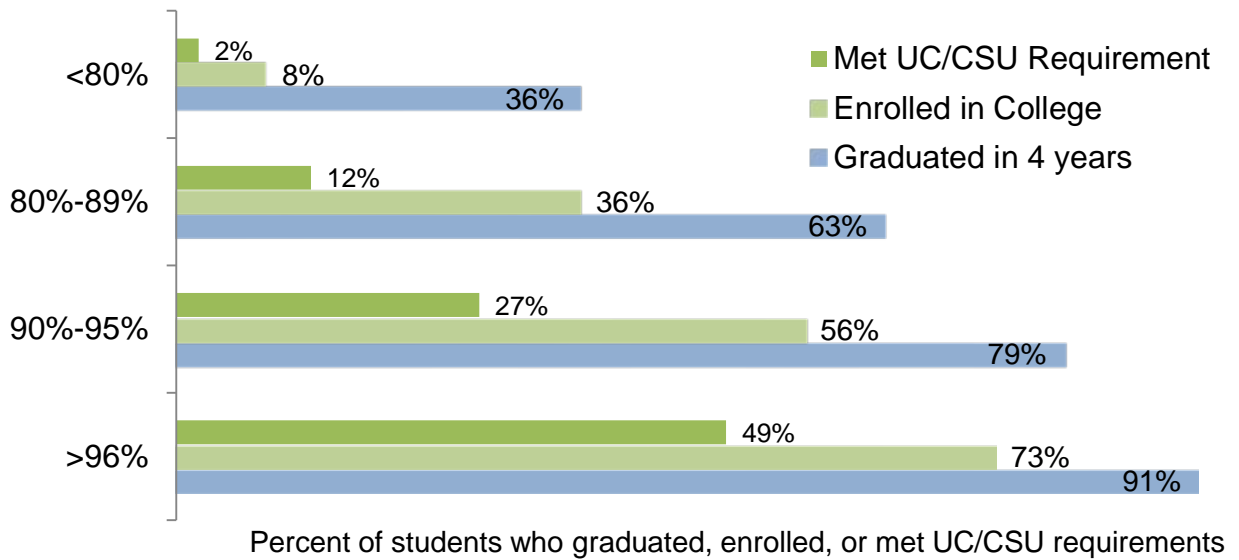
Results: The results of the LBUSD eighth-grade cohort were similar to the University of Chicago Consortium on Chicago School Research (2014) results about the middle grade indicators. Seeing the relationship between attendance and graduation and college enrollment was a convincing indicator for the administrators. This finding strengthens the already existing support system to help benefit students and parents more decisively, as the attendance data is used very frequently at all school levels. Especially at schools where there are more attendance problems, this finding only furthered school staff motivation to keep attendance levels high.

Figure 7 shows 4,959 students from the 2008–09 eighth-grade cohort that had attendance, GPA, and course grades as part of their student data. These simple and actionable eighth-grade indicators (attendance, GPA, and ELA/math course grades) can be used to predict high school graduation, college enrollment and college readiness. College readiness here is defined as students who are eligible for the minimum admission criteria for University of California (UC) and California State University (CSU) systems—criteria also known as the A–G requirements. The A–G requirements are a sequence of high school courses that students must complete (with a grade of C or better) to be minimally eligible for admission to the UC or CSU systems. They represent the basic level of academic preparation that high school students should achieve to undertake a four-year university education in the state. College enrollment in these charts is defined as attending a two-year or four-year college within two years after high school graduation.

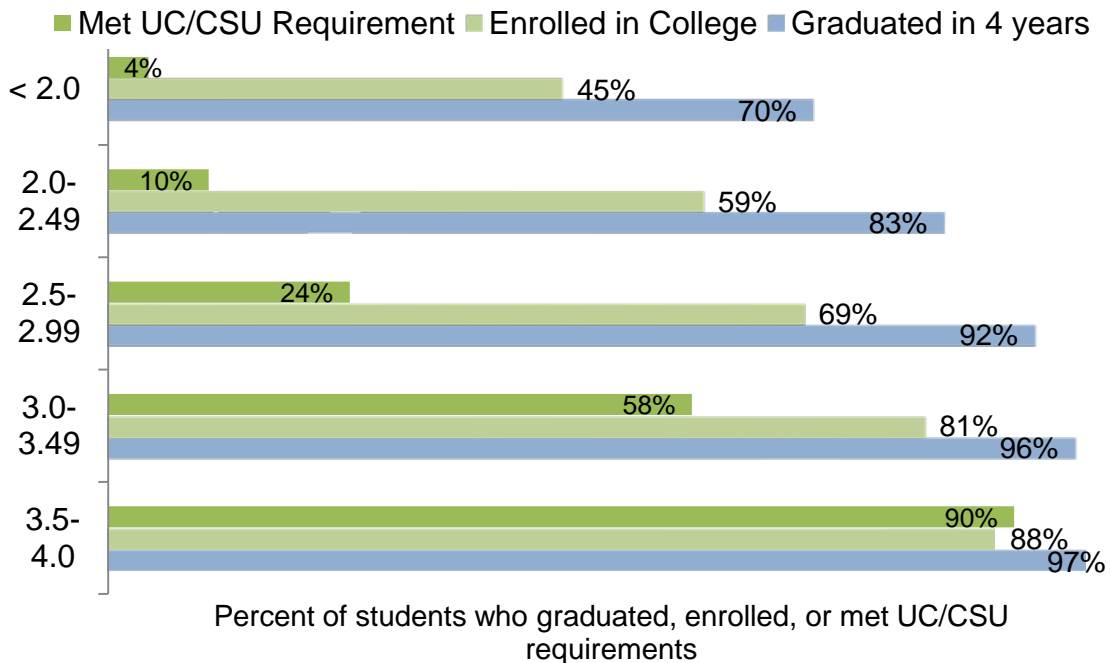
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Figure 7. Eighth Grade Indicators

Panel A. Attendance

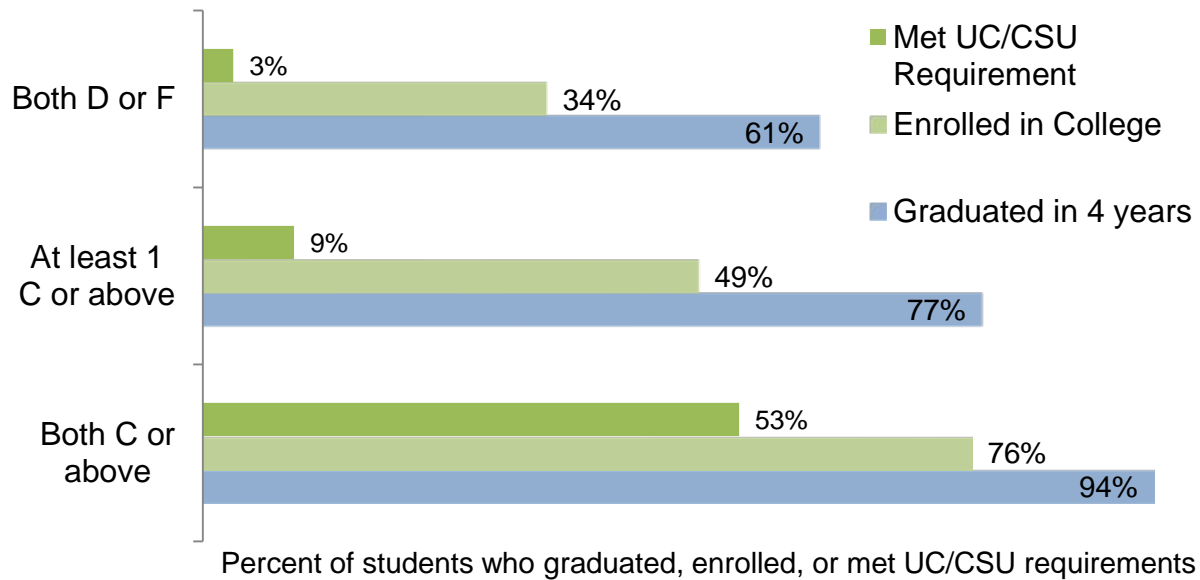


Panel B. GPA



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Panel C. ELA and Math Course Grades



There is a noticeable difference between one D/F versus two D/F grades in ELA and math in terms of high school graduation and college enrollment (figure 7, panel C). This information is available for teachers and administrators at both the high school and middle school levels as a customizable report; however, this function is rarely used by middle school teachers. Based on these findings, the Research, Planning, Evaluation, and School Improvement departments' data team will work with focus groups to make these reporting features easier for the end users (particularly at middle schools). At the high school level, there are already separate specific functions to create commonly used on-track/off-track reports.

There are noticeable gaps between thresholds for each indicator (see figure 7), which confirms both findings of previous studies and the importance of monitoring these indicators in eighth grade. These indicators can help identify off-track students in middle grades and connect those students to interventions before high school.

Key Successes and Challenges: Even though overall college enrollment numbers are high for LBUSD compared to similar districts in California, the number of students eligible for UC/CSU admissions based on the A–G requirements is still very low. Based on these data, to be eligible for admission into the UC/CSU systems, eighth-grade GPA needs to be higher than 3.5.

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With the Long Beach Promise, students are increasing their aspirations to go to college beginning in elementary and middle schools. However, to be able to apply to UC or CSU schools, students and teachers need to be much more informed about the work needed in middle schools to intervene so students can be on track for high school.

The first challenge for middle schools is to learn how to support the students who could be potentially off track for high school graduation and college. The indicator dashboard will be a new system for middle schools to monitor and evaluate the existing support systems already in place to help struggling students. There will be more counselor support in the K–8 and middle schools, but allocating their time across various projects and needs areas will be a challenge.

As of August 2015, student grades are in a different system than the student information system and reporting systems. The grades update at the end of each trimester and semester. Now, the district is in a process of synchronizing these separate systems for daily updates. With the availability of real-time grade progress displayed within the dashboard, principals, administrators, counselors, and teachers will be able to see the progress of students in a timely manner rather than waiting for the end of the semester.

Next Steps: LBUUSD will first engage in increasing the awareness of all staff during the critical middle school years. The new reports coming in fall of 2015 will include these indicators to show each schools' academic success. Principals have already started the awareness process with their students and parents. The Research, Planning, Evaluation, and School Improvement team is in the process of developing the dashboards for current students. These indicators are clear and actionable within the current system. However, we have not connected the middle school years to college enrollment with these indicators.

The next key steps are to involve middle school teachers, counselors, and administrators in the process. We can apply some of the lessons we learned from the STEP project. The first step is identifying the promising practices within schools and across schools. The next step is to learn from those practices and validate the practices at other sites seeing if they actually improve student outcomes. In the STEP approach, teachers are the drivers of the process; the data team supports the teachers. The data team creates simple actionable reports for teachers,

counselors, and administrators similar to high school reports or similar to the attendance report that flags students that need attention.

We naturally focus on the off-track students and build programs to support their needs. When analyzing the 2009 eighth-grade cohort, we saw a significant number of students who were on track (high GPA and high attendance during eighth grade), some of whom took AP courses and passed AP exams, and graduated with a high GPA, but did not attend any college within the two years.⁴ These students were not flagged by any of our indicators because they were on track. When we analyzed these students further, most of their parents' education levels were at high school or lower. This finding confirms the premise that these indicators only predict likely outcomes, and some on-track students may not go to college while some off-track and at-risk students may attend college. However, building strong support systems for all students identified as at risk based on these indicators is an important step to better preparing students for college and career.

Lessons Learned

We have validated multiple indicators of high school graduation and college readiness in three different districts. Through this process, we discovered various lessons learned in common across these settings. A main takeaway was that data are often challenging to clean and data quality tends to worsen as one goes further back in years. This is problematic, as to validate college outcomes (e.g., persistence and degree completion), 10 years of historical data are ideal to be able to look at multiple eighth- or ninth-grade cohorts that have had enough time to finish a four-year degree.

Multiple indicators used in tandem are more reliable to predict readiness; districts should go beyond attendance and GPA to examine other potential indicators. Even multiple indicators do not tell the whole story; however, and when examining individual student

⁴ It is possible these students attended college at an institution that does not report to the National Student Clearinghouse.

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records, other factors (such as home economic situation or personal motivation) should be considered.

Determining thresholds is challenging and requires district input on preferred success rates for the outcome in question. These thresholds and indicators only predict the likely outcome for most students, and there is invariably a group of students that will be misidentified with any given threshold. Setting the thresholds too high so as to not miss average-performance students who will likely not achieve the outcome can lead to a majority of students being identified as at risk. This can result in counselors and intervention teams becoming overwhelmed. Conversely, setting the threshold too low and only identifying the lower-performing students risks not identifying average-performance students who may need support.

With this indicator validation work, additional analyses can be performed, such as developing alternate thresholds and testing and including additional indicators into the models. In addition, the validation work should be conducted periodically (i.e., annually or biannually) to test if the relationship continues to hold between the indicator and the outcome for each new cohort of students for which data are available. Thresholds may shift between cohorts as well—for example, if a district begins to focus on attendance targets, overall attendance rates may shift upwards, leading to a need to recalculate the thresholds to take this trend into account.

The overall goal of this work is: to help teachers, principals, counselors, and other school-based staff identify students in need of interventions, to help principals identify the readiness level of their school, track progress across time, and use that information to request resources and programs, and to help district leaders identify the readiness level of their district and of individual schools, track progress over time, and direct resources and programs where they are needed most. Indicators can provide information at all levels of a district if reports are targeted appropriately and provide information at the appropriate level.

Information on student-, school-, and district-level indicators needs to be communicated to a variety of education stakeholders. This includes school staff, such as teachers, counselors, and principals, as well as parents and the community at large. Each of these stakeholder groups has a different goal as relates to the data presented which means

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that different data displays and reports are needed for each group. Teachers need a report structure that allows them to view students in each of their class sections as well as look across sections. Counselors need an individual student view that would allow them to have detailed discussions with students about their progress (as well as an aggregate view to examine progress by grade or student subgroup). Principals want access to individual, classroom, grade, and subgroup views, while district leadership need to view data by school, grade, and subgroup.

For school and district staff, the typical mechanism through which indicator data are presented is through a data dashboard linked to a student information system (SIS). The dashboard information can update as frequently as data are updated. Different data views can be created and set as a default view for different types of users. For example, in LBUSD's dashboard, a teacher's default view upon login is a student-level view showing all students in their classes.

Parents and community members would likely not have access to the data dashboard but could be provided with static reports (perhaps updated each semester or academic year). For parents, the district should consider if the parents should have access to the individual student information view for their child; if so, these views should be carefully framed so as to discuss options and programs recommended to the students. It is likely best to discuss these individual student views at a parent-teacher or parent-counselor conference. Sending a parent a report indicating their child is at risk of dropping out but providing no in-person discussion around interventions is inadvisable. Community members would need an aggregate view to understand district or school progress, but framing is also important here—indicating the steps the district or school is taking to address issues in the report is advisable.

One additional consideration is whether to combine a graduation-ready EWS with a college-ready EWS or to have two separate systems. For example, Pittsburgh Public Schools has a combined system of readiness thresholds where graduation-ready is a step on the path to college-ready. A combined system could have four steps of readiness, for example: off track for high school graduation, at risk for not graduating, graduation-ready, and college-ready. Additional levels could be added to provide nuance between these four suggested levels if desired by a district. Other districts may choose to separate graduation-ready and college-and-

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career-ready; typically in early warning systems, there are three levels: off track, at risk, and on track for the outcome. This would result in a system having two readiness classifications for each student (one for graduation and one for college readiness).

The ideal EWS would combine multiple valid indicators with thresholds determined based on district data and provide multiple reporting options tailored for each type of viewer. Constructing this system may take effort on the part of districts but when the valid indicators are connected to usable reports, it can result in gains in high school graduation and college readiness for students, as shown in districts such as Chicago (Allensworth, 2013). These EWS can help districts better connect students to the support they need to graduate and be successful in life after high school.

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