Acting on Data

How urban high schools use data to improve instruction

Amanda Datnow
Vicki Park
Brianna Kennedy

Center on Educational Governance
USC Rossier School of Education

Commissioned by newschools
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EXECUTIVE SUMMARY

A teacher who is really effective at using data to drive their daily and weekly instruction would be a teacher who immediately analyzes the data and is able to translate student performance into some sort of adjustment in their instructional strategy. It also needs to be a teacher who will not settle for 70% passing.

— Principal, North Star Academy

The above statement is from a principal in a high-performing, urban charter high school where educators are committed to using data to inform their instruction. As she suggests, a “data-driven” teacher uses formative assessment data on a regular basis to make adjustments to his or her instructional plan. Moreover, a teacher truly committed to improving student achievement is not willing to settle, but expects all of his or her students to reach high standards.

In recent years, an increasingly clear and persuasive body of research is demonstrating what common sense tells us: that high-performing schools and school systems use student data in all facets of their work to continuously inform and improve their instruction. Successful practices that involve the instructional uses of data have been demonstrated and documented in elementary schools. At the high school level, these practices appear to be more difficult to design and to take longer to implement in replicable, consistent, and successful ways. Despite this, several pioneering secondary schools—and the school systems of which they are part—are making significant inroads in using data to improve instruction and hence to improve student outcomes. While still imperfect and occasionally idiosyncratic, these exemplars offer valuable lessons for all secondary schools relentlessly focused on improving their students’ achievement.

This study of data-driven instructional decision making at the secondary level examined four urban high schools and districts across the U.S. where instructional data practices are taking hold; each was identified as a leader in this area. Our study included two high schools belonging to traditional school districts and two that were part of nonprofit charter school management organizations (CMOs). All of these schools have records of improving student achievement over time.

In this report, we discuss our findings from a comparative case study of these high schools and the systems to which they belong. Our aim is to open up the “black box” of data-driven instructional decision making at the high school level. At the same time, we also describe the necessary school and system-level supports that enable teachers to do this important work. Finally, we highlight the common features that seem to support the effective use of data, while also considering the tensions and dilemmas that people have encountered. Our goal is to expose the successes and challenges of data-driven decision making in high schools so that these practices can be understood, adapted, and adopted more broadly.
How High Schools Use Data:
Successes, Challenges, and Tradeoffs

1. School Systems and Their Schools Working Together:
Combining Top-Down and Bottom-Up Approaches to
Build a Foundation for Data-Driven Decision Making

Because the reform of data-driven decision making cannot be implemented in isolation, schools and their systems invested time and resources to build a solid foundation for using data in a meaningful manner. School systems attempted to combine top-down direction and support, while allowing for some flexibility in school processes and teacher decision making on the basis of data. Setting goals that both expected the students to reach high standards and gain access to college motivated data-driven decision making at the high school level. All of the school systems and high schools we studied embedded these high expectations in their goals, curriculum, and instruction. Leaders also emphasized the importance of building a culture that valued making instructional decisions on the basis of data. School systems played a particularly important role in providing professional development, school networking opportunities, and structural supports in the form of information management systems and additional personnel to assist with data use.

2. Why Educators Used Data and How it Informed Student Learning

All of the teachers we spoke with were working in schools and systems where there was overwhelming consensus about the importance of using data to improve teacher performance and student achievement. At the classroom level, teachers used data because they believed that doing so allowed them to do a better job meeting their students’ learning needs. Ultimately, how educators defined “data” informed how they defined learning, just as how they defined learning influenced the type of data they valued. When educators broadly defined data on student achievement, it led to a more complex definition of learning goals. Benchmark assessments helped schools and systems assess student progress towards state standards. Other assessments selected or developed by teachers were also used to measure student learning and adapt instruction accordingly. However, because numeric data fell short of capturing some affective dimensions of student learning, teachers often relied on their intuition and relationship-building efforts with students to help guide instructional decisions.
3. **The Importance of Student Engagement in Learning**

Our observations in the four high schools convinced us that improving student engagement must be at the heart of the efforts to improve instruction. Educators at two sites found that gathering and analyzing data specific to student engagement could provide a powerful tool to improve students’ involvement in their own learning. Sharing assessment data with students in the classroom also appeared to enhance students’ ownership of their goals and plans for improvement, and many teachers experimented with different ways of doing this. Overall, these examples of efforts to improve teaching and learning through the use of data invited students to play an active role in contributing to their academic growth and learning environment.

4. **Improving Instruction as a Central Focus**

In all four schools and systems, significant resources were directed toward improving instructional capacity so that teachers could analyze the data and use it to shape the delivery of instruction. School leaders and department chairs played a key role in observing instruction on a continuous basis and in helping teachers become more reflective and willing to use data to inform their teaching. School systems also employed coaches especially to assist new teachers and invested in broad-scale professional development aimed at improving instruction. At the classroom level, we observed some new instructional practices taking hold as a result of the use of these efforts.

Teachers used a combination of formal and informal assessments to guide their instruction. Informal assessments, such as daily quizzes and “exit tickets” (given at the end of a class period to check student understanding of the day’s lesson objectives), gave teachers immediate feedback to guide their day-to-day instruction, whereas formal assessments, such as benchmarks, helped to inform longer-term action planning. The careful analysis of data required teachers to think about new ways to diversify instruction in the classroom. Teachers used a variety of instructional techniques, including group work, the use of individual white boards, and practice activities at the beginning of class. Teachers also used innovative techniques to both assess student mastery and to target instruction accordingly. Finally, teachers and administrators also employed various creative methods for providing time for student remediation, including implementing alternative programming and flexible scheduling.
5. *How High School Organization Impacts Data Use*

This study uncovered numerous ways that the organizational structure of the high school influenced the use of data. High school departmental cultures influenced how data were used, with some departments embracing data use more than others. Scheduling time for teacher collaboration within department and course-alike groups was essential in order for teachers to discuss data and plan together. The high school organizational structure led to both successes and challenges on other fronts as well. The pressure of preparing students for college and for state high school exit examinations weighed heavily, particularly on teachers in some subject areas. Multiple types of data were needed for educators to assess whether they were meeting a variety of different goals and requirements.

6. *Outstanding Needs and Areas for Development for Better Data-Driven Practice*

Although the educators at these sites felt they were making improvements by using data to inform instruction, they noted several challenging areas. One significant concern was the narrowing of the curriculum. Teachers across all four sites expressed concerns about the over-reliance on assessments linked to the state standards and the fact that students were being tested too often. An additional unintended consequence was the emphasis on targeting students who were achieving at a level just below the predetermined standard of success. While such practices may have resulted in greater numbers of students achieving “above the mark,” they inadvertently compromised the overarching purpose of data-driven practice: to ensure that all students learn at high levels. Other challenges included the fact that some teachers faced barriers with the technology of the information management systems or were limited by a lack of data literacy. Leaders also grappled with the challenges of “articulation” (the process by which schools and educators map their content and requirements with one another) between middle school and high school, and between high school and college. They felt that the improved sharing of data across all levels would enhance data-driven practice.

The strategies, tools, and case study examples in the full report that follows will provide a starting point for both traditional public school districts and charter school operators that are interested in infusing the use of data more deeply into their decision-making. We hope that the lessons learned will also be useful to policymakers, researchers, grant makers, and others interested in enabling high school teachers to use data to inform their instruction.
RATIONAL

The Importance of Examining Data Use in High Schools

Imagine a traditional high school. Most likely, a typical teacher will see as many as 175 students during five 50-minute class periods. How does the teacher keep track all of her students and their learning? How does she know that she is doing an effective job? Both research and practice provide ample evidence that the current comprehensive high school model does not adequately or rigorously prepare students to face the personal, intellectual, and occupational demands of the 21st century (Newman, 1992; National Association of Secondary School Principals, 1996; Noguera, 2002).

In response to this and other challenges, a critical mass of educators, policymakers, and private sector advocates have come together to reform high schools. In 1996, the National Association of Secondary School Principals (NASSP), in partnership with the Carnegie Foundation for the Advancement of Teaching, published Breaking Ranks: Changing an American Institution. This report presented a vision of a new type of high school that was remarkably different from existing ones. It listed 80 recommendations to secondary school principals about creating student-centered, intellectually rigorous programs that would prepare the nation’s high school students for the 21st century. Many of the proposed reforms—such as creating smaller more personalized learning communities for students and connecting curriculum to real-world experiences—focused on changing the structure and the culture of American high schools. Such strategies and approaches are evident in most high school reform efforts today. External groups, such as the Coalition of Essential Schools and America’s Choice, have assisted in the improvement of high schools across the U.S., and many charter schools have been founded to better serve high school students.
However, in spite of significant reform efforts, the under-achievement of high school students remains a pressing concern nationally. In 2004, NASSP published a second report emphasizing the need for the strategic use of data to produce continuous improvement in high schools. The underlying assumption was that student performance would not improve unless assessment results were examined and acted upon. More specifically, school personnel needed to develop the capacity to “systematically use data for purposes of equity, accountability, and instructional improvement” (Lachat, 2001, p.33).

**What benefits come from using data?**

Studies indicate that effective use of data to make decisions enhances the ability of schools to become learning organizations by directing continuous improvement efforts (Cromey, 2000; Datnow, Park, & Wohlhistetter, 2007; Johnson, 2000; Lafee, 2002; Petrides & Nodine, 2005). First and foremost, data inform instructional strategies. They help teachers decide how to pace their instruction, align their lessons to standards, identify lessons for re-teaching, guide their flexible grouping of students, and target students for intervention (Datnow et al., 2007; Dembosky et al., 2005; Marsh, Kerr, Ikemoto, Darilek, Suttorp, Zimmer, and Barney, 2005).

Second, data help to set and refine concrete goals (Armstrong & Anthes, 2001; Datnow et al., 2007; Supovitz & Klein, 2003; Togneri & Anderson, 2003). For example, rather than generic comments such as “your child is reading below grade level,” data can be used to steer conversations to learning goals and targeted benchmarks. In addition, data can shed light on a discrepancy between grades and test scores which might indicate a need to reexamine grading practices.

Third, data driven practices can foster a culture of inquiry and work to reinforce school priorities by providing supplemental information that aids communication amongst teachers, students, parents, and the rest of the school community (Earl & Katz, 2002; Supovitz & Klein, 2002).

In addition to informing organizational and instructional decision making, emerging research on the use of data highlight their potential in improving teachers’ expectations for students. In some instances when educators are confronted with evidence that challenges their views about students’ abilities, data can act as a potential catalyst for changing perceptions (Skrла & Scheurich, 2002). For example, Armstrong and Anthes (2001) indicated that comparisons to high performing schools with similar student demographics helped teachers in lower achieving schools to stop blaming students’ backgrounds for low academic results.

Skrла & Scheurich (2002) also suggested that the Texas accountability system’s emphasis on disaggregating student data by subgroups helped to displace, but not eliminate, deficit views of students. Similarly, Woody’s (2004) survey of educators’ view on California’s accountability system found that larger data patterns increased teachers’ awareness of inequities in student outcomes.
There is much more to be learned about how data use influences improved student outcomes, particularly clarifying the role that data use plays in the context of other educational reforms. However, prior research has uncovered the features of systems and schools that enable data use in high performing schools and systems (Marsh et al., 2005). In fact, in an earlier phase of this study, we identified the system-level strategies that enable elementary school educators to use and act on data (see Datnow et al., 2007). These schools were all embedded in systems that showed records of improving achievement over time, particularly at the elementary level. But do these lessons also apply at the secondary level? How close are high schools to fulfilling the vision of systematically using data not only for accountability purposes but also to enhance instructional practices and increase equitable outcomes?

Although there is a growing body of research that details the implementation and results of data-driven decision making at the system and elementary school levels, the impact of data use on secondary schools continues to be lacking. Currently, the Northeast and Islands Regional Educational Laboratory is conducting a case study on the process and effects of high school restructuring in five low-performing urban high schools that are implementing small learning communities, standards-based curriculum, and data-driven decision making (Lachat & Smith, 2006). Their emerging findings indicate that high schools face challenges similar to elementary schools in implementing effective data use in terms of having timely access to data in a usable format as well as the capacity to use data effectively. Once the data are in the hands of school personnel the challenge is to build the capacity of educators to disaggregate the data in a meaningful way in order to address specific concerns and to use them to inform instructional decision making.

Although district support is critical for enabling data use, the organization, structure, and culture of high schools present particular opportunities and challenges that likely shape implementation of data-driven decision making (Ingram et al., 2004; Siskin, 1991; 1994). High schools are more complex organizations than elementary schools, often serving larger numbers of students. High schools have a greater variety of departments, academic programs, and extra-curricular activities than elementary schools. Prior research on secondary schools indicates that implementation of reform is mediated by the subject-matter area in which teachers are located (Grossman & Stodolsky, 1995; Siskin, 1994). In other words, within the culture of each school, different departments such as math and English also manifest sub-cultures that are distinct from one another. In fact, Siskin (1994) suggests that math departments across various school sites are more likely to share common features than math and English departments located in the same school. Also, subject-matter areas influence teachers’ attitudes and orientation towards instructional practices. Unlike elementary school teachers who tend to have a more holistic approach towards student learning and development, high school teachers
mainly identify themselves as “subject-matter specialists” whose emphasis is teaching in a particular content area, rather than attending to the needs of “the whole child” (Grossman & Stodolsky, 1995; Louis et al., 1996; Siskin, 1991).

Varied curricular programs or tracks such as Advanced Placement, Honors, and English Language Development add another dimension of complexity. Louis et al. (1996) concluded that reforms “may move more slowly in secondary schools in part because of the need to make more dramatic re-adjustments in the nature of the professional community—away from departments and specializations and toward broader school-wide goals…” (p. 783). Reform in secondary schools is also inevitably impacted by the school context in which it takes places. High schools vary greatly in size, with small schools having more engaging environments for students and more communication among faculty. A school’s location, particular mix of students, and history also influence educational reforms (Stoll et al., 2006), like data-driven decision making. External influences, such as district and state policies, and local community norms and politics, also affect improvement efforts in schools.

In sum, there is a dearth of literature on effective data-driven decision making strategies at the high school level. However, as noted above, we do have a sense of the important organizational factors that might arise in secondary school reform. We also have knowledge of the importance of systemic supports and professional development in the process. In this report, we present our findings in light of this existing knowledge, offering new descriptions, explanations, and insights that arose during our investigations of the four participating schools.
METHODOLOGY
How We Did the Study

This phase of the study on data-driven decision making profiles the progress of data use at the high school level in order to complement our previous study of four elementary school systems. For this second phase, we conducted a qualitative case study of four public high schools in different states in the United States to capture the details of the data-driven instructional decision making process in secondary schools. This study included two mid-sized urban high schools and two smaller charter schools serving low-income minority students in urban contexts. Our rationale for including both regular public schools and charter schools in this study is based upon research suggesting that both types of school systems are engaging in innovative practices in data-driven decision making (Datnow et al., 2007). We also chose to mirror the sample used in the previous phase of the study, which included two regular districts and two charter school systems. The schools were chosen because they were viewed as leaders in using performance results in general—and data in particular—for instructional decision making. The schools were studied within their system contexts, as we were very interested in understanding what supports needed to be in place in order to facilitate data use at the school and classroom levels.

In collaboration with personnel at NewSchools Venture Fund, we chose these sites from a list of approximately 50 that had been recommended as fitting our criteria. We narrowed down the list of possible sites after reviewing school and system Web sites, speaking with experts in the field, and conducting phone interviews with principals and school system leaders. While acknowledging the successes they had experienced in becoming more data-driven, all leaders also were careful to note that their work was “in progress.”
Table 1 gives a detailed demographic picture of the individual schools and school systems.

These school systems have obvious differences in size, history, and mission. Garden Grove Unified School District and Glendale Unified High School District are mid-size urban public school districts that have been in operation for many years. Both have histories of steadily improving student achievement over the past decade. YES (Youth Engaged in Service) Prep and North Star Academy of Uncommon Schools are relatively new organizations, the former having been founded in 1998, and the latter having formalized itself as a charter management organization (CMO) in 2005. Both YES Prep and Uncommon Schools are networks of non-profit charter schools that operate “home offices” that function similarly to school districts’ central offices, providing oversight in accounting, curriculum, governance, and organization. All four school systems are composed primarily of schools in urban locations or those serving large numbers of low income minority students.

**TABLE 1: Overview of Schools and Systems**

<table>
<thead>
<tr>
<th>School System</th>
<th>Size (Students)</th>
<th>African American</th>
<th>Asian or Pac. Isl.</th>
<th>Latino</th>
<th>White</th>
<th>Native American</th>
<th>Eligible (%)</th>
<th>% ELL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Garden Grove Unified School District (GGUSD) Grades K-12</td>
<td>49,574</td>
<td>&lt; 1</td>
<td>31</td>
<td>53</td>
<td>15</td>
<td>&lt; 1</td>
<td>60</td>
<td>47</td>
</tr>
<tr>
<td>Bolsa Grande HS</td>
<td>1,600</td>
<td>&lt; 1</td>
<td>52</td>
<td>38</td>
<td>8</td>
<td>&lt; 1</td>
<td>67</td>
<td>42</td>
</tr>
<tr>
<td>Glendale Unified High School District (GUHSD) Grades 9-12</td>
<td>15,000</td>
<td>8</td>
<td>3</td>
<td>42</td>
<td>44</td>
<td>3</td>
<td>60</td>
<td>10</td>
</tr>
<tr>
<td>Washington HS</td>
<td>1,600</td>
<td>11</td>
<td>4</td>
<td>47</td>
<td>34</td>
<td>4</td>
<td>55</td>
<td>11</td>
</tr>
<tr>
<td>North Star Academy of Uncommon Schools Grades K-12</td>
<td>451</td>
<td>82</td>
<td>—</td>
<td>17</td>
<td>&lt; 1</td>
<td>—</td>
<td>88</td>
<td>&lt; 1</td>
</tr>
<tr>
<td>North Star Academy HS Grades 9-12</td>
<td>115</td>
<td>85</td>
<td>—</td>
<td>15</td>
<td>&lt; 1</td>
<td>—</td>
<td>90</td>
<td>&lt; 1</td>
</tr>
<tr>
<td>YES Prep Public Schools Grades 6-12</td>
<td>2,100</td>
<td>10</td>
<td>&lt; 1</td>
<td>87</td>
<td>1</td>
<td>0</td>
<td>80</td>
<td>N/A</td>
</tr>
<tr>
<td>YES Prep—Southeast Campus HS Grades 6-12</td>
<td>719</td>
<td>3</td>
<td>&lt; 1</td>
<td>96</td>
<td>&lt; 1</td>
<td>0</td>
<td>77</td>
<td>N/A</td>
</tr>
</tbody>
</table>
Throughout the fall of 2007, we studied the schools and their systems using case study methodology (Yin, 2003). We conducted two to three multi-day site visits to each of the high schools and their corresponding central offices (i.e., district or home office). The central office interviews were primarily conducted on the first site visits, and the school interviews and observations were conducted on the second visits. Our site visits to the systems and schools took place from August through December, 2007. We interviewed two to three administrators from the central office, including the superintendent and other personnel in charge of assessment and evaluation. At each school, we interviewed the principal, often an assistant principal or equivalent, and at least half of the teachers from the two academic departments that the school identified as using data in the most cohesive and effective manner. We also interviewed department chairs where possible, and conducted two focus groups at each site composed of teachers from the academic departments that were not our targets. We conducted approximately 50 one-on-one semi-structured interviews and six focus groups, which allowed us to compose our case studies using input from over 90 teachers, administrators, and school system leaders across all four sites. At each school we also conducted informal observations of the school, classrooms, and relevant meetings. Additionally, we formally observed eight to ten classrooms of teachers we had interviewed in each school in order to examine how teachers tied data-driven decision making to their classroom practices. We also observed “data discussions” among teachers whenever possible so that we could capture data-informed instructional decision making in action. Finally, we gathered a plethora of documents at the school and system levels that were pertinent to our study. Some of the tools we gathered from educators are included in this report.

All of the interviews were taped and transcribed verbatim. Field notes of classroom and meeting observations were also typed. Subsequently, we coded all of this qualitative data for analysis using a case report outline based on a conceptual framework developed for the study. Next, we produced case reports for each school site to aid in cross-site analysis. The case reports were coded in terms of the themes we had identified as emerging in the study. In the sections that follow, we report the findings of our cross-case analyses.
Key Findings of Data Use in High Schools

How did high school educators use data? Here we attempt to discuss the successes, challenges, and tradeoffs experienced in high schools as teachers and leaders attempted to use data to inform instructional decision making.

Our findings are divided into several main sections. First, we lay the groundwork for the findings by describing how schools and systems were organized to enable data-driven decision making. This section follows the framework of our earlier report, where we uncovered the key strategies that school systems used to support data use in elementary and middle schools (Datnow et al., 2007). We describe how systems struck a delicate balance of providing top-down support while allowing for bottom-up innovation. In the second section, we begin to open up the “black box” of data-driven decision making at the high school. We first discuss what counts as data and what counts as learning, as defined by the educators in this study. We then describe the important efforts underway in these high schools to use data to improve the level of student engagement in learning. The subsequent section details how high school teachers actually used data for action planning and differentiating instruction. Finally, we describe how the unique features of the high school organization lent itself to data use. We end with a discussion of the outstanding issues and challenge areas that high schools are facing as they attempt to use data.
1.

School System and School Sites Working Together: Combining Top-Down and Bottom-Up Approaches to Build a Foundation for Data-Driven Decision Making
Because data-driven decision making is not a reform that can be implemented in isolation, schools and their systems invested time and resources to build a solid foundation for using data in a meaningful manner. All school systems and high schools embedded high expectations throughout their goals, curriculum, and instruction. Leaders also emphasized the importance of building a data-driven decision making culture that used data to drive instructional decisions. However, while all the school systems were similar in that they served a diverse population of students, their size, history, and established support infrastructures differed. All schools and their systems were working to make data-driven decision making an important tool for continuous improvement but each focused on different elements of the approach.

In the section that follows, we detail some of the systemic supports that were provided to teachers in the high schools we studied. We highlight the essential supports that teachers and school leaders needed in order to enable them to make data-driven decisions. We also discuss how school systems balanced providing structural supports and guidelines, while still also allowing for local innovation. As educational change expert Michael Fullan (1994) stated, “Neither top-down nor bottom-up strategies for educational reform work. What is required is a more sophisticated blend of the two” (p. 1). Fullan further explained that in an increasingly complex, changing world:

**KEY POINTS**

- Successful data-driven decision making at the high school level requires a combination of top-down support from the system level as well as flexibility for bottom-up innovation at the site level.
- Setting goals that both expect the students to reach high standards and have access to college is important in inspiring data use at the high school level.
- System and school leaders play a critical role in establishing a culture of trust and collaboration around data use, as well as creating a clear expectation that decisions will be made on the basis of data.
- User-friendly information management systems are critical scaffolds for enabling teachers to access student data. Personnel at the system and school levels who can assist teachers in the use of these systems are also critical.
- Systems play a particularly important role in providing professional development, networking for schools, and structural supports to high schools.
...top-down strategies result in conflict and/or superficial compliance. Expecting local units to flourish through laissez-faire decentralization leads to drift, ad hocness and/or inertia. Combined strategies which capitalize on the center’s strengths (to provide perspective direction, incentives, networking, and retrospective monitoring) and local capacity (to learn, create, respond to, and feed into overall directions) are more likely to achieve greater overall coherence. Such systems also have greater accountability because the need to obtain political support for ideas is built-in to the patterns of interaction. (p.1)

The four cases we examined magnify the different ways that school systems attempted to combine top-down direction and support, while allowing for some flexibility in school-level processes and teacher decision making on the basis of data.

A. Setting Goals—Moving Beyond State Assessments and Standards

The school systems in our study all started moving beyond state level assessments and standards to focus on establishing goals that prepared students for college. Garden Grove USD and YES Prep were two of the systems that had explicit, measurable system-wide goals for student progress. Garden Grove USD had two main goals. First, all students were expected to progress through the bands (i.e. far below basic, below basic, basic, proficient, and advanced) on the California Standards Test (CST) scores annually. Within five years of being in the district, all students were expected to be at least at the proficiency level and no student should drop out of the proficient or advanced levels. Second, all English language learners were expected to progress through the California English Language Development Test (CELDT) levels annually. As one of the leaders within the school district, Bolsa Grande High School worked diligently to achieve the district’s basic student achievement goals. However, beyond that, the school’s goal was to have more students be college-ready when they leave high school. As one administrator shared, “Everything stems from that… instructionally, how we set up our master schedule, whatever we think we need to do to make sure all our kids get there…” This aligned with the district’s goal of having students complete the A-G requirements for entry into the University of California system. A science teacher explained that they had also developed their own goals at the school site, which went beyond the district goals in some respects. She said, “This is what a Bolsa Grande graduate should look like, how they should stand out from the rest.”
YES Prep’s Big Hairy Audacious Goals

YES Prep Public Schools have a great deal of autonomy in determining their own goals and plans for improvement. Last year, teachers, other staff members, and various stakeholders at the YES Prep Southeast campus collaboratively came up with school-wide goals based on student achievement and student engagement data from the previous year. Once they did so, the school posted their campus-wide goals for the year in the faculty lounge where staff members frequently spent their conference and preparation periods. The goals addressed not only student academic performance but also student engagement levels, faculty retention, and school culture.

BHAGs (Big Hairy Audacious Goals) for 2007-2008

1. 100% of students will feel important, cared for, recognized, and respected by their fellow students and the YES Prep staff as reported in My Voice and student surveys.
2. Within 3 years, 70% of graduating seniors will score a 3 or better on at least 2 Advanced Placement (AP) exams, 100% will score a 3 or better on at least 1 AP exam.
3. In core academic courses, each department will show 10% growth in passing scores on AP exams.
4. We will retain at least 90% of our staff each year.
5. 80% of students will report that their “classes help them understand what is happening in the everyday world” on a My Voice survey by May 2008.

In addition to district and campus goals, teachers are encouraged to have their own classroom specific BHAGS. Classroom teachers developed and posted their BHAGS, which are specific to each course and grade level. For example, an 11th grade English teacher had these BHAGs posted:

BHAG #1—All students will achieve a 3/4 on the Texas Assessment of Knowledge and Skills (TAKS) writing exam.
BHAG #2—All English II students will achieve a 2-level increase on AP style essays, graded on the 6-point pre-AP rubric.
YES Prep Southeast Campus also had explicit goals that were tied to their school system’s vision and mission evidenced by high expectations for student learning and student engagement, which are profiled in the preceding text box. Referred to as their “Big Hairy Audacious Goals” (BHAGs), goals were established at the school system, school site, and classroom levels. These goals were tied to measurable progress on student achievement assessments, surveys, and observations. As part of the district’s charter, all students were expected to take at least one Advanced Placement or dual credit course and pass in order to graduate. Additionally, all students were expected to take PSAT and SAT exams.

The other two school systems, Glendale UHSD and North Star Academy, did not have explicit, measurable goals but had imbued their schools with high levels of expectations that extended beyond accomplishing high proficiency levels on state standardized assessments. At Glendale UHSD, the state held the district accountable for specific student outcomes on standards-based assessments, so the district continually sought to improve student achievement on those measures. In the words of the superintendent, “Our goal is: Better tomorrow than we are today. It sounds cliché, but that’s about as straightforward as I can make it.”

North Star Academy also sought to have their students achieve at the highest possible levels. The managing director explained that they tried having measurable goals, (e.g., to have 88% of the class be proficient), but did not find them very useful. Rather, creating specific goals tied to standards (e.g., students will master inference skills) was deemed more successful for improving student learning. Globally however, the director stated, “We want our performance to be better than any other school in the country. And we measure ourselves by whether or not we are out-performing district schools, out-performing state wide averages, and out-performing white students in the state.” The school’s curriculum reflected these high standards. North Star’s graduation requirements were more extensive than the state’s. In addition to requiring an additional year of courses in math and science, the school also required students to pass a Senior Thesis and Composition assessment, take the SAT, apply to a minimum of 2 colleges, and fulfill 40 hours of community service. According to their Web site, at the end of each year, students were also expected to complete a final performance task requiring a written exam, a speech, presentation, or portfolio judged by a panel consisting of faculty and parents. Course grading was also rigorous, with anything below a 70% considered not passing.

1 The term Big Hairy Audacious Goals (BHAGs) was coined by James Collins and Jerry Porras in their book entitled, Built to Last: Successful Habits of Visionary Companies.
B. Aligning Curriculum, Instruction, and Assessment — Expanding Access

All school systems worked together with schools to create coherence among their goals, curriculum, instruction, and assessments. The two district schools directed their efforts toward aligning their curriculum and assessment systems with the input of teachers across their districts. At Garden Grove, the district’s curriculum guides were created in recent years, after the teachers at Bolsa Grande High School had developed their own. As the district prioritized the use of data to drive decision making, district personnel have intentionally and skillfully used the efforts of teachers at Bolsa Grande to lead the way. Teachers at Bolsa Grande were brought into the process at all stages, and the guides developed at Bolsa Grande were used to help inform the district guides. Teachers also were given previews and piloted the guides and instructional materials. In other words, Garden Grove USD has adopted the strategy of bottom-up change, or building on what is happening at the school level to scale up to district-wide initiatives. Another example of the bottom-up change efforts is evidenced by the “data team” that the school assembled on its own for the purpose of supporting data-driven decision making at the school site. The teachers who formed the data team had attended special trainings in how to use the district’s information management system and in how to help guide their colleagues in making decisions on the basis of data. They tended to be teachers who were particularly committed to using data and thus volunteered for this extra responsibility. A summary of the roles and responsibilities of the team is provided on the following page.

A collaborative culture played a large role at each level of the Garden Grove USD. For example, when the district adopted curriculum guides, which the school had already done, Bolsa Grande’s principal shared, “[The superintendent] was phenomenal. She said, ‘We don't want to undo what you've done.’” The mix of top-down/bottom-up approaches to data-driven decision making in this district was perhaps more complex than those in the other school systems because the district leadership had to navigate the integration of existing local efforts with new system-level initiatives. In order to maintain teacher commitment, the district worked collaboratively with the school level.
Bolsa Grande Data Team

Role and Responsibilities

Role of the Team: The Bolsa Grande data team consists of teachers and administrators who engage in site-based data collection and research for the purpose of supporting standards-based instruction in the classroom and data-driven decision making.

Responsibilities of the Team: The Garden Grove Unified School District and the Faculty and administration at Bolsa Grande High School support the use of data as a tool to promote improved teaching and learning. The bold statements below are district goals, and the bulleted statements are the actions that the Bolsa Grande data team will undertake to help facilitate those goals:

1. Create a mind-set that decisions are made on data, not instinct.
   - The data team will collect and disaggregate site-based achievement data and provide that data to administration, leadership team, department chairs and individual teachers for reflection, instruction modification, and school-wide decision making.
   - The data team will work with the principal in collection and disseminating appropriate data to the school site council and parent advisory groups.

2. Offer professional development for principals and teachers on the effective use of data.
   - The data team will collect site-based achievement and demographic information to assist administration, leadership team, and department chairs in designing effective school-wide staff development.

3. Ensure that regular formative and summative assessments are given to monitor student progress and to facilitate the adjustment of instruction and curricular programs as necessary.
   - The data team will collect and disseminate survey and anecdotal data on teacher knowledge and implementation of formative and summative assessments.
   - The data team will provide teachers with current research and information on what formative and summative assessments are available, and how to implement them.
4. Ensure that an individual student’s data will remain confidential and only be used for purposes of planning instruction and communication with the child’s parents or guardians.
   - Ensure that teachers’ data will remain confidential and only be used collectively with respect to school improvement and strategy implementation.

5. Fostering a culture of inquiry that supports the use of data at all levels leading to a culture of continuous improvement.
   - The data team will be trained on the use of the district’s information management system to collect data and generate reports.
   - The data team will act as peer coaches on the use of the information management system.
   - The data team will generate charts and graphs from raw data to assist teachers in its interpretation.
   - The data team will provide tools, such as templates or rubrics, to assist teachers in collecting, disaggregating, and interpreting raw data.
   - The data team will set a tone for collegiality during data walks and resulting reflections.
   - The data team will assist the administration in the planning and implementation of data walks.
     > The purpose of data walks is to collect observational data on the implementation of school-wide or departmental strategies or programs.
     > The focus of data walks is on student learning and achievement.
The people and levels of management were similarly aligned in Glendale UHSD, but began at the top and worked down from there. The superintendent expressed, “In a nutshell, we operate under a system where curriculum, instruction, and assessment are critically interrelated parts, as you would expect in any educational organization.” He continued to describe these three elements—curriculum, instruction, and assessment—as three legs of a triangle, all of which depend on and support the others. The vision described by the superintendent and principal had power because structural procedures and programs were created to support each piece, and adequate resources were allocated to ensure program success. For example, Glendale UHSD created the role of curriculum coordinator, a unique position in charge of implementing district-level curricular decisions at the school level. The superintendent described the curriculum coordinators as “the heart and soul of this learning system” due to their importance in maintaining the integrity of the tightly structured organization. The 15,000-student district employed ten curriculum coordinators to oversee classroom instruction in each subject at each school. The coordinators accomplished this mission by hosting district-wide content area workshops, assisting teachers in designing assessments, finalizing and piloting them, and coordinating the assessment program. Curriculum coordinators also maintained a district-wide database of lesson plans for major topics within each content area. If teachers needed assistance finding new ideas regarding how to teach a specific lesson, they could access the database. Thus, the Glendale UHSD focused on the structural components that supported the interplay between each of these three elements of the instructional process.

Although the school system maintained a high level of accountability for schools, it paired that accountability with a high level of collegiality. In Glendale UHSD, lateral collegiality existed along with vertical collegiality. The ready sharing of ideas and communal processing of district-wide results among content area teachers contributed to the superintendent’s triangle of curriculum, instruction, and assessment. The curriculum coordinators maintained the relationships between each of the three components, but did so in collaboration with teachers. Rather than bringing in ‘experts’ from outside of the district, the coordinators facilitated the sharing of best practices by the teachers themselves. Teachers met each other in the district-wide workshops, during which curriculum coordinators called upon teachers whose data results were more positive than their content area peers to teach the other teachers how he or she tackled that particular subject. Several teachers mentioned that if they missed one of these meetings, someone at the district level would ask them why they were not there. They were held accountable for their attendance, but treated as professionals while attending.
In this district, teachers were seen as experts who not only respond to their data results, but also actively participated in revitalizing district adopted curriculum, instruction, and assessment. From the district level to the classroom level, each staff member was seen as an active participant in fulfilling the district vision. The superintendent stated, “Here’s what I would say to our principals, ‘We all have the same final destination in mind. Here’s where we want to be. We want to decrease our dropout rate, we want to increase our graduation rate. We want to do the following five things. How you go about doing it is up to you as long as it’s shared and supported by our colleagues sitting at the table.’” He viewed the principals as an autonomous team that could make positive decisions toward a common goal, and principals were given leeway to experiment and lead however they saw fit, as long as they were working in tandem with colleagues and evaluating any new efforts they attempted. Similarly, the principal spoke of each department as a collegial team, which she expected to come up with its own unique methods for improvement each year.

Within departments, content teams had the same charge. As teachers became comfortable working together and were able to discuss their performance in a non-threatening environment, they called upon each other for assistance when needed. Various teachers across subject areas mentioned calling peers at other high schools in the district who taught their subject in order to get ideas for lessons. Such collaboration was evidence of the extensive collegiality we observed in this district.

Teachers played key roles in developing and maintaining the balance between these three components. In order to facilitate intra-district collaboration, the district server contained a bank of lesson plans for each subject, which were created by other district teachers. The lesson plan bank encouraged teachers to use the expertise that already existed within the district, as did district-wide workshops for teachers who taught the same content. Apart from curricular standardization, classroom management and teaching practices were also viewed through a shared lens. All teachers in the district were evaluated using Madeline Hunter’s Essential Elements of Instruction.
Like the two district schools, the CMOs built their curriculum and assessments around standards-based instruction. However, the CMOs tended to focus on providing teachers with instructional autonomy guided by best practices. North Star Academy’s director described the cornerstones of their system as planning, teaching, and assessment. At North Star, there is a scope and sequence for all subjects. Curricular scope and sequence are designed around the 6-week interim assessments and aligned to state and college readiness standards. Academic subjects also had a “structured curriculum,” defined as an intentional effort to document best practices, aid new teachers, and avoid repeating mistakes. To create the “structured curriculum,” administrators compiled binders with instructional guidelines or lessons developed by previous teachers. Administrators flexibly determined how closely teachers would be required to follow instruction and curriculum guidelines based on teachers’ levels of expertise. As an indication of how the school was attempting to increase the rigor of their curriculum, teachers mentioned that the school was moving beyond focusing on state standards by incorporating more rigorous SAT level questions and higher order thinking skills.

It is worth noting that North Star Academy is currently the only high school in its charter school management organization. The North Star Academy system currently includes two middle school campuses and one high school campus. This year, they also started an elementary school. However, the system is part of a broader CMO, Uncommon Schools, Inc., that unites North Star with four other small, geographically proximate networks of charter schools that are philosophically aligned and highly accountable to each other, but operate autonomously. In the case of North Star, the inspiration and direction for data use comes from school leadership, and the site educators work amongst themselves in the process of data-driven decision making. For example, during the period of our study, teachers and administrators at North Star were creating and implementing their own assessments and approaches for using data, except for the 6-week interim assessments which are externally authored. Teachers and administrators regularly met to discuss data results and create action plans, but some teachers also said they would benefit from professional collaboration with others who teach the same content area in other schools within the system. Nevertheless, North Star is paving the way for new forms of data-driven decision making in their system. Overall, the bottom-up scaling that is occurring at both North Star and Bolsa Grande has resulted in a sense of autonomy and influence among teachers that was not as apparent in more centralized systems; still, collaborative cultures existed in the others as well.
Similar to North Star Academy, YES Prep tried to balance instructional autonomy with maintaining a quality curriculum. YES Prep currently does not have pacing guides although there are a set of CMO-level standards for each content area and each grade level that are rooted in their state standards. The YES Prep Curriculum was described as agreed-upon standards shared across the district. The system developed content standards based on the state standards and College Board standards. Though there was some flexibility at the local level, in order to maintain “curricular integrity” and to ensure that no matter what school YES Prep students attended they would be guaranteed a “pretty high common floor” of learning, the school system developed common interim assessments. Additionally, the system was developing a scope and sequence for each content area and each grade level. The chief program officer of YES Prep described the system’s position: “It’s been a conscious decision on the part of the organization that beyond [the development of district-wide content standards] it’s up to the campus to decide how those standards are actually delivered and how teachers are going to go about creating units from them.” The system leadership worked in tandem with the school administrators to create specific goals regarding student performance, but school administrators could tailor those goals to their unique campus environments. The chief program officer referred to this level of instructional autonomy as one of the “non-negotiables” so that teachers could have the space for innovative instruction (e.g., pairing of math & science, project-based learning). It was unclear as to whether such autonomy might become more restricted if a campus were deemed to be performing poorly.
C. A Culture of Data Use and Emphasis on Continuous Improvement

Across all four sites, we observed a mix of top-down support and bottom-up innovation. However, this played out a bit differently in each case. The same was true regarding the school system and schools sites' efforts to support a culture of data use. Establishing a culture of data use that was relevant to instructional decision making and continuous school improvement required leadership at all levels to help teachers make sense of data by defining the purpose of data use, stressing the importance of using evidence, and emphasizing improvement efforts. All the system leaders directly tied the use of data to improving teaching and learning.

The district administrators in Garden Grove USD believed strongly in data-driven decision making, but made a point to say how important it was to use data properly and thoughtfully. Reflecting on their use of data to improve the placement and scheduling of students, the superintendent explained:

*Data are a powerful tool. However, unless you are very clear about your goals, data can also take you in the wrong direction. It is important to be clear about your ultimate aims, in our case ensuring that every student graduates high school with the keys to 4-year colleges and universities and skilled careers. With this goal as the target, data points can be set as early as preschool to make sure every child is on the right trajectory and receives the opportunities necessary to achieve the goals which have been set.*

Paralleling the superintendent’s message about using data thoughtfully, the principal of Bolsa Grande HS worked hard to support the culture of data-driven decision making. One teacher told us that the principal made clear that data-driven decision making was a focus at the school even before she hired her, “It was really something that [the principal] wanted to push. …It’s just assumed that you will use the data to help drive what you need to do and where you need to go.” The principal was credited by a teacher as, “presenting [data use] in a positive light ….I mean she’s offered opportunities that if you struggle, here’s your safety net. If you’ve failed, try again. You know she’s done it in a very non-judgmental way and let people get to their levels.” Adding to their beliefs about the importance of data use, the Title I coordinator said, “A huge part of our vision is to just never get complacent about who our kids are and to never make assumptions about them either.” Data were integral to this process.
Similarly at Glendale UHSD and Washington HS, there was overwhelming consensus about the importance of using data to improve teacher performance and student achievement. Both school and district staff firmly believed that without data, there was no way to gauge whether teachers were succeeding in delivering curriculum-guided instruction. In addition to using student performance data, several of the administrators also mentioned the importance of the survey data in letting the school know how they are doing. This information was relevant because relationships with parents and the community not only affected student performance, but also improved possibilities for partnerships with community-based organizations.

The educators in the two charter management organizations echoed many of the sentiments expressed by those in the two district schools. Additionally, they stressed the importance of making data use relevant to classroom practice. At YES Prep, all administrators emphasized the use of data as being a tool for instructional decision making. The chief program officer added, “People get turned off unless they really understand concretely what it is they’re being asked to do with data, and how it’s going to have an impact on their classes in the next couple of weeks.” At North Star Academy, the managing director remarked, “We are skeptical about the use of too much data beyond assessment data.” Pointing out that data needed to be connected to the student learner, he believed that the most important data were the interim assessments and the rest were secondary in importance for driving achievement. Supporting this view, the principal of North Star described what a teacher who uses data effectively looks like: “A teacher that is really effective at using data to drive their daily and then weekly instructional would be a teacher who immediately analyzes the data and is able to translate student performance into some sort of adjustment in their instructional strategy.” She further added, “It also needs to be a teacher who will not settle for 70% passing.” Thus, the staff members across the sites in our study believed that effective data-driven decision making was implemented when teachers not only analyzed the data and used it for instructional decision making, but also reflected on their efforts to continuously improve their practices.
D. School System Structures to Support Data Use

Information Management Systems. Given that the schools in our study had different implementation histories with regards to data-driven decision making, they were at varying points of investing in user-friendly information management systems and in their hiring of additional personnel. All school systems were devoting attention, time, and resources to developing infrastructure and methods for data-driven decision making, but each focused on different components.

The Garden Grove USD developed a district-wide data infrastructure by investing in user-friendly technology that was accessible to teachers. Staff used the district’s web-based data warehouse system that enabled users to access student achievement and demographic data in a timely and accessible manner. The teachers at Bolsa Grande HS typically administered their own self-created mid-quarter benchmark assessments in addition to the district’s quarterly assessments. The district also required high school English teachers to administer a “writing sample” test twice a year. These results were uploaded into the system and the samples themselves were put into students’ cumulative folders. Reports from state assessment, benchmarks, and other teacher created tests were also part of the system. The results were available within 24-48 hours which enabled teachers to quickly analyze the data for instructional decision making.

Through the district-wide student information platform, called Infinite Campus, Glendale UHSD teachers also had access to individual students’ scores on various state test results and district assessments. Teachers from any subject area could access all of the scores, which could be filtered down to the individual student level. Parents also had access to this data, but could only obtain results regarding their own children. The school administered the Scholastic Reading Inventory (SRI) to all freshmen, which gauged their reading level, and that data were also made available to teachers through Infinite Campus. At the student level, the school used Choices, a bridge training program that helps students plan for post-secondary options. Each student maintained an electronic portfolio, with guidance from a counselor, which could be accessed by school staff. Choices portfolios were one way that school personnel could get information about student interests, which informed program development. However, we do not know the extent to which students and administrators accessed this system.
In addition to administering the annual state assessments, Glendale UHSD instituted district-wide annual assessments to gauge students’ abilities to apply their learning. These assessments were semi-annual for mathematics, biology, and other semester-long courses. Courses that contained content conducive to open-ended activities were assessed using performance-based assessments (PBAs), while others such as Mathematics, Thinking Science, Biology, English Language Learner Reading, Economics, and Career and Technical were assessed using multiple choice exams. Teachers generally graded their own tests, and at the district level, teachers from each content area gathered to grade all of the PBAs from the entire district. PBAs were graded anonymously and attention was paid to establishing inter-rater reliability across graders. Each teacher’s sample of thirty papers then comprised that teacher’s overall scores, which were reported at the individual and school levels and distributed across the district. As Glendale UHSD attempted to integrate various types of data, the district recognized a need for an instructional improvement platform that enabled teachers to readily access and use data. The new data system, Galileo, was being piloted during the 2007-08 school year and applied only to freshmen and sophomores. Though the existing system, Infinite Campus, already provided individual student data to teachers, Galileo would add the function of being able to track formative assessments, an area which the district had not yet been able to formalize.

Just as the two district schools built system-wide support for managing and accessing data, the two CMOs concentrated on developing a data management tool that enabled teachers to use data to adjust their instructional practices. Both CMOs were relying on Excel templates to collect and analyze student performance data. Additionally, YES Prep had recently begun to use the Cambridge Knowledge System to upload formative and benchmark assessment results. The Cambridge Knowledge System had banked question items that teachers could choose from and had the capacity to scan multiple choice assessments which could then be automatically analyzed. The system also enabled analysis of individual items as well as overall learning objectives. However, the data management system required teacher initiative and effort. As one administrator remarked, the Cambridge system is “only as good as the information that is put on there.” Teachers also used Power School for attendance and grades. Given their need for an integrated data management system, YES Prep recently received a grant from the Michael & Susan Dell Foundation to develop a holistic and comprehensive student data system.
At North Star Academy, the central office gathered and analyzed data on their student demographics, staff, and enrollment using mid-year and end-of-the-year dashboards. However, much of the instructional data collection and initial analyses was conducted by individual teachers. The major data points consisted of interim, weekly, and formative assessments. The 6-week interim tests, developed by the school leadership, were a mixture of multiple choice items and open-ended questions. In 2005-06, the high school developed new interim assessments aligned to AP exams and the new SAT rather than solely relying on state tests. Administered and typically developed by teachers, weekly assessments were also given to test skills or concepts and could also be used to spiral the curriculum (i.e., review and expand on previously covered material). Teachers typically developed their own weekly tests since the departments were small and thus provided limited opportunities for collaboration within subject areas. For instance, one physics teacher developed her test questions by pulling items from the Princeton Review SAT II on Physics or test items from the College Board Web site.

**Data Support Personnel.** All systems utilized staff at the system and school site levels to aid teachers in managing and using the data. For example, at Garden Grove USD two staff members were dedicated specifically to maintaining the information management system and running analyses for district and school staff. Testing clerks were responsible for distributing, picking up, and scanning tests from school sites to Garden Grove’s scan site. Each school also had a data team which typically consisted of lead teachers across subjects. At Bolsa Grande High School, there were two personnel who were tasked with assisting teachers in data use. A science teacher, who also acted as the Title I Coordinator, was the school’s lead teacher in assisting faculty with data use. She supported all of the special programs on campus and assisted teachers with implementing instructional strategies responsive to data. Another staff member handled the more technical issues associated with the information management system, such as how to log into and download reports from the system.

At Glendale UHSD, a full-time director of research and assessment oversaw the curriculum coordinators, who compiled data and assisted teachers with best practices. The district curriculum coordinators were responsible for piloting assessments, creating finalized versions of the tests, administering them, and then meeting with principals to analyze their school’s results. While the district compiled the data for schools, school site administrators at Washington HS were responsible for helping teachers utilize the information. For example, the assistant principal of operations and resources received data on which students were not involved in extracurricular activities. He then disaggregated that information by grade level and asked teachers to target several students on the list in order to encourage them to get more involved. Additionally, each department and each teacher was required to develop an annual Program Improvement Plan based on their data analysis.
North Star Academy devoted much of its training and professional development to instructional decision making and building instructional capacity. Thus, the system directed its attention to helping teachers analyze and use data, especially through the analysis meetings. For each interim analysis cycle, teachers were expected to load their analysis to the school’s network server. After administering the interim test and then inputting the data into an Excel template, teachers uploaded their data and analysis so that administrators could review them before they had the reflection and implementation meeting. The analysis meeting typically took place within the week of administering the tests and usually the Managing Director, the principal, and the department chair met with the teacher for an hour to discuss student performance and to plan for future instruction. Additionally, each department chair was also in charge of collecting and managing the six-week assessment data for the department.

In sum, there were a myriad of systemic supports in place to enable teachers to use data for instructional decision making at the school level. These included: an alignment between goals, curriculum, and assessment; a culture of data-driven decision making; an accessible information management system; and personnel dedicated to assisting with data use. In all cases, system leaders attempted to blend top-down support with some degree of site-based decision making. School systems also used professional development to support teachers in the use of data for instruction; this is discussed in detailed in the fourth section of this report, which is entitled *Improving Instruction as a Central Focus.*
2. Why Educators Use Data and How Data Informs Their Understanding of Student Learning
A. Why Use Data?

What motivates teachers to use assessment data to inform their instruction? Of course, all of the teachers were working in schools and systems where there was overwhelming consensus about the importance of using data to improve teacher performance and student achievement. At the classroom level, teachers used data because they believed that it allowed them to better meet their students’ learning needs. Clear learning goals accompanied by valid assessments were key to the data-driven decision making process. As one teacher at YES Prep explained:

*Having a standard, having a goal does make sure that you are all on the same page and does make sure that you are teaching them something. That’s where I think the data are helpful and useful. That’s what I like about doing the analysis. I think that there is a part of me that thinks, “Oh wow, why did we get a fifty-six percent on that one question? Why did we get a ten percent? Why did no one get that question right?”*

Similarly, a math teacher at Bolsa Grande said that the interim assessment was useful “because it allows me to see what standards I need to focus on and whether they’re improving or not.” An English teacher at Bolsa Grande reiterated, “I’m really trying hard to go back to the standards that the majority of the class hasn’t hit on… Let’s see if I can teach it in a different way. Or maybe that’s where I can talk to other teachers and ask how they did that.” Some teachers also said they consulted their students after identifying weak areas, asking them if they had ideas

**KEY POINTS**

- The use of data helps teachers better understand their students’ learning needs and gauge instruction accordingly.
- An in-depth understanding of the data, the state standards, and what it means to be “college ready” is integral to successful data-driven instruction.
- System and school administrators rely on a broad variety of data sources, including standardized assessments, placement data, benchmarks, observational data, and other sources. Teachers rely most on informal assessments to guide their instruction; however, benchmark assessments help them gauge students’ progress towards the standards and adjust content and methods accordingly.
- How educators define “data” informs how they define learning, and vice versa. When data on student achievement is broadly defined, it leads to a more complex definition of learning goals.
- Assessment data greatly help educators understand student learning. However, there are affective elements about students’ educational experiences that are not captured in these data.
about what could be done to teach the material more effectively. Teachers also found that focusing on data helped them orient their discussions around student achievement, rather than other agendas. A teacher at Bolsa Grande talked about the importance of using data because “without looking at data, you have everybody just putting their two-cents in. Anecdotal evidence is absolutely valuable, but it is really so all over the place that if you start with the data, then everybody’s at this one meeting point.” In other words, data focused the conversation and minimized bias.

At the same time, it was important that such discussions about data involved expert teachers. An administrator from YES Prep explained that one thing that does not work is “getting a whole bunch of novice folks together and expecting them to know what they’re talking about in terms of understanding standards, understanding how kids are performing against those standards, and then what do you do when they’re not.” She also added, “People get turned off unless they really understand concretely what it is they’re being asked to do with data, and how it’s going to have an impact on their classes in the next couple of weeks.”

Across all sites, we found that teachers by and large embraced data use, but still were cautious about it as being a panacea for improving their students’ achievement. In the sections that follow, it will become clear that teachers also grappled with how to best use formal and informal assessments, or even data versus their own instincts. Moreover, we will explain how, as teachers attempted to get a handle on what students were learning, they faced an inherent tension between measuring student achievement for accountability purposes with trying to negotiate varying opinions about what students need and what it meant to be an educator.
## Sources of Data Used in YES Prep

<table>
<thead>
<tr>
<th>Types of Data</th>
<th>Frequency</th>
<th>Purpose</th>
<th>By Whom</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assessment of School Culture</td>
<td>Once a week for each campus</td>
<td>A school culture rubric includes topics such as physical environment (e.g., is the building safe/clean), transitions between class bells, &amp; level of student engagement. The Head of Schools described it as observational data and informal conversational data (e.g., observing the campus environment, talking to kids and parents). The cultural rubric results were then shared with the school directors.</td>
<td>Head of schools (i.e. chief executive officer)</td>
</tr>
<tr>
<td>College Entrance Tests—PSAT, SAT, AP Exams</td>
<td>Tracked throughout high school grade levels</td>
<td>Students in YES Prep schools took the PSAT with no preparation in 10th grade and then the system tracked their growth through 12th grade SAT scores.</td>
<td></td>
</tr>
<tr>
<td>School Director Check-Ins</td>
<td>Every other week, 20 minutes</td>
<td>Meetings with the school director were used to check in with the overall campus improvement and management goals.</td>
<td>District leadership team</td>
</tr>
<tr>
<td>Instructional Snapshots</td>
<td>Once a week for each campus</td>
<td>Quick classroom lesson observations assessing: 1. Learning objectives (i.e., evident to students or not), 2. Level of Bloom's Taxonomy, 3. Types of instructional strategies (e.g., project-based, teacher-led, student-led, feedback, discussions, etc.), 4. Learner engagement ranging from “authentically engaged” (most students authentically engaged and self directed), “highly engaged” (most students engaged but are dependent on teacher for direction), “well-managed” (student willingly compliant, ritually engaged), and “dysfunctional” (many students actively reject the assigned task or substitute another activity), 5. Survey of learning environment (ranging from effectively supporting objectives to adequately and does not support objectives)</td>
<td>Head of schools &amp; chief program officer (CPO)</td>
</tr>
<tr>
<td>Measures of Success Dashboards</td>
<td>Year-end</td>
<td>The system developed a list of goals in areas of student learning, discipline, teacher growth, teacher recruiting, finance, college counseling, organizational growth, etc. Dashboards were simplified data for the whole school. For discipline which is actually titled (“Maintain the efficiency and fairness of the discipline management program”), they might have ten goals listed such as, “X% of students who, having been given a detention, are not given detention again.” The percentages differ based on each grade level and the numbers from previous years (e.g., 12th grade from 70% to 75%).</td>
<td>District leadership teams were responsible for each measure of success area</td>
</tr>
<tr>
<td></td>
<td>Semester-end</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Quarterly</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Monthly</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Objective Tracking</td>
<td></td>
<td>Using Excel spreadsheets, the system tracked benchmark testing results and other student performance data related to TEKS objectives (e.g., “Students will be able to recognize, correct standard usage and appropriate word choice-TEKS writing objective 5).</td>
<td>Department heads; CPO</td>
</tr>
<tr>
<td>Performance Evaluation of Teachers</td>
<td></td>
<td>Using summative rubrics (see school-level data)</td>
<td>CPO</td>
</tr>
<tr>
<td>Interim Assessment Data</td>
<td></td>
<td>Developed by the system with input of teachers, it was administered in grades 6-10th, in the subject areas math, science, and Spanish. Also the system was working on middle school interim assessments for English and social sciences.</td>
<td>CPO</td>
</tr>
</tbody>
</table>
B. What Counts as Data?

Data mean different things to different people, as does data-driven decision making. Just what counts as “data” as far as the educators in this study were concerned? For system and school administrators, the answer to this question was broad. Different types of data informed different types of problems and concerns. Data for organizational, programmatic, and instructional decisions varied because the decision making processes and the change agents that used the data differed. In general, system administrators relied on a variety of data, ranging from state test scores and benchmark assessments to more qualitative assessments. For example, YES Prep had a comprehensive approach to system data gathering and use, which is detailed in Text Box 2. The combination of multiple sources of data used by YES Prep demonstrates how various data sources uniquely contribute to creating a comprehensive and detailed picture of student progress in a school.

At the school level, principals and other site leaders relied on a broad array of data as well. At Bolsa Grande HS, for example, multiple types of student achievement data were used on a regular basis and in different ways by administrators. These include state test scores, results of benchmark and mid-quarter interim assessments, language proficiency test scores, high school exit exam passing rates, Advanced Placement passing rates, placement in A-G courses, and student grades, particularly noting the number of Ds and Fs received by students. The school, as part of the district’s plan, also provided teachers with the opportunity to use data walks or action walks as a source of data. These were not mandatory. Teachers could sign up if they want to be observed, observe others, or neither. As one teacher explained, “We do those walk-arounds where groups of teachers go into other classrooms and watch the teachers teach and see if they can get some ideas…” The school’s data team leader described these as opportunities for teachers to observe student engagement levels, teacher instructional strategies, and to dialogue about them. The teachers themselves developed the rubric of what to look for during their observations.

At the teacher level, what other types of data did teachers rely upon to inform them about student progress? In at least one site, Bolsa Grande, teachers were expected to gather as much data as possible about their students before the school year even began. Site team leaders expected teachers to download data on their incoming classes from the system’s information management system and complete the preceding reflection sheet. The reflection sheet asked teachers to gather student data on English Language Learner (ELL) status, special education designations, and their performance levels on the state tests. Other data, such as student grades and PSAT scores, were also available to teachers in the district’s information management system but were not asked for on the reflection form.
Bolsa Grande High School, Garden Grove Unified School District
Student/Classroom Analysis Worksheet

Teacher: __________________________
Subject: __________________________

Part 1: Who are my students?
1. How many students are classified as EL?
   Period 1 ________
   Period 2 ________
   Period 3 ________
   Period 4 ________
   Period 5 ________
   Period 6 ________

2. How many students are RSP? SDC?
   Period 1 ________
   Period 2 ________
   Period 3 ________
   Period 4 ________
   Period 5 ________
   Period 6 ________

3. Based on the above information, choose one period and identify which of the following best describes the students in that period:
   ☐ ELD students—use of SDAIE Strategies.
   ☐ Special Ed students—possible modifications/accommodations of assignments or assessments.

Part 2: What have my students done?
4. How many students scored Below or Far Below Basic on their last years content CST (i.e. Math, Science, SS)?
   Period 1 ________
   Period 2 ________
   Period 3 ________
   Period 4 ________
   Period 5 ________
   Period 6 ________

5. How many students classified as Beginning or Early Intermediate on the CELDT listening/speaking test?
   Period 1 ________
   Period 2 ________
   Period 3 ________
   Period 4 ________
   Period 5 ________
   Period 6 ________

6. How many students classified as Beginning or Early Intermediate on the CELDT reading test?
   Period 1 ________
   Period 2 ________
   Period 3 ________
   Period 4 ________
   Period 5 ________
   Period 6 ________

7. How many students scored Below or Far Below Basic on their last years ELA CST?
   Period 1 ________
   Period 2 ________
   Period 3 ________
   Period 4 ________
   Period 5 ________
   Period 6 ________

8. Based on the above information, which of the following categories best describes the greatest need in the period you chose for number 3 above?
   ☐ Course content knowledge (i.e. Vocabulary development, skills reinforcement, background knowledge)
   ☐ Increased need for SDAIE strategies
   ☐ Increased need for reading strategies

Figure 2: Bolsa Grande Class Analysis and Goal-setting Worksheet
This tool is used by teachers at Bolsa Grande High School to analyze student data and identify needs.
Bolsa Grande High School
Garden Grove Unified School District

Goal Setting Template

Teacher: 

Period Chosen: 

Course: 

1. Describe two or three things that you will do to address student needs identified on the attached classroom analysis worksheet. What can your evaluator expect to see in the classroom?

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

2. Other goal(s):

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
Across all sites, besides using benchmark assessment data, teachers acknowledged using a wide variety of assessment data to inform their understanding of student learning. When asked what sources of data he relied upon most to inform his instruction, an English teacher at Bolsa Grande High School remarked, “All of them!” Another English teacher said that she relied on vocabulary quizzes, chapter tests, graphic organizers, essays, and even notes. She reiterated, “Everything we do in here gets looked at by me. How do you give a kid something and then tell him ‘I'm not going to look at it, it's not important?’ Some of them are just notes, but we go over it and verbally we assess: Are we on the same page? Are we understanding?” A science teacher said she relied on students’ grades on teacher-created tests, lab reports, and informal assessments as well, such as “…talking to the kids. That’s most important. I have to know my kids.” Even with the 175 students she had, she made a point of knowing all of them. She said she also consulted the results from interim and benchmark assessments, but to a lesser degree. They were, however, useful in assessing the knowledge of students who “don’t perform” on class assignments.

Text Box 3 provides a glossary of assessment tools in order to clarify what we mean by formative and summative assessments.

**Glossary of Assessment Terms**

**Formative Assessment** — An assessment that delivers information during the instructional process, before the summative assessment. Formative assessments are typically embedded within an instructional lesson and the teacher uses such data to make decisions about what actions to take to promote further learning. Formative assessments can take multiple forms (e.g., checks for understanding during a lesson, teacher selected or developed tests, homework assignments, quizzes); it is how the results of these are used that distinguishes them from summative assessments.

**Summative Assessment** — An assessment that delivers information on how much learning has occurred at a given point in time. Summative assessments measure student, program, or school success. State assessments are summative; they are informative for accountability purposes but are not generally effective for guiding learning at the classroom level. Teachers also select or develop their own summative assessments; these can be used simply for summative purposes (e.g., informing a student’s grade in a class), or they can be used formatively.

**Benchmark or Interim Assessment** — Assessments that districts/schools administer in order to predict student performance on high-stakes state assessments and to identify areas of weakness. These assessments are usually purchased from a commercial vendor, but also may be developed locally. Benchmark assessments are not automatically formative. However, ideally, the results are used for formative purposes (i.e., to make adjustments in instruction).

* Glossary developed based on Chappuis and Chappuis (2008) and Stiggins (2005).
At Washington HS, teachers used benchmarks as a formative assessment tool, but they also used their own teacher selected or created assessments and simple checks of student understanding, as guideposts for instruction. During classroom observations, we saw teachers walking around and checking student work, collecting samples during the lesson, directing students to write responses on white boards during the lesson in order to check for understanding, and listening to students as they helped each other. In daily informal assessments about student learning, teachers observed student responses to know what was effective and what was not. Additionally, two of the department chairs mentioned asking students to respond to lessons, and then basing future classes on student feedback. Other formative measures teachers used were the checking of homework and pop quizzes to gauge students’ understanding of class material.

At YES Prep, all teachers talked about formative assessments that were consistently used throughout the year in order to gain immediate feedback about student learning. The process of using formative assessments occurred on a weekly or even daily basis. A science teacher talked about the importance of using teacher-developed (or selected) formative assessments, rather than just interim or large standardized assessments given annually. She shared, “It actually could even be a homework assignment, I was just looking at some homework a little while ago, where there’s one particular class that drew mitosis incorrectly, and they all made similar mistakes, so I’ve got to go back to that class. I looked at that right away, and that’s a homework assignment that I could go back and re-teach that particular part of it.”

At North Star Academy, formative assessments were also embedded in daily lessons. First, teachers were expected to reflect on their instructional practices based on observation notes received from administrators and their peers which they received on a weekly and interim basis. In their lesson plan write-ups, teachers were expected to: (1) write the lesson’s objectives, (2) develop “Do Now” activities, (3) develop oral drills (4) develop the main lesson activities, (5) check student understanding, and (6) provide homework assignments. The following forms are reflection and lesson templates used by teachers at North Star.
### North Star Academy Lesson Plan

**Subject**

**Teacher**

**Week of**

<table>
<thead>
<tr>
<th>Daily Objectives</th>
<th>Monday</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do Now</td>
<td></td>
</tr>
<tr>
<td>Words of Inspiration</td>
<td></td>
</tr>
<tr>
<td>Oral Drill</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Heart of the Lesson</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Key Questions to be asked (star Analysis/Application Qs)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Final Check for Understanding</th>
<th>Dipsticking</th>
<th>Hand gestures</th>
<th>Quick quizzes</th>
<th>White boards</th>
<th>Exit tickets</th>
<th>Probing questions</th>
<th>Elaboration on method</th>
</tr>
</thead>
</table>

| HW Assignment | |
|--------------||

| Necessary Materials | |
|--------------------||

<table>
<thead>
<tr>
<th>Anticipated Challenges</th>
<th>Possible Solutions</th>
</tr>
</thead>
</table>
**North Star Academy**

**Lesson Plan**

Subject

Teacher

Week of

---

**Reflection**

- Thoughts on the lesson
- Respond to observation notes
- Respond to your 6-week Assessment Action Plan
- Students of concern
- Peer-to-Peer observation reflections

---

**Destination Assessment**

- Where you are headed: project, North Star assessment, weekly assessment, etc.

---

**Weekly Objectives**
These examples give us a sense of the kinds of data teachers rely upon to gauge the level of student understanding. How teachers used these assessment data to inform instructional decisions is discussed in more detail in an upcoming section.

C. What Counts as Learning?

The data that teachers and administrators relied upon informed how they measured learning. For many of the educators we spoke with, learning was defined as progress towards the state standards. However, people also grappled with measuring students’ progress towards goals that were not measured by the standards, such as ensuring that all students were ready for college. For example, as noted above, district leaders in Garden Grove USD were concerned that even though proficiency rates on the CST had gone up dramatically in the past five years, the A-G course completion rates had not changed. In order to address the discrepancy between the rise in proficiency rates but lack of change in college preparatory course completion, they asked teachers and counselors to rely much more on data to inform their placement of students into courses. Thus, rather than relying mostly on grades and intuition, teachers were also asked to support placement recommendations with CST scores and benchmark assessment data, which has led to more students being placed into more challenging classes. As the director of secondary instruction stated, “We are really moving toward a justification for how we place.”

Overall, the use of data did not necessarily help to shift beliefs about student learning and engagement but instead underscored for some teachers the importance of monitoring all students. A science teacher at YES Prep believed that the use of data had changed beliefs about students so that “it definitely is sort of sending a message of how serious it is that we really do reach all of our kids. I think for some teachers they were thinking, ‘Well, some of the kids are low, and they’re not going to get it and that’s the way it is.’ I think this is sending the message that ‘No, that’s not that way it is, it’s not the way it should be.’” She added that she hoped that the benefit of using data would be that “it will allow for fewer kids to slip through the cracks, that if you can catch them academically then you can keep kids in the school longer, keep them happier, and that they also understand that they have to reach certain goals.”
While almost all teachers found assessment data useful for improving instruction, they acknowledged it did not tell them everything they needed to know to help students be successful. Teachers frequently cited affective elements that could not be captured in any type of assessment. One science teacher at Bolsa Grande HS said, “The data tell me a pattern but they won’t explain what makes a student ‘tick.’” She added, “I want to know you personally. I want to know what makes you tick.” A teacher at Washington added:

“I don’t think you can base your teaching all on data. There will be some kids that maybe don’t learn as much as others but they did gain some material. A lot of kids don’t like math when they walk in. If you can change their attitude about it I think that’s more important than data. That’s a problem I think with our AIMS [the state’s standardized assessment]. . . I mean yes, it’s great the kid has passed his AIMS, but can he use it? What’s the big deal if he can pass AIMS? I’m a true believer that data does show a little bit but doesn’t show the whole story.

Overall, although almost all of the teachers we spoke with were interested in using data and found it useful, they were also aware of its limitations: “It’s not everything…. But it’s just another way for us to try and improve and help our kids.”

School leaders and teachers at Washington High School in Glendale Unified also talked about the importance of understanding their major purpose and roles as educators. As an assistant principal stated, “We’re dealing with our children, we’re not dealing with making money. We’re not dealing with profit. That’s the fundamental difference between our business and every other business in the world. Our bottom line is trying to create a society that works.” Teachers also stressed the importance of building relationships with students to ensure their progress. As a social studies teacher shared: “I think one of the greatest strengths that a teacher can have is the relationships you build with your students. I think there’s nothing greater that I do than that.” Several teachers echoed this concern that individual students should not get ‘lost’ in the numbers, and that teaching is about building relationships, not just correctly implementing a technique or transmitting content.
3.
The Importance of Student Engagement in Learning
Our observations in the four high schools convinced us that improving student engagement must be the center of the learning process and at the heart of data-driven instruction. Thus, an effort to improve teaching and learning with the use of data must account for the ways in which students play an active role in contributing to their academic growth and environment. This is not to say that we observed high levels of student engagement across all sites, but rather that we were impressed by the efforts of some educators to make improving student engagement a pillar of their reform efforts.

Perhaps more than in any other system or school, student engagement at YES Prep is an institutionalized cornerstone of the system and the high school. It is embedded not only throughout the learning process but also throughout every aspect of school planning and the development of school culture. Text Box 4 below explains how YES Prep approached the measurement of and use of data on student engagement.

**KEY POINTS**

- Gathering and analyzing data on the extent of student engagement was used as a powerful tool for improving students’ involvement in their own learning.
- Systems and schools gathered information about student engagement by implementing data collection tools, such as surveys or observations, that directly assessed it.
- Sharing assessment data with students reportedly enhanced students’ ownership of their goals and plans for improvement.
Student Engagement at YES Prep

The YES Prep High School school-wide goals included the measurable goal that “100 percent of students will feel important, cared for, recognized, and respected by their fellow students and the YES Prep staff as reported in My Voice and other student surveys.” Another school goal, which focused on student engagement explicitly, stated, “80% of students will report that their classes help them understand what is happening in the everyday world on a My Voice survey by May, 2008.”

It is important to acknowledge that this is not just a vision statement. These goals were very much tied to measurable indicators that enabled the staff to gather survey data about students’ perceptions, experiences, and attitudes. The My Voice survey was developed by an external partner who handles the data collection and analysis. The survey included such questions about whether students feel respected by teachers and by other students, the pacing of classes, and the rigor of their courses. Administrators shared the results with the students and the schools. They also held open forums after school to provide kids with an opportunity to express their concerns about how a particular discipline issue may have been handled.

More informally, but also on a monthly basis at the very least, administrators conducted their own surveys focusing on the overall culture of their schools which is tied to the overall system goals. The system used a rubric called Assessment of School Culture which included topics such as physical environment (e.g. is the building safe/clean), transitions between class bells, and level of student engagement. Visitors are also asked to complete a survey regarding the school’s culture. The copy of the survey is included on the next page.

Within classrooms, teachers are also expected to incorporate student voice into their planning and reflection. Teachers select two classes in which students are asked to provide feedback about their teachers and classrooms. Called the Mid-term Course Evaluations, these feedback forms included such questions as whether a teacher returns homework on a regular basis, the availability of the teacher when a student calls, and the extent to which the teacher explained the relevance of the content being studied. An English teacher talked about the survey and how students “rely on us not letting nonsense happen.” She further elaborated on how they used student surveys: “So last year we were at a low point. Our surveys were telling us only 35% of our 8th graders felt respected and cared for, which was shocking to our 8th grade team because they’re some of the warmest people you’ll ever meet. But, you know, we can say, oh, well, they’re just adolescents and that’s that time of development, but no, that’s not good enough. We really want everyone to feel like they belong here.” The intent was to help the teachers grow as educators and to show them what students were experiencing and feeling.

YES Prep teachers focused heavily on instilling in their students the belief that they – the students – were entitled to a high-quality educational experience. They taught their students to believe that they should have high expectations of their teachers, just as their teachers should have of them. As a result, teachers expressed a strong sense of accountability to their students.
YES Prep
Campus Visitor Feedback Form

Thank you for visiting the YES Prep campus today. We hope that your visit was a good experience and provided you with a better understanding of the work that we do on a daily basis. As an organization, we crave both positive and constructive feedback. This is how we continue to grow, improve upon our model, and ensure the best educational experience for all of our students.

A little about you (optional)

Your name __________________________________________________________________________ Date of Visit __________________________
Organization _________________________________________________________________________
Phone Number __________ E-mail address ___________________________________________________
Purpose for your visit ____________________________________________________________________

Rating Your Visit

Please indicate your level of agreement or disagreement with each of the following statements. Please circle one ranking per item. If a particular item does not apply to your visit, please indicate not applicable by circling N/A.

Use the following scale: 1 = disagree, 2 = somewhat disagree, 3 = somewhat agree, 4 = agree, 5 = strongly agree.

1. The front office staff were both welcoming and helpful. 1 2 3 4 5 N/A
   Comment(s) _______________________________________________________________________

2. The campus tour was informative and well presented. 1 2 3 4 5 N/A
   Comment(s) _______________________________________________________________________

3. The campus was clean and well maintained. 1 2 3 4 5 N/A
   Comment(s) _______________________________________________________________________

4. The teachers I observed were delivering high quality instruction. 1 2 3 4 5 N/A
   Comment(s) _______________________________________________________________________

5. The teachers that I observed were well prepared. 1 2 3 4 5 N/A
   Comment(s) _______________________________________________________________________

6. In the classrooms that I observed, the learning objective was evident (posted on the board, or articulated by the teacher). 1 2 3 4 5 N/A
   Comment(s) _______________________________________________________________________

Figure 4: YES Prep Campus Visitor Feedback Form
Visitors to YES Prep complete this survey after their visit providing another source to analyze overall campus environment.
7. The students that I observed in the classroom were engaged in the lesson.  
Comment(s) ____________________________________________  

8. The students that I interacted with on campus were friendly and engaging.  
Comment(s) ____________________________________________  

9. I would recommend the YES Prep campus as a model for other schools to emulate.  
Comment(s) ____________________________________________  

Open Response  
1. Were there specific teachers whom you observed that you would like to point out? If so, which teacher(s)? Why?  
_________________________________________________________________  
_________________________________________________________________  
_________________________________________________________________  
_________________________________________________________________  

2. Were there specific students with whom you interacted that you would like to point out? If so, which student(s)? Why?  
_________________________________________________________________  
_________________________________________________________________  
_________________________________________________________________  
_________________________________________________________________  

3. Do you have any questions about which you would like someone to follow-up with you? ____________________________  
_________________________________________________________________  
_________________________________________________________________  
_________________________________________________________________  

4. Do you have any other comments or feedback that you would be willing to share with us? ____________________________  
_________________________________________________________________  
_________________________________________________________________  
_________________________________________________________________  

Thank you for taking the time to complete this feedback form. Now that you have finished, please leave this with a member of the YES Prep campus front office staff. We look forward to your next visit.
Similiarly, North Star Academy focused on student engagement as part of their data-driven instructional strategy and in an effort to promote a positive student culture. This was reflected in their 11-page teacher evaluation rubric and orientation to the school culture provided to students, faculty, and parents. As evidence of such endeavors, one student at North Star noted: “The teachers use the assessments to become better teachers. They see what they didn’t teach very well and re-teach so we can learn it better. So we end up learning more.” Another student also shared: “I like the assessments because they help me know what I need to work on. Every time I have something new to learn, and my teacher pushes me to keep learning those new things.” Thus, high expectations for both students and teachers pervaded North Star.

At Washington HS, there was also a belief that student achievement results from shared understandings and goals about student learning. One teacher enthusiastically reported the attitude that teachers at Washington HS had toward student learning, “The teachers at this school think that they can get anybody to pass anything.” Students were not involved in the data-driven decision making process in systematic ways, though several teachers mentioned the relationship between students and data. The year before this study, Washington HS had as a priority moving from ‘highly performing’ to ‘excelling.’ In order to meet this goal, they knew that a particular number of students had to score highly on their exams. Counselors met with those students individually and talked with them about putting effort into meeting the standards. The principal attributed the school’s accomplishment to this individual encouragement.

Some teachers also involve the students in data collection and analysis. For example, the social studies department chair at Washington HS had his students track their own progress on exams and collect their own data, in order to identify their own weaknesses. He saw this skill as relevant to life beyond high school and focused on student data collection as skill development. In math, students received test scores according to outcomes on which they have demonstrated mastery and those on which they have not. Two teachers mentioned posting those results by student and outcome measure so that all students knew how the rest of the class was doing and how they compared. In English, one teacher used Project Based Assessment essays to have individual conferences with students regarding their writing, and then students rewrote their essays accordingly.
Three teachers mentioned reporting class scores on assessments—or outcomes, in the case of mathematics—and encouraging friendly competition between classes. They saw mild competition as a fun way to motivate students to do their best on unit-level exams. In terms of assessing the impact of outcomes-based learning on student performance, one math teacher was asked if students felt discouraged if they do not pass all of the outcomes on a unit exam. She replied:

*That is the one thing I really like about what we call this outcome-based system and that is I don't see the discouragement. I'm not saying [students] don't get discouraged but they know that they have this opportunity to try to ask questions and do these corrections and just practice with some more problems, where they know they have an opportunity to retest and improve their score. So it's not like they get the test scores back and that's it.*

In Garden Grove USD, central office administrators seemed to be taking the lead in improving student engagement and student voice across the school system. Although the district focused on “hard data,” they found it is also important to use classroom observation data (as well other data) about students and their needs. One way in which Garden Grove had done this was to observe schooling through the eyes of students. Several district administrators and school personnel had begun informally mentoring students in order to provide a helping hand to those who might be struggling. In the course of the mentoring, district personnel attended classes with the students they were mentoring. Shadowing students helped leaders who were no longer in the classroom stay connected with the challenges faced by students and the challenges teachers had when trying to engage students in classroom instruction. The mentoring of students by district-level personnel has led the district to develop ways to help students develop self-regulation strategies that will enhance students’ opportunities for success in high school and beyond. The superintendent explained, “Our big issue is, how do we get our students to become active participants in their own learning?” Instead of simply asking students to get more engaged, the focus of the district was to “set up some classroom procedures and a sense of inquiry so that students feel vested, that they are engaged, that we start to pull them in, and then get them to be more self-sufficient.”
At Bolsa Grande HS, increasing student accountability for learning was also stressed. A big push instructionally was to get students to take ownership of their own learning, and this was being achieved in part through the use of data in the classroom. An English teacher noted that not only did state test results provide an incomplete portrait of students’ achievement, the lack of accountability on the part of the student made the results problematic: “There are kids that actually take it seriously and do well. But for a lot of these kids there’s no buy-in for them to take it seriously and they know that.” She added, “There’s no accountability for the child.” In addition to “putting up pie charts,” she noted, for the whole class to see, they are asking students to look at the data themselves, note their strengths and weaknesses, and write a reflection on “what strategies they can use themselves to meet the standard…That’s a great way to use this data.” She added: “It opens up that dialogue” with the teacher, as a student can then say “I need this from you too…” In one of her classes, students were writing action plans for their portfolios. The teacher was hoping to revisit the plans with students at the end of each quarter to discuss whether they followed through and what results were achieved. She thought this was particularly important for failing students who needed to take some initiative to chart their own improvement.

Overall, it appeared that efforts to improve student engagement could be enhanced through the use of data. This happened in two primary ways. First, data specifically about student engagement and satisfaction were used a source for instructional improvement. These data were gathered either formally through surveys of students or informally from observations of student engagement in the classroom. Second, data from interim assessments were used by teachers to help students take more ownership of their learning and increase their own level of accountability.
4. Improving Instruction as a Central Focus
A. System Supports for Improving Instruction

At all levels of the systems we studied, the ultimate purpose of using data was to improve instruction. Across all four systems, there was a major emphasis in assisting teachers to use data for instructional decision making. As the school director of YES Prep remarked:

*Even if they have 50 assignments and they’ve collected data, well that’s just data. That’s all well and good. Really the big push then is: Now that you have it what do you do? How does this inform your instruction? Are you doing individual tutorials or whole group remediation? What you are doing with the information is a big deal.*

In all four schools and systems, significant resources were directed at improving instructional capacity so that teachers could analyze the data and also use it to shape their instructional delivery. For example, at North Star Academy, improving instruction through the use of data relied upon continuous observation, reflection, and feedback for teachers on their instruction. The principal, vice principal, and the department chairs conducted frequent formal and informal classroom observations. They asked questions such as, “How do you know that they learned the material, and what gives you the idea that they learned the material?” The principal shared that over 80% of her time entailed focusing on instructional practices,

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**KEY POINTS**

- School leaders and department chairs played a key role in observing instruction on a continuous basis and assisting teachers in becoming reflective and using data to inform their teaching. System-level instructional coaches also played a key role in helping teachers improve their practice; such resources were typically concentrated on assisting newer teachers.

- Teachers used a combination of formal and informal assessments to guide their instruction. Informal assessments, such as daily quizzes, warm-ups, and exit tickets, gave teachers immediate feedback to guide day-to-day instruction, whereas formal assessments, such as benchmarks, informed longer-term action planning.

- The careful analysis of data required teachers to think in new ways about instructional delivery. Teachers used a variety of instructional techniques, such as group work, white boards, and “bell work” at the beginning of class.

- High schools used various methods for student remediation and intervention, including implementing alternative programming, flexible scheduling, and targeted assistance.
such as observing and meeting with teachers. Her role was to ensure that teachers are utilizing the data on a regular basis. She summarized: “When I say regular, I mean what are they doing on a daily basis to drive their instructional practices and that is reflected in their lessons, in their teaching, in their understanding of how students need to be taught in terms of strategies so it is consistent and they are closely tied together.”

At YES Prep, the central office held a workshop focusing on “instructional snapshots” to highlight the level and depth of instructional practices across the system. The instructional snapshots are quick classroom observations assessing (1) learning objectives, (2) the level of Bloom’s taxonomy, (3) types of instructional strategies, (4) learner engagement, and (5) a survey of the learning environment. A copy of the YES Prep Instructional Snapshot Summary tool that is used to gather classroom observation data is provided on the next page.

We observed the first workshop on instructional snapshots in late September in which the chief program officer introduced the practice to the department chairs across all the campuses. Data within and across campuses were shared. In total, the system ended up having 150 different pieces of instructional snapshot data because each department chair was asked to go into everyone’s classroom at least 2-3 times at different points in the lesson cycle. One of the things they noticed across all the campuses was that 60-75% of the classroom observations indicated that instructional strategies concentrated on lower levels of Bloom’s Taxonomy. Regarding student engagement, they noticed that many of the classes were falling in the category of “well-managed/highly engaged” which meant that courses were teacher-led and teacher-driven. From this data, staff members discussed their preference to see more “authentic engagement” where students are involved in self-directed problem-solving. In describing the benefits of collecting classroom observational data, the chief program officer stated: “That’s one of the powerful ways that the snapshots are helping us to better understand how our curriculum is being delivered.” Afterwards, the group had a follow-up discussion on the types of best practices that could be shared with the rest of the school staff. Based on this data, the school directors and department chairs came up with a plan to discuss how they were going to address the issue with their staff members over the next couple of weeks. They also discussed the need for system-level training to model different kinds of activities targeting various levels of student thinking.
<table>
<thead>
<tr>
<th>YES Prep</th>
<th>Instructional Snapshot Summary Tool</th>
<th>Course/Grade</th>
<th>Snapshot Date/Time</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>LESSON PLANS</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Is lesson plan available?</td>
<td>YES</td>
<td>NO</td>
<td>NA</td>
</tr>
<tr>
<td>Does lesson mirror lesson plan? (optional)</td>
<td>YES</td>
<td>NO</td>
<td>NA</td>
</tr>
<tr>
<td><strong>TEAM TEACHING</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Are teachers effectively using team teaching? (Circle one.)</td>
<td>YES</td>
<td>NO</td>
<td>NA</td>
</tr>
<tr>
<td><strong>OBJECTIVE</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>What is the learning objective for the lesson? (Choose one / write obj. below.)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SWBAT…</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Evident to students?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not evident to students?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unable to Determine</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>TEKS / DISTRICT STANDARDS</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>What are the TEKS / District Standards of the lesson? (Choose one from list to the right.)</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>On target?</td>
<td></td>
<td></td>
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<tr>
<td>Not on target?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unable to Determine</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>BLOOM’S TAXONOMY</strong> (Choose all that apply.)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Evaluation: Make judgments and justify positions</td>
<td>High (Analysis, Synthesis, Evaluation)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Synthesis: Put information together in new ways</td>
<td>Mid (Application)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Analysis: Break down information into parts</td>
<td>Low (Knowledge, Comprehension)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Application: Use information in new ways</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comprehension: Understand information</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Knowledge: Recall information</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>MATERIALS</strong> (Circle all that apply from the list below. Choose one from list to the right.)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Video</td>
<td>8. Lab / Activity</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>INSTRUCTIONAL STRATEGIES</strong> (In each of the parts A, B and C below circle all that apply.)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>General Instructional Practices</td>
<td></td>
<td></td>
<td>Research Based Instructional Practices</td>
</tr>
<tr>
<td>1. Project / Lab</td>
<td>7. Lecture</td>
<td>13. Practice</td>
<td>1. Identifying similarities and differences</td>
</tr>
<tr>
<td>5. Discussion</td>
<td>11. Teacher-led</td>
<td>17. Other:</td>
<td>5. Summarizing / Note-taking</td>
</tr>
<tr>
<td>B</td>
<td></td>
<td></td>
<td>7. Homework / Practice</td>
</tr>
<tr>
<td>C</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>LEARNER ENGAGEMENT</strong> (Check one.)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Authentically Engaged—most students authentically engaged and self directed</td>
<td></td>
<td></td>
<td>Authentically Engaged</td>
</tr>
<tr>
<td>Highly Engaged—most students engaged, but are dependent on teacher for direction</td>
<td></td>
<td></td>
<td>Highly Engaged</td>
</tr>
<tr>
<td>Well-Managed—student willingly compliant, ritually engaged; brought back on-task quickly</td>
<td></td>
<td></td>
<td>Well-Managed</td>
</tr>
<tr>
<td>Dysfunctional—many students actively reject the assigned task or substitute another activity</td>
<td></td>
<td></td>
<td>Dysfunctional</td>
</tr>
<tr>
<td><strong>SURVEY OF LEARNING ENVIRONMENT</strong> (Circle all that apply.)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>SUMMARY</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Based on the evidence, what is the likelihood that students will attain the learning objective?</td>
<td></td>
<td></td>
<td>Highly Likely</td>
</tr>
<tr>
<td>Somewhat Likely</td>
<td></td>
<td></td>
<td>Not Likely</td>
</tr>
</tbody>
</table>
In addition to the administrators, YES Prep department chairs played a key role in helping to develop instructional capacity. Recently, their roles had moved away from observing each teacher once a quarter, reviewing assessments, and collecting and providing feedback on lesson plans as well as logistics such as ordering textbooks. Instead, they were being asked to focus much more on becoming content specific experts and instructional coaches so that they could provide ongoing instructional feedback and support. They were also chiefly responsible for the objective tracking, especially the determination of what objectives need to be tracked for the content and grade level.

Schools and systems also directed resources and additional instructional support personnel to assist teachers in making instructional improvements. As noted earlier, Washington HS and YES Prep had instructional coaches or curriculum coordinators who directly worked with teachers. At Washington HS, the curriculum coordinators assisted teachers whose scores were low in particular areas. At the beginning of the school year, curriculum coordinators planned “best practices” workshops during which teachers who experienced success with particular content presented how they taught those concepts. Multiple ways of using best practices were presented so that other teachers could choose the practices they found to be most suitable both for their own teaching styles as well as for their particular students. Data on teacher performance were also distributed in district-wide content area workshops during the first semester of the academic year. For example, at the beginning of the year, the district hosted a workshop for all freshman-level math teachers during which they distributed each teacher’s results. Teachers could then identify their individual areas of weakness and receive training in best practices by teachers who did well in those areas.

Figure 5:
YES Prep Instructional Snapshot Summary Tool
This tool developed by YES Prep is used to gather classroom observation data.
At YES Prep, the system employed four instructional coaches whose sole job was to provide intense coaching for first year teachers. The coaches met with the novice teachers, observed their classrooms, and conducted monthly workshops for them to continue their professional development. According to the chief program officer, through this structure, “they are learning the best practices for management and instruction and they’re also helping to be acculturated to what it means to be a YES Prep teacher.” These coaches were primarily instructional rather than content focused. When asked about the distinction, the chief program officer remarked, “A content coach, for us would be about the curriculum itself and about the best practices for teaching that curriculum. And that’s not to say that our instructional coaches don’t but our instructional coaches are much more focused on the how, the delivery…” That being said, one instructional coach tended to work with the science teacher, while two coaches split both English and history, with the fourth coach concentrated on Spanish. Supports such as these system-level experts and school leaders, combined with teacher-driven professional development, maximized teachers’ abilities to use data to improve instruction.

The following tool is used by YES Prep to evaluate new and experienced teachers’ instructional planning, delivery, and assessment and to give them feedback about their performance on numerous indicators.
YES Prep Public Schools  
Assessing Instructional Planning and Delivery

<table>
<thead>
<tr>
<th>CLASSROOM INSTRUCTION</th>
<th>Objective-Driven</th>
<th>Effective Instructional Strategies</th>
<th>Engagement and Interest</th>
<th>Content Knowledge</th>
<th>Pacing</th>
<th>Questioning Strategies</th>
<th>Checking for Understanding</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indicator</td>
<td>Unsatisfactory</td>
<td>Approaching Proficiency</td>
<td>Proficiency</td>
<td>Mastery/Exceptional Quality</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rarely writes lesson plans with concrete, measurable objectives</td>
<td>Expectations for student learning are sometimes clearly stated, but teacher may not always have a clear objective or the objective may be difficult to measure</td>
<td>Consistently designs lessons around concrete, measurable objectives for student achievement, expectations for student learning are clearly stated</td>
<td>Consistently designs lessons around concrete, measurable objectives for student achievement, expectations for student learning are clearly stated</td>
<td>Consistently designs lessons around concrete, measurable objectives for student achievement, expectations for student learning are clearly stated</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Uses only one or two instructional strategies on a consistent basis; little or no attempt to reach address students' various learning styles</td>
<td>Uses a small selection of instructional strategies that reach students with varied learning styles; attempts to employ various activities with some success</td>
<td>Selects and effectively uses a wide range of instructional strategies to maximize student learning; effectively address students' different learning styles through varied lessons</td>
<td>Selects and effectively uses a wide range of instructional strategies to maximize student learning; effectively address students' different learning styles through varied lessons</td>
<td>Selects and effectively uses a wide range of instructional strategies to maximize student learning; effectively address students' different learning styles through varied lessons</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Uses few or no strategies or incentive programs for keeping students engaged; fewer than 75% of students are consistently engaged in lessons</td>
<td>Uses two-three strategies or incentive programs to ensure that students are engaged and relies heavily on one or two; 75-90% of students are consistently engaged</td>
<td>Uses a variety of strategies to ensure that students are engaged in lessons; 90% of students are consistently engaged in lesson</td>
<td>Uses a variety of strategies to ensure that students are engaged in lessons; 90% of students are consistently engaged in lesson</td>
<td>Uses a variety of strategies to ensure that students are engaged in lessons; 90% of students are consistently engaged in lesson</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Displays uneven or inconsistent content knowledge; has significant difficulty communicating relevancy of material to students</td>
<td>Displays adequate content knowledge and can effectively explain relevancy of material to students</td>
<td>Displays extensive content knowledge and can effectively explain relevancy of material to students and connection to other disciplines</td>
<td>Displays extensive content knowledge and can effectively explain relevancy of material to students and connection to other disciplines</td>
<td>Displays extensive content knowledge and can effectively explain relevancy of material to students and connection to other disciplines</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The pacing of lessons is either significantly too fast or too slow to promote student engagement and student learning; teacher provides little or no wait time with questions to encourage student processing</td>
<td>The pacing of the lessons is generally appropriate for most activities, though the teacher may not adjust lesson adequately to meet he needs of all students in the class</td>
<td>The pacing of lessons consistently offers opportunities for student engagement with appropriate use of instructional time, teacher adjusts presentation style and strategies as appropriate to meet needs of all students; effective use of wait time to encourage processing</td>
<td>The pacing of lessons consistently offers opportunities for student engagement with appropriate use of instructional time, teacher adjusts presentation style and strategies as appropriate to meet needs of all students; effective use of wait time to encourage processing</td>
<td>The pacing of lessons consistently offers opportunities for student engagement with appropriate use of instructional time, teacher adjusts presentation style and strategies as appropriate to meet needs of all students; effective use of wait time to encourage processing</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Uses very few questions or low-level questions that do not encourage higher level thinking</td>
<td>Uses some questions effectively in lessons in order to assess student mastery of material and encourage student processing; questions may be somewhat infrequent or lower-level</td>
<td>Structures questioning techniques to assess student mastery of material and encourage higher-level thinking, encourages student questioning and productive discussion; questions are consistently opened; students display ownership of the inquiry process without prompting by teacher</td>
<td>Structures questioning techniques to assess student mastery of material and encourage higher-level thinking, encourages student questioning and productive discussion; questions are consistently opened; students display ownership of the inquiry process without prompting by teacher</td>
<td>Structures questioning techniques to assess student mastery of material and encourage higher-level thinking, encourages student questioning and productive discussion; questions are consistently opened; students display ownership of the inquiry process without prompting by teacher</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Infrequently monitors students' levels of understanding; does not adjust lesson in response to student performance</td>
<td>Occasionally monitors students' level of understanding and attempts to adjust lessons in response to student performance; checks for understanding may be too infrequent or too simplistic to yield meaningful data</td>
<td>Consistently monitors students' level of understanding, modifies and/or adjusts lessons as appropriate in order to ensure student mastery of objectives</td>
<td>Consistently monitors students' level of understanding, modifies and/or adjusts lessons as appropriate in order to ensure student mastery of objectives</td>
<td>Consistently monitors students' level of understanding, modifies and/or adjusts lessons as appropriate in order to ensure student mastery of objectives</td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

Data for this domain comes primarily from the following sources: walk-through observations; full observations; student course surveys, lesson plans, unit plans

Notes:

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63
<table>
<thead>
<tr>
<th><strong>ASSESSMENT</strong></th>
<th><strong>Unsatisfactory</strong></th>
<th><strong>Approaching Proficiency</strong></th>
<th><strong>Proficiency</strong></th>
<th><strong>Mastery/Exceptional Quality</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Using Diagnostics and Formative Assessments</strong></td>
<td>Does not provide evidence of using student assessment data in order to plan instruction; the unit plan progresses without attention to student progress on objectives</td>
<td>Uses student assessment results in order to plan instruction for some units; use of data may be inconsistent or may not be used in order to adjust mid-unit or provide intervention for select students</td>
<td>Consistently analyzes student assessment results in order to plan and adjust instruction and to plan intervention strategies; assessments are broken down by specific unit objectives</td>
<td>Analyzes student assessment results in order to plan and adjust instruction and to plan intervention strategies; assessments are broken down by specific unit objectives in order to differentiate instruction</td>
</tr>
<tr>
<td><strong>Tracking Student Mastery</strong></td>
<td>Does not use available data for tracking student mastery of key curricular objectives for each unit, students are unaware of progress on central objectives for the year</td>
<td>Uses a basic system for tracking student mastery of key curricular objectives for individual units, but that system does not track for the year</td>
<td>Uses an effective system for tracking student mastery of key curricular objectives for each unit and throughout the school year</td>
<td>Uses an effective system for tracking student mastery of key curricular objectives for each unit and throughout the school year; the information in that system is available to students who refer to it to track their own progress</td>
</tr>
<tr>
<td><strong>Purposeful Student Assignments</strong></td>
<td>Designs assessments that are simplistic or lack variety; these assessments are unhelpful in determining student mastery of key curricular objectives</td>
<td>Designs assignments and assessments that reflect student understanding of the unit, though these assessments may be limited in the scope or in form, or may focus on content to the exclusion of key skill objectives</td>
<td>Designs consistently purposeful and rigorous assignments and assessment activities that accurately reflect student understanding of central objectives of each unit, varies assessments as appropriate to reflect objectives/goals</td>
<td>Designs consistently purposeful and rigorous assignments and assessments activities that accurately reflect student understanding of central objectives of each unit, varies assessments as appropriate to reflect objectives/goals; through multiple assessments, students are able to demonstrate mastery in a variety of ways</td>
</tr>
<tr>
<td><strong>Providing Feedback to Students</strong></td>
<td>Provides feedback to students that is basic at best (simply a grade) and/or there are severe lags in time between student performance and return of work so as to limit usefulness of feedback</td>
<td>Provides feedback to students that is generally timely, although there may be lags of a week or more that inhibit student internalization of areas for improvement with each unit and/or the feedback may be basic rather than thorough</td>
<td>Provides feedback to students that is frequent and timely, with sufficient amount of specific feedback on areas for improvement</td>
<td>Provides feedback to students that is frequent and timely, with sufficient amount of specific feedback on areas for improvement; feedback is meaningful, substantial, and fosters student growth by addressing individual strengths and weaknesses</td>
</tr>
<tr>
<td><strong>Student Progress toward Goals</strong></td>
<td>Does not set goals for class, or sets goals that may not be referred to throughout year</td>
<td>Provides some evidence of student progress toward school and classroom goals, but these goals may not be central to the class and students may have some trouble articulating them</td>
<td>Able to provide evidence of consistent student progress toward ambitious and objective-driven school and classroom goals; students can clearly articulate those goals</td>
<td>Able to provide evidence of consistent student progress toward ambitious and objective-driven school and classroom goals; students can clearly articulate those goals; goals provide students with an authentic sense of motivation for achievement and foster a strong sense of student ownership of the learning process</td>
</tr>
</tbody>
</table>

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Data for this domain comes primarily from the following sources: lesson plans, unit plans, sample assignments, student surveys

Notes:

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Just as in YES Prep, system leaders in Garden Grove USD believed strongly in the power of building capacity among teachers. The superintendent stated, “The only way you are really going to change the system is through the people who are doing the work. Therefore it is important to invest in teachers to provide them with the support necessary to achieve the goals we have set for our students.” They worked hard to build a culture of commitment (rather than compliance) among all of their teachers. “Compliance is doing things right, and commitment is doing the right thing… making sure the right thing is going on in every classroom for every student,” explained the superintendent.

In Garden Grove USD, one of the goals of the professional development offered by the district through its Strategy Academy has been to use common instructional strategies and approaches across departments. Data were a central driving force behind the Strategy Academy. Through the Strategy Academy, teacher representatives from across departments in all high schools came together with assistant principals, principals, and counselors three to four times a year for a full day. They discussed strategies for writing across the content areas, addressing the needs of students reading below grade level, assessing the needs of English language learners, academic vocabulary, and student placement, among other issues. During the period of our study, the group was looking at AVID Strategies, with a focus on scaffolding students for more self-regulation. The district was heavily invested in AVID and was attempting to infuse the AVID Strategies throughout all of their high schools.

In addition to the AVID Strategy training, the director of secondary instruction had also initiated professional development on other instructional strategies. For example, she was also working with teachers on questioning techniques (e.g., asking different levels of questions, spiraling question techniques, and waiting for students to answer). As the superintendent noted, “It’s all facilitated around practices that have been carefully thought out, and with the data to support it.” On another note, a science teacher reported attending a workshop on how to effectively apply direct instruction—and how to coach other teachers to do so as well. Growing out of these district workshops, the high school teachers at Bolsa Grande HS took it upon themselves to develop and videotape model lessons on various student engagement strategies, such as how to use a white board for engaging students in “total physical response” activities. The DVDs profiling teacher instructional strategies were then distributed and each teacher at the school committed themselves to trying out at least one new strategy in their classrooms.

As all of the examples above reveal, most of the professional development and capacity building activities initiated by the systems concentrated on instructional issues, rather than other topics.
B. What Does Data-Informed Instruction Look Like?

Systems supported teacher data use by developing a culture of using data for instructional decision making and by creating structures to enable teachers to strengthen their instructional capacity. As a result of both system- and school-level efforts to support teachers, they were able to use data to inform their teaching in powerful ways. Educators across the four sites spoke about the importance of reflection in guiding future practice, and the use of daily, informal assessments guided such reflection and resulted in carefully tailored instruction. Below we highlight instances from each site that demonstrate how teachers used data to inform instruction.

As we explained in an earlier section, some teachers relied primarily on benchmarks to influence changes in instruction, whereas others also relied on informal, classroom-based assessments. In this section, we explain how they used these embedded assessments to inform instruction. For example, at North Star Academy, daily formative assessments were used to inform daily instructional decisions. All of the teachers we interviewed at North Star mentioned “Do Nows” which typically consisted of three to five quick review questions given to students at the beginning of the class and exit slips, given at the end of each class period to check student understanding of the day’s lesson objectives. Homework as well as the weekly and interim assessments were also frequently mentioned as important sources of instructional adaptation tools. One science teacher shared: “I think exit tickets are really helpful for me. I’ve tried a number of different checks for understanding at the end of the lesson and I get overwhelmed trying to count fingers, and being a scientist I find that those aren’t very accurate because everybody can cheat and look around and hold up the same color card. But I feel with an exit ticket at least they’re doing it independently. Each one’s giving me feedback at the end of the class that I can really get a good measure of what went on. So I’ve found that to be the most helpful.”
Another science teacher at North Star Academy shared how she used exit slips to inform her daily instructional plans:

*What it tells me is that at the end of the day if I've gotten that lesson across then I can move on to the next skill. However if not, then I know that the next day I need to figure out a different way to re-教 that material. So anything that was a little bit challenging today I need to go home tonight and revamp and figure out if there is another way that makes it easier or if I can narrow it down to a step by step. So it kind of hones my lesson from the previous day into something more concrete the next day. So when the lesson doesn't go badly and you get back exit tickets that only show fifty percent mastery, well what are you going to do the next day to re-teach it? As opposed to waiting two weeks down the line, giving a test and finding out that they still don't know what you did two weeks ago. So it's kind of a more immediate help in terms of planning day to day and in terms of knowing where you're going long term.*

A math/science teacher at YES Prep also shared his experience with exit tickets. He found them to be useful formative assessments for determining the extent to which students are learning objectives: “For that I try to give exit tickets at the end of all big concepts, and it’s one question they need to do in the last three minutes of class and give to me on their way out the door. And I just really quickly look through those, and it identifies for me what the class got and what they didn't. If it was just a couple of kids missing things, then I know I need to reinforce that with these specific students…” He added that these types of assessments are useful because “it gives me immediate feedback on every student in class.”

The following text box includes a narrative of a lesson we observed in which a teacher used formative assessments to guide student learning.
A 9th Grade Math Teacher’s Use of Formative Assessments

At Washington High School, Ms. Morgan teaches Algebra to 9th graders, many of whom are English language learners. Before the bell rings, the class begins with a “launch” activity in which students independently complete math questions as soon as they enter the classroom. This enables the teacher time to help students during the “entrance slip questions” which are simple math problems students have to answer correctly before they enter class. Once all students are seated and have time to complete the launch activity, Ms. Morgan reviews the answers. For the rest of the class period, she goes through a lesson cycle of teaching a mini-lesson covering targeted standards, followed by guided practice. Here is a snapshot of a math period:

Ms. Morgan is standing next to the open class door before the bell rings. She is holding flashcards with quick math review problems (e.g., -3-6) which students in her Algebra I class have to answer correctly before they enter the room. If students answer correctly, Ms. Morgan responds with, “good job” and lets them in. One student seemed to have trouble with a particular problem and Ms. Morgan helps her along by asking questions such as, “What does it mean?” She also assists students by going through the problem with them. As each student enters, they quietly get to their seat and begin the quick review problems. Five minutes after class has officially begun, Ms. Morgan checks to see if students have completed the review problems by asking them, “Are you guys done?” A couple of students mumble in reply but most are quiet. She moves on and informs them that, “These are problems from math camp and problems everyone is still having trouble with.” She begins to ask students to volunteer their answers to the questions: “Does anyone want to try this?” Three students raise their hand and Ms. Morgan continues to follow this pattern as she reviews the answers.

After the class goes over the answers to the review questions, Ms. Morgan conducts a 5-7 minute mini-lesson on identifying parts of a graph and applying the concepts. Ms. Morgan passes out a 8.5 by 11 inch whiteboard, a cleaning cloth, and a marker to each student. She recently discovered the whiteboards in a supply room and was very excited about having students use them to individually respond to math questions. In this way, she can informally check for understanding. Next, she instructs the students, “Okay, take out your whiteboards. I want you to take your marker and I want you to color the vertical axis. Hold it up when you are done.” (One side of each whiteboard contains a graph pattern). All students hold up their board as Ms. Morgan peers around the class. She announces, “Right!” She then asks them, “On your whiteboard, identify or color the x-axis for me.” She immediately starts counting down, “10 seconds, 5 seconds” and walks around the room. She again announces, “Good job guys! What’s another word for that?” She answers, “X-axis, horizontal.” She moves on to another quick problem. “Okay let’s do one more.” She asks students to identify the x-axis. Afterwards, she instructs them to put away their whiteboards and take their notes out again…
In keeping with the example above, the most salient data that affected instruction at Washington HS was the data gathered informally on a daily basis by teachers. Teachers mentioned walking around and checking student work; reflecting on student responses to the lesson to see if something could be done more effectively; and asking students about teaching techniques that they found to be either effective or ineffective. Teachers also observed the level of student engagement in the learning activities. Informal data contributed to ongoing reflection, captured by this teacher’s comment:

*I think teaching is not “at the end of the day you’re done.” You’re constantly thinking about it. You go home and you’re like why didn’t that go well or why did that go well? You make a mental note or you write it on your lesson: we need to change that for next [time], or the next day you make the change. You know what you guys, what I taught you yesterday, we should probably have done it this way…*

Although as noted above teachers used a wide variety of data to inform their instruction, the benchmarks were used most at Bolsa Grande HS to assess progress towards the standards and change instruction accordingly. An English teacher said, “I’m really trying hard to go back to the standards that the majority of the class hasn’t hit on… Let’s see if I can teach it in a different way. Or maybe that’s where I can talk to other teachers and ask how they did that.” One teacher said she consulted with her students after identifying weakness areas, asking them what she could do to perhaps teach the material more effectively.

A science teacher at Bolsa Grande HS also remarked about the utility of the benchmark assessment in pointing out an area of student weakness:

*I saw that my kids bombed in the middle. Immediately I checked with them and I changed, because we were on diffusion osmosis. I stopped. I said, “We’re going to stop for a moment. I need to check this. I would have never stopped had I not looked at their benchmark scores…”*
When we observed this teacher in class, he explained how he used hands-on material to teach his students the concepts they had performed poorly on in the assessment. This was particularly important, he said, because more than half of them were English language learners. He said that when he taught it before, “I went through it faster and didn’t do the drawing.” But based on the results, he now used the visuals. He added, “Tomorrow I’ll have to go over the whole lab. I can see on their lab write ups if they understood.” Exemplars were posted on the bulletin boards; the teacher explained that he refers students to the board if they are not successful on the write-up.

Another science teacher at Bolsa Grande HS similarly reported that the biology team used the data from a recently administered interim assessment to create action plans for the weeks to come:

*We were talking about the two standards we have to go back and see, in terms of prokaryotic and eukaryotic types, was it the questions or was it the teaching? So we're going to go back and re-teach prokaryotic versus eukaryotic and then we'll try and bring in some sample questions to bring it back. The other biology teacher is going to redo that section and we'll maybe give the kids that section as a little sample quiz or something to see did they really understand? We'll kind of question the kids. We'll have a date. Each teacher will take a day within their time and we'll set up a time to check that.*

However, a limitation was the time available to do re-teaching of this type, especially given the district pacing plan and assessment schedule. As one teacher noted, “So when we come up with an action plan….we have to be very strategic in making sure that we can get it in within the time.”

The following text box explains how teachers in Washington HS used information from a math assessment to inform instruction in their classes.
Using a Math Assessment to Inform Instruction at Washington High School

Math teachers across Glendale UHSD, in conjunction with the curriculum coordinators, decided to create unit tests based on specific competencies, informing differentiated instruction for students. Whereas typical math tests combine problems from an entire unit without specifying the skills being targeted by each question, the tests used in Glendale UHSD group all of the problems targeting one competency. One teacher explained, “If you made it like the old school test—one through twenty-five and they’re all mixed up—you go through and you grade it and you give the kid an eighty-five percent okay, so where did he mess up? Well, he goes through and he did all those ones wrong that were all the same kind of questions. So he missed all five of those but got the other twenty right…well, when he gets to the end of the year, when he takes the district test, he’s going to get all those right and he’s going to miss all five of those again. So this way they said you can find out exactly where the kids are going to miss on that…”

The test and answer sheet presented on the next page demonstrate this teacher’s point. On the unit test, the first five questions target the first competency, which is clearly stated above the questions. Students recorded their answers for this first competency on the answer sheet, where the five questions targeting the skill are clearly grouped together. Next to the heading of the section, which states the competency targeted, students can see that if they answered all questions correctly, they receive a 100%, and if they miss one question, they receive 80%—both of which indicate mastery. However, if the student answered more than one question incorrectly, mastery was considered to be incomplete, and the student must re-take a new exam for that particular competency. In this manner, students demonstrated specific skills and abilities by achieving mastery on each skill, rather than by receiving a certain overall score on the entire unit. Teachers then collected strategic data regarding student proficiency and target remediation accordingly.
**Washington High School**

**Math Assessment**

Show all work on a separate sheet of work paper. Remember to follow the criteria for credit.

**COMPETENCY 1:**

**Properties of Special Quadrilaterals**

1. Show the relationships of special quadrilaterals by identifying where the labels Kites, Rectangles, and Squares go in the given Venn diagram.

2. TRUE OR FALSE. If FALSE, provide a counterexample. All parallelograms are quadrilaterals.

3. Given the following condition: **BOTH PAIRS OF OPPOSITE SIDES ARE CONGRUENT.** What are all special quadrilaterals that satisfy the condition?

4. Which of the following is always true?
   a. A rectangle’s diagonals bisect each other.
   b. A rectangle has complementary base angles.
   c. A rectangle has only one pair of parallel sides.
   d. A rectangle is also a square.

5. On the grid provided on your answer sheet, draw a trapezoid that has two congruent sides.

**COMPETENCY 2:**

**Properties of Special Quadrilaterals**

6. Given the following diagram:

   
   What is the $m\angle 1$ and the $m\angle 2$?

7. Given the following diagram:

   What is the value of the variable?

8. Given rhombus ABCD in the diagram below:

   What are the lengths of each side?

9. Given the isosceles trapezoid ABCD below:

   What are the lengths of each side?

10. Given the parallelogram below:

    What are the values of $x$ and $y$?
Directions: Show all work on a separate sheet of work paper.
Follow Criteria for Credit.

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[continued for each competency]

Figure 7: Washington High School Math Assessment
This skill-based assessment used by math teachers at Washington High School to target specific needs in order to differentiate instruction accordingly.
Teachers at all four schools shared their classroom assignments and assessments with us and gave multiple types of examples of how formative assessment data guided their instructional decisions. Ongoing feedback regarding student mastery allowed teachers to guide their own reflection and target areas of student weakness.

1. Using New Instructional Techniques to Reach All Students

Many teachers noted that having greater knowledge of their students’ performance levels led them to think about experimenting with new instructional strategies. Through such strategies, they attempted to address the weakness areas of different students in the classroom.

For example, an English teacher at Bolsa Grande HS noted that she employs a variety of instructional techniques to reach the diverse learning styles of students in her classes: “I do a lot of differentiating: group work, individual, graphic organizers, and overhead board just because everybody’s such a different learner.” She gave an example: “Yesterday I did an awesome hands-on assignment introducing character, which is our next chapter. The kids loved it. I’m so excited to see where this is going to take us. I brought magazine pictures and we were basically stereotyping or judging people based on the pictures [and on] their looks from the pictures. Not necessarily just the physical but digging deeper.” When asked what data drives the decisions to use particular techniques, she mentioned the state test results (but acknowledged their limitations) and also talked about observing how long it takes students to complete assignments and how they respond to particular kinds of activities. However, she also reflected back on her own learning experiences to inform her decisions about how to instruct students: “I can see the kids that are really into the graphic organizers; they need something right there physically while we’re doing something. Like today we’re going to be using our Interactive Reader which is their workbook that has stories in it that they can physically underline, write in the margins.” She believed that note taking in the workbooks would help improve students’ active engagement in the learning process and retention of the new material.

Another English teacher at Bolsa Grande HS said she used the results of the assessments to help her get a sense of the scaffolding required in particular classes. She explained that with a lower performing group she might review vocabulary words with students before the story, and she would paraphrase the story so that students knew what to expect.
Several teachers at Washington HS mentioned using “bell work” to target specific areas pinpointed by the assessment results. Bell work consisted of short questions that students answer at the beginning of class as a review of the targeted skill. One English teacher mentioned using bell work to target grammar conventions, while one Math teacher mentioned using it to go over specific outcomes that students missed during the original test and on which they were going to be retested. This technique was also used by an English teacher at YES Prep who explained that daily warm-ups at the beginning of class are “A good way to spiral back to something learned previously.”

A math teacher at North Star Academy shared how data from the interim assessment helped her to adjust her instructional delivery to include students’ explanation of their work: “Based on their first assessment that they took, I realized that we really need to work on short answers. So then I instituted the activity that Mr. Gordon and I came up with which is explaining your answers. If you can articulate that then you’ll be able to articulate your answers when you’re doing short answer questions. If you can explain what you did wrong, show all the work, then that’s going to help you when you’re actually explaining the right answer or learning how to identify the answer.”

In spite of these successes, some teachers still struggled with making decisions on the basis of data. For example, an English teacher explained the dilemma in the case of a student who needed extended time to successfully complete an assignment. Although she knew it would help him, she worried that the other students would see him as receiving preferential treatment: “Do I give him a week to do it? I don’t know.” The experience of this teacher reminds us that data do not ultimately determine how teachers deal with individual student needs. Data does give teachers a picture of student progress, but they do not tell teachers how to differentiate their instruction accordingly.

Other teachers did not necessarily find that the data led them to use diverse instructional strategies; in fact, they felt the opposite to be true. One teacher expressed that he did not engage in a reflective process, that he felt driven to do whatever was necessary to get more students to pass the state test, and that he felt that traditional techniques were most effective. He stated, “I don’t do discovery learning. I don’t do cooperative learning. I mean it’s just straight traditional lecture, do, do, analyze, evaluate, grade, hand back, immediate feedback and then we do, do, do.” One English teacher who was resistant to using data said that she does not look at data when planning for instruction: “For me, teaching is to go by your gut instinct. I’m not dealing with numbers. I’m dealing with students. I’m not teaching them for a test; I’m teaching them for college. I’m teaching them for life.” The teacher explained that “nothing that the school provides” is helpful for teaching: “It’s just using my own background as an English major, I think.”
Schools and systems tried various things to bring along teachers who were less enthusiastic about data use. In general, most leaders approached teachers with gentle nudging, hoping that something about the data use process would spark their interest. For example, as noted earlier in the report, the superintendent of Garden Grove USD was very careful to engage the support of teachers, rather than imposing mandates from above that might produce resistance. Although the district leaders had ambitious plans for what could be done with the use of data (and in educational reform more generally), they were mindful that change must happen incrementally in order to ensure teacher buy in. As the superintendent shared, “Learning new strategies and better ways to serve students takes time and it takes practice. Even the most committed teachers need time to internalize the strategies if you truly are interested in building capacity.”

So too, the principal of Bolsa Grande HS was described as a leader who gently brought others along, rather than pushing them into things. As one teacher described, “The principal is really good about saying, ‘here’s where we’re going,’ but kind of letting the teachers have a little more ownership… She’s really into doing the baby steps and letting people first volunteer. Then it kind of infuses throughout the whole campus and then even those naysayers start to say, ‘well, I’ll check it out…’” The principal herself said she looked for “leverage points” in her work with the faculty, finding entry ways into getting them on board to try new practices. As one staff member explained, “She’s really good at using teacher leaders, the department chairs, the leadership team… You know really in a lot of cases, if the principal says it, it’s going to be viewed negatively… so using other voices can be very effective.” Another teacher corroborated this, explaining that teacher leaders carried forth the principal’s initial vision for change: “The teacher leadership was able to push that forward, take that vision, and then speak those words.”

Overall, system and school leaders attempted to bring all teachers along in the process of using data to inform instruction. While we observed rather traditional instruction in quite a few classes, we also did observe some innovative uses of assessment as a vehicle to help teachers plan for instruction.
2. Creative Approaches to Remediation and Intervention

In addition to teachers using diverse instructional methods to attempt to reach all learners, most schools also capitalized on time in creative ways to enable student remediation. In general, teachers and school leaders found that such structures were essential to ensuring that students made consistent progress and did not fall through the cracks. Schools used a variety of different approaches to doing this, which are detailed below.

For example, North Star Academy changed its time structure to enable more consistent time for addressing students who needed extra support. Thursday was usually reserved for the administration of the weekly assessments. From Monday through Thursday, teachers taught for four hours and had two hours of planning time. They recently extended each day so that on Fridays, the core teachers (math and English) could pull out students who failed the test to “re-teach.” That is, teachers administered and score the assessments on either Thursday afternoon or Friday morning. They used the planning time to analyze the data and to help “students of concern.” A mass email was sent out and posted Friday morning notifying teachers which students would be placed in re-teach English and math courses for Friday. The core teachers were given Friday mornings to plan their re-teach while students took other subjects (history, science, etc). In the afternoon, (around 1 p.m.), the students attended the math and English re-teach classes. Students who passed the tests were able to participate in clubs or other enrichment activities. Students had to get 70% or more to be considered passing by the school leaders, although the teachers actually had higher standards (e.g., 75% for the math department or 80% for one of the English classes).

Moreover, the school set up homework detention from 3:30-4:30 p.m. every day. If a student did not turn in the homework assignment for a particular teacher, his or her name was added to the homework list and the student had to stay for an hour to complete that assignment. Other students who were not in the homework detention participated in other enrichment clubs such as art or music. Some teachers also required students to attend tutorials.

To address declining math scores at Washington HS, math teachers decided to implement a weekend math camp that other schools in the district had tried. Teachers designed engaging, hands-on activities to help struggling students understand real-life applications of various math skills. Additionally, teachers decided to begin looking at math across the curriculum. The principal explained, “The idea is if we can do more math across the curriculum then maybe that will also help give the kids those other situations where they say, ‘oh okay I understand that’s how to use this and why you use it.’” During our study, these initiatives were in their infancy. The principal explained that as the new activities were implemented, their effectiveness would also be assessed. For students who did not demonstrate mas-
tery in mathematics, Glendale UHSD required that remediation occur in ‘trailer’ classes, meaning that the student had to repeat and successfully complete the semester he or she failed before continuing to the next semester. To assist students in staying on track to graduation, math trailer courses were offered during the summer session during both regular summer school hours, as well as in the evenings.

Also at Washington HS, before the state-mandated test last year, the English and math departments launched a three-week review. To kick off the review, they gave students a pre-test to gauge specific skills the students needed to master. Then, the English department reorganized all of the sophomore-level classes for those three weeks by grouping students according to the skills they needed to work on. Rather than staying with their regular teacher for that entire period, students went to the class of whichever teacher was addressing that student’s weak areas. Teachers had spontaneously decided to implement this strategy on their own, and it was not certain whether it would be repeated the next year.

At Bolsa Grande HS, teachers and administrators experimented with a variety of intervention approaches, particularly for their lowest performing students. Decisions about what to do always arose from a careful look at the data. The principal explained that “every year it [the intervention classes] looked different, and it still looks different.” She added, “Every year we analyze the data on our interventions… and have been willing to tweak it, even though it drives us crazy.” One year, they modeled an intervention program after AVID, providing students with a study skills class and grouping them homogenously for all their other classes. They found the homogeneous grouping was not effective as the “students weren’t benefiting from students who had better study skills or were asking the higher-level questions,” so now the students are grouped heterogeneously but receive 1:1 or 2:1 mentoring. For students who lack basic skills, support classes are offered alongside content classes, such as English accompanied by a read/write class, and math with a lab. This change was made after consulting data on class grades, test scores, and behavioral indicators. Consulting all these sources of data was seen as important because “low GPA can mean low skill or low motivation, and the two needs are very different,” explained the principal.

As these examples reveal, teachers and administrators used diverse approaches for meeting the needs of struggling students. These included short-term remediation activities as well as longer term strategic interventions.
5. How High School Organization Impacts Data Use
This study uncovered multiple ways that the high school context influenced the use of data. Unlike at the elementary level, students in secondary schools have one teacher for each subject—often five or six teachers per day—resulting in students receiving input from various adult sources, and in teachers being responsible for large numbers of students. Departmental cultures, the use of time for collaboration, and the general pressures of high school teaching also impacted data use, and are explained in more detail below.

A. **Departmental Culture**

Teacher acculturation occurs at the high school level within the context of the content area department, and each department we observed had a distinct culture. Departmental culture reflected not only the variety of teachers’ personalities, but also the content area itself, and was nested within school-wide influences. While we cannot make definitive statements about how departmental culture affects data use, we can describe various examples of how departmental influences impacted teachers.

In one case, we observed a strongly united mathematics department in which teachers had chosen to standardize curriculum, homework, and examinations. While the district encouraged and facilitated teacher collaboration across the district, it did not mandate specific implementation of curricular scope and sequence. Nevertheless, this particular department chose to do so, and all of the teachers we interviewed from the department expressed pride and a sense of accomplishment in departmental unity. One teacher stated, “Well, data-wise, I think overall the math department would be the number one data-driven curriculum on campus for sure…I mean there’s no curriculum that does what we’re doing.” District supports did empowered the department to align curriculum, as the district facilitated the creation of common, outcomes-based assessments for each unit of both freshman and sophomore-level courses.

**KEY POINTS**

- High school departmental cultures influenced how data were used, with some departments embracing data use more than others.
- Structured, departmental and/or course-alike time for collaboration was essential for teachers to engage in data discussions.
- In contrast to their elementary or middle school counterparts, high school teachers faced considerable pressure preparing students for high school exit exams, helping them pass classes so they could graduate, and ensuring that they did not drop out of school.
The cohesive nature of this math department may have resulted from the technical approach with which math is often taught. The subject itself is often viewed as a series of tasks or skills that students have to master, and the teacher’s role is to encourage student mastery of those specific skills. Conversely, the relative importance of skills and abilities in subjects like English and Social Studies was much more contested. One social studies teacher commented, “Social studies is one of those enigmas, you know every social studies teacher wants to teach something just a little differently…so it’s kind of difficult to get everybody going in the same direction.”

When content coverage was the source of debate, departments seemed to have an easier time finding common ground when teachers actively participated in determining what would be taught and how. Teachers consistently expressed appreciation when districts consulted them regarding curriculum and assessment. They contrasted their positive experiences with colleagues in other districts who were handed mandated programs and told to implement them without having participated in the creation of those programs. Regarding just such a situation, one teacher stated:

*I have colleagues in other districts where it’s just handed to them and said “this is your test and this is what we’ve purchased” or “this is what we believe is right and then you’re going to go ahead and give that assessment.” Sometimes those are not always valid assessments and they don’t always work within the school that you’re working with and the district you’re working with.*

Where disagreement regarding curricular cohesion abounded, districts and schools mitigated conflict by emphasizing teacher autonomy and professionalism within departments.
While individual departments have taken steps toward vertical, as well as lateral, curricular alignment in order to improve student achievement, cohesiveness between departments may not have been so positively affected. District and school administrators were thus faced with the challenge not only of working with the entire population of teachers, but with teachers who belonged to departments that had their own unique dynamics. In trying to forge cohesive plans regarding data use and improving student achievement, school leaders faced the exasperation of teachers like this one, who are working hard just to do an effective job teaching their own content area: “I mean, it’s tough enough just to teach math, we can’t really worry about teaching reading or other things in our curriculum. So we’re hoping everybody else is taking care of their business.” Unlike in elementary schools where teachers are not nested within departments, high school leaders must negotiate the unique interplay between content areas in order to implement effective data use.

B. Structures for Collaboration

All schools also capitalized on the high school structure to provide a common collaboration time for teachers to look at their data and share best practices. The organization of the high school curriculum allowed for this, as the elaborate master schedule and size often allowed teacher preparation periods to be scheduled in common. North Star Academy was the exception in that instead of meeting strictly with other teachers, interim analysis was conducted with a group of administrators and the teacher.

Time for collaboration was seen as essential for many teachers. In fact, when asked about the strength of his school in using data, an English teacher at North Star Academy commented:

*I would say in using the data I think that it’s actually allowing teachers to have these conversations and giving us the time and the structure to have conversations around, not just what the data says but how are we going to address it? What are we going to do teaching wise to change it? I think that they do a really good job of giving us a lot of feedback, frequent meetings because they’re always coming through and observing. It’s not just like every six weeks we’re going to sit down and find out where your students are bombing. Like I noticed in class that when Jasmine was writing she totally missed the main idea of that article and what are you going to do to address that? Again like there are the systems and structures in place that allow us all to have the time to talk about and work together on this.*
He further added that the department chair currently observed him once a week and, as a follow up, they then discussed ways to improve his instruction.

At Bolsa Grande HS, grade-level teams met by subject every two weeks for data discussions. Having the ability to bank time to meet this often was considered a major coup by school staff, who credited the district for making it happen. This collaboration was new this year, as in the past teachers had to meet on their own time at lunch or after school. These meetings took place on Wednesdays from 7:30–9:00 a.m. Students arrived at school at 9:30, allowing the teachers 30 minutes from the end of the meeting to the beginning of instruction. Building in this transition time was seen as important by school administrators who didn't want teachers to feel rushed and thus tempted to use data discussion time for class preparation.

Teachers at Bolsa Grande HS met in course-alike groups for these data discussions (e.g., all teachers of English met together); most teachers attended more than one, roaming between groups. The data discussion meetings were used for the examination of data arising from the benchmark or quarterly assessments, as well as for rewriting test items and joint instructional planning. One teacher explicitly stated that the expected outcome of the data discussion was “modification of instruction.” In principle, every other meeting is devoted to data analysis and the alternate meetings are for action planning. “I love our collaboration time,” said one English teacher, noting that “we’ve hit upon the right amount of time” for collaboration. The teachers in the science department also felt that the collaboration time provided was ample, and that if they wished for more, they imagined the principal would be willing to provide it.
At Bolsa Grande HS, teachers individually completed a form analyzing their interim assessment data before they met in teams to share results. As one teacher explained, during their data discussions, they address questions including: “What did the majority of students do well on? Do you have an explanation for that? What strategies did you use? What level of Bloom’s [was that]?” The teachers also carefully examined the assessment itself, asking questions such as “How was this question worded? Do these kids know what the words in the question mean?” This was important, he believed, in order to assess, “Is it poor reading skills? Or is it a lack of…linguistic background?”

Of course it was critically important that teachers approached such tasks in an authentic way, rather than simply completing the form for accountability purposes. Engaging in critical dialogue and reflection as part of the data discussion was essential in order for the desired outcomes to be achieved.

A copy of the form used at Bolsa Grande HS appears on the next page, followed by copies of the reflection and planning tools used by YES Prep, North Star Academy and Washington HS teachers. In the first two cases, there was a form that teachers completed individually and the second was done by teachers when they got together in departmental groups.
Bolsa Grande High School
Benchmark Reflection Protocol

Part 1
To be completed before coming to reflection meeting

Teacher ____________________________________________
Course ____________________________________________
Assessment or Unit of Study __________________________
Date ______________________________________________

A. Reflection on Curriculum, Assessment, and Instruction

1. What standards were taught and assessed?
   _____________________________________________
   _____________________________________________
   _____________________________________________

2. What level of cognition do these standards require students to use? (Look at the verb stated in the standard then refer to Bloom’s Taxonomy on the back of this sheet).
   □ Knowledge [ Lowest ]
   □ Comprehension
   □ Application
   □ Analysis
   □ Synthesis
   □ Evaluation [ Highest ]

3. What strategies were used to teach these standards?
   _____________________________________________
   _____________________________________________
   _____________________________________________

4. What opportunities, besides the benchmark, were students given to demonstrate mastery of these standards (graded homework can be considered here)?
   _____________________________________________
   _____________________________________________
   _____________________________________________

B. On-the-Surface Benchmark Analysis

5. Which question(s) did all/most of my students answer correctly? __________________________
   _____________________________________________
   _____________________________________________
   _____________________________________________

6. Which question(s) did all/most of my students NOT answer correctly? __________________________
   _____________________________________________
   _____________________________________________
   _____________________________________________

7. Which standard(s) were all/most of my students proficient in? __________________________
   _____________________________________________
   _____________________________________________
   _____________________________________________

8. Which standard(s) were all/most of my students NOT proficient in? __________________________
   _____________________________________________
   _____________________________________________
   _____________________________________________

C. Under-the-Surface Benchmark Analysis

9. Did certain class periods of mine outperform others? Possible causes?
   □ 0 per __________________________
   □ 1 per __________________________
   □ 2 per __________________________
   □ 3 per __________________________
   □ 4 per __________________________
   □ 5 per __________________________
   □ 6 per __________________________
Part 2 — To be completed as a course-alike group

Teacher: _____________________________ Course: _____________________________
Date: _____________________________ Assessment or Unit of Study: _____________________________

D. Under-the-Surface Benchmark Analysis
  10. Which question(s)/standard(s) did all or most of our students do well on? _____________________________
  11. Which question(s)/standard(s) did all or most of our students NOT do well on? _____________________________
  12. Did certain classrooms outperform others? If so, which ones? _____________________________

E. Exploring Root Causes (successful items):
  13. Which strategies proved to be effective across all classrooms? _____________________________

F. Exploring Root Causes (unsuccessful items):
  14. Which strategies did not yield the expected or desired results? _____________________________
  15. Did the strategies align with the level of cognition of the standard? If not, what could be changed in order to align them? ☐ Yes ☐ No _____________________________

G. Data-Driven Decision Making
  16. Which standard(s) do students still need support in mastering, which future lessons can these standards be incorporated into, what strategies will provide the best opportunity for students to be successful, and how will they be assessed?

<table>
<thead>
<tr>
<th>Standard</th>
<th>Future Lesson</th>
<th>Strategies</th>
<th>Assessment(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tr>
</tbody>
</table>

H. Solutions
  17. Who will develop new or modified activities/strategies or assessments (Mid-Qtr only)?

What needs revision? Who will revise it? When will revisions be made?
☐ Test question #s _____________________________ _____________________________ _____________________________
☐ Add questions _____________________________ _____________________________ _____________________________
☐ Activity _____________________________ _____________________________ _____________________________
☐ Strategy _____________________________ _____________________________ _____________________________
☐ Other _____________________________ _____________________________ _____________________________

☐ Test question #s _____________________________ _____________________________ _____________________________
☐ Add questions _____________________________ _____________________________ _____________________________
☐ Activity _____________________________ _____________________________ _____________________________
☐ Strategy _____________________________ _____________________________ _____________________________
☐ Other _____________________________ _____________________________ _____________________________
Reflecting on the Data
1. Which of the objectives are the majority of the class mastering at this point?

2. Which of the objectives have less than half of the students mastered at this point?

3. Which students are you particularly worried about?

4. Which students have mastered everything?

5. Are there any other trends or patterns that stand out to you? Surprises or outliers?

Action Plan
List each objective you need to address and what approach you’re going to use so that all students have an opportunity to master it

Obj:  Plan of Action:

Obj:  Plan of Action:

Obj:  Plan of Action:

Obj:  Plan of Action:

Obj:  Plan of Action:

Obj:  Plan of Action:

Obj:  Plan of Action:

Obj:  Plan of Action:
Follow-up
(to be filled out after midterm exams are over and 1st quarter grades are finalized)

Obj: ____________________________  Reflection: ____________________________

Obj: ____________________________  Reflection: ____________________________

Obj: ____________________________  Reflection: ____________________________

Obj: ____________________________  Reflection: ____________________________

Obj: ____________________________  Reflection: ____________________________

Obj: ____________________________  Reflection: ____________________________
North Star

General Thoughts & Reflections on your use of data this quarter:

Results Meeting Format (55 minutes):
- IDENTIFY ROLES: timer, facilitator, recorder (2 min)
- IDENTIFY OBJECTIVE to focus on (2 min or given)
- WHAT WORKED SO FAR (5 min) [Or: What teaching strategies did you try so far]
- CHIEF CHALLENGES (5 min)
- BRAINSTORM proposed solutions (10 min)
- REFLECTION: feasibility of each idea (5 min)
- CONSENSUS around best actions (15 min)
- PUT ON CALENDAR: when will the tasks happen? When will the teaching happen? (10 min)

Brainstorming Protocol
- Go in order around the circle: each person has 30 seconds to share a proposal
- If you don’t have an idea, say “Pass”
- No judgments should be made; if you like the idea, when it’s your turn simply say, “I would like to add to that idea by…”
- Even if 4-5 people pass in a row, keep going for the full brainstorming time.

Reflection Protocol
- 1 minute—personal/individual reflection on the list: what is doable and what isn’t for each person
- Go in order around the circle once: depending on size of group each person has 30-60 seconds to share their reflections
- If a person doesn’t have a thought to share, say “Pass” and come back to that person later.
- No judgments should be made

Consensus/Action Plan Protocol
- ID key actions from brainstorming that everyone will agree to implement
  > Make actions as specific as possible within the limited time
- ID key student/teacher guides or tasks needed to be done to be ready to teach
  > Identify WHO will do each task
  > Identify WHEN each task will be done
- Put date for re-teaching on CALENDAR
- Spend remaining time developing concrete elements of lesson plan:
  > Do Now’s
  > Teacher guides (e.g., what questions to ask the students or how to structure the activity)
  > Student guides
  > HW, etc.
**Washington High School**  
**Program Improvement Plan**  
2007-2008 School Year

Content Team: ___________________________  Team Members: ___________________________
Team Leader: ___________________________

**Analysis of Data from 2006-2007 School Year**
1. As a team review your content specific data, AIMS data and TerraNova data.
2. Fill in the charts below.
3. Answer the questions and develop team commitments.
4. Turn in one copy per content team to [site administrator] no later than Friday, August 10th.

<table>
<thead>
<tr>
<th>DATA SOURCE</th>
<th>Areas of Commendation</th>
<th>1. Description of team practices that led to achievement in each area</th>
</tr>
</thead>
<tbody>
<tr>
<td>(i.e. PBA)</td>
<td></td>
<td>2. Why you believe the practice led to success</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DATA SOURCE</th>
<th>Areas of Refinement</th>
<th>1. Description of team practices that led to achievement in each area</th>
</tr>
</thead>
<tbody>
<tr>
<td>(i.e. PBA)</td>
<td></td>
<td>2. Evidence/research that supports this assumption</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Complete the following on a separate sheet of paper:**
1. Use the chart above to development team agreements.
   a. Each member of the team must commit to carrying out these agreements
   b. Consensus must be reached
      i. An example of a team agreement might be—We commit to emphasizing higher-order thinking through open-ended questions, argument, inquiry and reasoning (two-thirds of class time). Whenever there are obstacles to teaching higher-order thinking, we will work as a team to overcome these obstacles.
2. List any support that your team will need in order to carry out these commitments.
   a. Think about: Administrative support, curriculum coordinator support, team/department support, parent/student support
   b. Additional training
   c. Supplies or equipment (include rationale)
3. Describe how you believe these commitments will improve teaching and learning on Washington High School’s campus.
   a. Expected end result—
      i. i.e. “We predict that the percent of students successful on the ______ will increase by ______ %.
   b. As an administrator, how will I know that your team has met with success?
      i. Test scores? Anecdotal evidence? Project outcomes?
C. The Unique Pressures of High School Teaching and Assessment

The fact that they were teaching high school (rather than elementary) affected teachers’ perceptions of their role in improving student achievement through the use of assessment data. Several teachers pointed out that all departments did not share an equal burden for student achievement. While several administrators expressed that the school as a whole shared the responsibility for all data results, state-level assessments did not reflect equal importance across subject areas. In all four states in the study, state assessments included math and English. Two states included science, and a third was piloting a science component. Only one state included social science. The inclusion or exclusion of a subject area in high stakes testing influenced the urgency that departments felt to use data and increase students’ scores.

Moreover, one English teacher at Washington HS spoke about the pressure he felt to prepare students to pass the state high school exam. Students cannot graduate if they do not pass. This exam includes English, math, and writing. He stated:

*I feel a tremendous responsibility for what I do, so much so that two years ago I had chest pains. If you’re a fine arts teacher it doesn’t matter. If you’re a history teacher it doesn’t matter. It’s only math and English. There are three components to that test and we’re responsible for two of them.*

Thus, one unintended effect of the accountability movement is the unequal distribution of responsibility for success—an effect that uniquely impacts educators at the secondary level. Conversely, departments not included in statewide assessments may receive fewer resources and may be required to weave components of other curriculums into their own, even when there is little obvious fit between the two.
Despite varying departmental demands regarding state tests, there were pressures that all responsive high school teachers faced. Teachers explained that at this stage in a student’s education, they often experienced the consequences for their low achievement for the very first time. Several teachers mentioned that students took high school exit examinations seriously because they realized that they would not graduate if they did not pass. Similarly, at this stage, if a student failed a class, the student had to take the class again and fall behind their peers. Grades and scores counted in ways that they had not up until this point. For example, an art teacher recounted that a football player was shocked to learn that he could not play on the team if he failed her class, even though, as he put it, “it’s just art!” The high stakes of schooling became real for high school students, just as they became old enough to legally opt out of formal education. Additionally, for low-income students of color, as they became old enough to work, financial pressures weighed just as heavily as academics. For all of these reasons, high school personnel had to concern themselves with the risk of students dropping out of school. Teachers and administrators spoke of the need to mentor and target students deemed at risk of dropping out, and often used data as one measure for determining who these students were.
6.

Outstanding needs and areas for development for better data-driven practice
Although the educators in these sites were, by and large, pleased with the results of using data to inform instruction, they noted several challenges and areas for the development of better data-driven practice.

A. Narrowing of the Curriculum

One primary concern was the narrowing of the curriculum that occurred as a result of an extreme focus on preparing students for tests. This was mentioned by many teachers, across all four sites, who expressed concerns about the over-reliance on assessments linked to the state standards and the fact that students were being tested too often. One teacher lamented, “Kids just feel like it’s test, test, test, test.”

Moreover, what was measured on these tests shaped what happened in the classroom. For example, in the case of the social studies department at Washington HS, they used document based questions (DBQs) at the end of each unit and Bloom’s Taxonomy to determine the level of thinking required for each DBQ. According to the department chair, the DBQs worked well in assessing student knowledge and challenging them to use higher order thinking skills. However, if the state were to implement a multiple choice assessment in social studies, he foresaw that DBQs would take a backseat to the new exam. Another teacher keenly stated, “…through a cynical eye we’re teaching to the test. Through your research we’re using data to improve student achievement.” Other teachers also mentioned how their subject areas were influenced by the drive to emphasize math, reading, and writing only. One performing arts teacher explained:

_No Child Left Behind… the focus isn’t always what’s best for the student and what’s best for that particular curriculum. I say that because… writing was—I don’t want to use the word pushed, but I will—into our performance-based assessment whereas I don’t think you can get more performance-based than a music performance. A music performance is not… so for our performance-based assessment they have to write a paper. So the good writers are not necessarily the good performers who do well on—it’s the same exact thing [as the PE teacher described]. That was again, as the district as a whole is looking at reading and writing scores, that’s where that came from, you know the whole reading and writing across the curriculum. The data supports that that is the best way to raise those scores and so yeah I can see where they came up with that. But being an elective teacher or being a PE teacher you know it’s kind of interesting._
Moreover, while teachers and administrators at all four schools expressed the desire for students to achieve at high levels, graduate, and be college-ready, the skills measured by specific assessments did not always serve this end. This suggests the need to use caution when using data from assessments to inform instruction. A school or system might successfully inculcate certain system-wide practices and behaviors, but if members of the institution stop questioning those practices, even the most efficient data-driven decisions may not accomplish their ultimate goals.

B. **Focusing on the “Bubble Kids”**

An additional unintended consequence of tightly coupled data-driven systems that we observed was the tendency to focus efforts on students who were achieving just below the predetermined standard of success. This concern was expressed by numerous teachers, and they grappled with it in different ways. One English teacher’s comments best summarized this dilemma, “Honestly, I’m so busy I don’t care if they’re passing and doing well…we have a phrase, ‘Above the Mark’…what is unfortunate is I really don’t care about excelling students. I don’t have time to. I’m always teaching to the middle and just that—not even the middle, but just that passing mark and bringing kids above that passing mark.” This teacher went on to say that the pressure he felt to get students over this bar has resulted in the limiting of his instructional techniques as well. He described doing a lot of direct instruction and having eliminated cooperative learning and group work from his class entirely. While such practices may result in greater numbers of students achieving ‘above the mark,’ they inadvertently compromised the overarching purpose of data-driven practice. Teachers felt as though the requirements of NCLB pushed them into this dilemma, as schools were rewarded for the students that qualified as “proficient,” but not for bringing students up from below basic to basic, though this obviously needed to happen first. A principal at another school also discussed interventions for students “on the bubble.” She explained that counselors targeted students who were on the verge of testing as proficient to discuss their progress and ensure proper class placement. While this was a useful strategy, the staff of course had to make sure to also equally address the needs of students in other performance bands as well.
C. Problems with Technology and Data Literacy

In some cases, teachers faced barriers with the technology of the information management systems or in making sense of the reports they received from them. For example, one teacher encountered difficulties in simply logging on to the information management system and noted the key challenges for the school’s use of data as mechanical ones related to the platform: “Getting the program to work, to be accessible, to get it updated, and getting it so that every teacher’s on there.” One teacher argued that the young teachers are a bit more apt to use data because they are more familiar with technology: “If you’re having a hard time just logging on, that can be overwhelming!” Another teacher, who actually appeared to be quite comfortable with the whole process of data-driven decision making lamented, “To be quite honest, you have to be a statistician to go through some of the data unless you’ve actually had training in it.” She added that the grade-level chairs were supposed to be “expert” and “explain what it means to all of us,” but it didn’t always work well. She said that math teachers knew how to read the results, but she, as an English teacher, sometimes found them hard to decipher.
D. Articulation with Middle Schools and Institutions of Higher Education

The articulation between middle school and high school (and even high school and college) was mentioned as challenging because the organizations were separate and did not readily share information. For example, Glendale UHSD wished they had SRI test scores for all entering freshman, but they had no control and little influence on whether the elementary district tested the students and passed along accurate scores. The state was pushing for the unification of Glendale UHSD with its two feeder districts, but the district would lose money, teacher salaries would be frozen, and the hard-earned shared vision surrounding data use could be jeopardized. Hence, there were obvious pros and cons.

Garden Grove USD was a unified district and thus was able to track students’ achievement from kindergarten through twelfth grade. However, the system faced similar articulation difficulties when attempting to connect with institutions of higher education, in particular community colleges. District administrators wished for unique state-level student identifiers that would enable them to follow their students’ progress after they left high school. They did not have accurate data on students post-high school trajectories, and this somewhat limited their ability to help students prepare for them while in high school.
CONCLUSION

Implications and Recommendations

The findings of this study yield important lessons for educators, policymakers, researchers, and others concerned with education. The “Key Points” sections throughout the text of the report reflect these lessons, which we summarize below.

First, in terms of combining top-down and bottom-up approaches to build a foundation for data-driven decision making, the critical actions include:

- Combining top-down support from the system level as well as flexibility for bottom-up innovation at the site level.
- Setting goals that both expect the students to reach high standards and have access to college.
- Establishing a culture of trust and collaboration around data use, as well as creating a clear expectation that decisions will be made on the basis of data.
- Investing in user-friendly information management systems to enable teachers to access student data, and employing personnel at the system and school levels who can assist teachers in the use of these systems.
- Providing professional development for teachers, networking for schools, and structural supports to high schools.

Second, in using data to inform understandings of student learning, the key actions include:

- Relying on a broad variety of data sources, including standardized assessments, placement data, benchmarks, observational data, and other sources at the system and school levels.
- Teachers using frequent, informal assessments to guide their instruction, as well as using benchmark assessments to help gauge students’ progress towards the standards and adjust content and methods accordingly.
- Broadly defining what “data” means in order to lead to a more complex definition of learning goals.
- Recognizing that assessment data help schools and systems assess students’ general progress as well as their specific progress towards state standards. However, there are affective elements about students’ educational experiences that are not captured in these data. Building relationships with students is critical to help address these elements.
Third, with respect to student engagement, important actions include:

- Gathering and analyzing data on the extent of student engagement to use as a tool for improving students’ involvement in their own learning.
- Sharing assessment data with students to enhance students’ ownership of their goals and plans for improvement.

Fourth, with respect to making instructional improvement a central focus, the following actions are needed:

- School leaders and department chairs playing a key role in observing instruction on a continuous basis and assisting teachers in becoming reflective and using data to inform their teaching. System-level instructional coaches can also play a key role in helping teachers improve their practice.
- Using a combination of informal and formal assessments to guide teacher practice and action planning.
- Using a variety of instructional techniques, including group work, whiteboards, and activities at the beginning and end of class, to attempt to reach all learners.
- Implementing creative methods to provide time for student remediation, including alternative programming and flexible scheduling.

Fifth, regarding how the organization of the high school impacts data use, the following actions would be useful:

- Recognizing that high school departmental cultures influence how data are used, with some departments embracing data use more than others. Leaders can identify and leverage departmental subcultures that are both facilitators and inhibitors to data use and work with them accordingly in order to bring them along.
- Scheduling time for teacher collaboration within department and course-alike groups, which allows teachers to discuss data and action plan together.
- Realizing that high school teaching provides extra pressure for teachers in particular subjects who must prepare students to pass state high school exit exams and providing support accordingly.
The strategies discussed in this report help to lay the groundwork for future studies in the area of secondary schools engaged in data-driven decision making. Although this study uncovered some important insights as to how data is used to inform instruction, additional research still needs to capture what data-driven decision making looks like at the classroom level. We were only able to conduct limited classroom observations in this study. A future study might focus on observing several classrooms in depth over a long period of time in order to see how the teaching of an entire unit might be influenced by the use of informal and formal assessments.

Second, it would be useful to get a better sense of how teachers’ levels of data literacy inform their instructional planning. Our sense from observing teachers’ discussions about data led us to believe that there is a wide range in teachers’ knowledge about what the data mean and how to accurately make sense of them. Future studies might examine the extent to which teachers can actually understand and use data. An experimental study could even randomly assign teachers to data literacy training and evaluate the consequent impact on their instruction.

Finally, additional research needs to focus on professional development that may be useful to assist teachers in using data and in changing their instructional methods accordingly. Teachers still struggle to find the strategies that would be most useful to address gaps in student learning. A study of best practices in this area would be illuminating, as would an in depth look at what types of strategies best help teachers meet the diverse needs of learners, both within their classroom and in intervention settings.

These types of studies would be useful in helping us identify best practices in terms of data-driven decision making at the high school level.
REFERENCES


APPENDIX

Overview of Student Achievement Results

Each state reports student achievement results differently, and thus we include a narrative accompanying a table reporting the results for each school in our study.

Bolsa Grande High School (Garden Grove Unified School District)
California tests students in grades 2 through 11. Besides the California Standards Tests (CSTs) and the California Achievement Test (CAT/6), high schools students are also expected to pass the California High School Exit Examination (CAHSEE) in order to graduate. The CAHSEE is based on the California's academic standards and is typically administered to all students in the 10th grade.

Results of the CAHSEE for 2006-07
Source: CA Department of Education

<table>
<thead>
<tr>
<th>Subject</th>
<th>School</th>
<th>District</th>
<th>State</th>
</tr>
</thead>
<tbody>
<tr>
<td>English Language Arts</td>
<td>82%</td>
<td>81%</td>
<td>77%</td>
</tr>
<tr>
<td>Math</td>
<td>84%</td>
<td>84%</td>
<td>76%</td>
</tr>
</tbody>
</table>

Washington High School (Glendale UHSD Unified High School District)
The state test on which high schools are rated is Arizona’s Instrument to Measure Standards (AIMS). The AIMS HS (High School) test is given to all 10th grade students in the spring of each academic year. It assesses student learning in the areas of reading, writing, and mathematics. Once a student demonstrates mastery in each area, the student has passed the test and does not have to re-test. Students who do not demonstrate mastery in each area have opportunities to re-test twice yearly. Passing every section of the AIMS HS is required to receive an Arizona high school diploma.

Results of the AIMS for 2006-07
Source: AZ Department of Education

<table>
<thead>
<tr>
<th>Subject</th>
<th>School</th>
<th>District</th>
<th>State</th>
</tr>
</thead>
<tbody>
<tr>
<td>English Language Arts</td>
<td>77%</td>
<td>78%</td>
<td>74%</td>
</tr>
<tr>
<td>Writing</td>
<td>85%</td>
<td>86%</td>
<td>74%</td>
</tr>
<tr>
<td>Math</td>
<td>81%</td>
<td>78%</td>
<td>78%</td>
</tr>
</tbody>
</table>
**YES Prep—Southwest Campus** *(YES Prep Charter Management Organization)*  
Texas administers a standards-based test, known as the Texas Assessment of Knowledge and Skills (TAKS), from grades 3 through 11 on subjects ranging from reading, writing, English language arts, math, science, and social studies. As a graduation requirement, students must pass the 11th grade Exit Level TAKS.

Results of the 11th Grade Exit Level TAKS for 2006-07  
*Source: TX Department of Education*

<table>
<thead>
<tr>
<th>Subject</th>
<th>School</th>
<th>State</th>
</tr>
</thead>
<tbody>
<tr>
<td>English Language Arts</td>
<td>99%</td>
<td>90%</td>
</tr>
<tr>
<td>Math</td>
<td>98%</td>
<td>80%</td>
</tr>
<tr>
<td>Science</td>
<td>94%</td>
<td>77%</td>
</tr>
<tr>
<td>Social Studies</td>
<td>99%</td>
<td>94%</td>
</tr>
</tbody>
</table>

**North Star Academy** *(North Star Academy Charter School Management)*  
New Jersey currently administers standards-based tests at grades 3, 4, 5, 6, 7, 8, and 11. Students in the elementary school levels take New Jersey Assessment of Skills and Knowledge (NJASK) for language arts, math, and science. Middle school students have to pass the GEPA (Grade Eight Proficiency Assessment) in language arts, math, and science. In grade eleven, students must take the High School Proficiency Assessment (HSPA) that tests language arts literacy and mathematics.

Results of the HSPA for 2006-07  
*Source: NJ Department of Education*

<table>
<thead>
<tr>
<th>Subject</th>
<th>School</th>
<th>State</th>
</tr>
</thead>
<tbody>
<tr>
<td>Language Arts Literacy</td>
<td>96%</td>
<td>85%</td>
</tr>
<tr>
<td>Math</td>
<td>86%</td>
<td>73%</td>
</tr>
<tr>
<td>Science</td>
<td>75%</td>
<td>73%</td>
</tr>
</tbody>
</table>
The Center on Educational Governance (CEG) at USC focuses on the linkages between policy, educational governance, and the improvement of urban schools and systems. Center researchers use an interdisciplinary approach to study current policy solutions to the educational issues posed by diverse urban communities – locally, nationally and globally. The main activities of the center are: (i) engaging in rigorous quantitative and qualitative research studies of policy problems; (2) building a knowledge base to provide researchers, educators, parents and policy makers with new tools and strategies for improvement; and, (3) working in partnership with educators and policy makers to use research to improve policy and practice.

The Center on Educational Governance is an interdisciplinary research center that unites faculty from across USC, including the Rossier School of Education, the Marshall School of Business, and the School of Policy, Planning, and Development. The Center is under the direction of Priscilla Wohlstetter. For additional information about the Center on Educational Governance, please visit http://www.usc.edu/dept/education/cegov/.

NewSchools Venture Fund is a venture philanthropy firm founded in 1998 that is working to transform public education for underserved children by supporting education entrepreneurs and connecting their work to systems change. Through its first two funds, NewSchools has invested more than $125 million in 30 for-profit and nonprofit entrepreneurial organizations that have made a measurable difference in the lives of millions of students across the country. Its third fund focuses on fueling the growth and quality of the charter school movement and on supporting the people, tools and practices needed for public school systems to become performance-driven organizations. For additional information about NewSchools, please visit http://www.newschools.org.