The Achievement Gap Initiative

at Harvard University

HOW HIGH SCHOOLS BECOME EXEMPLARY

WAYS THAT LEADERSHIP RAISES
ACHIEVEMENT AND NARROWS GAPS
BY IMPROVING INSTRUCTION
IN 15 PUBLIC HIGH SCHOOLS

2009 CONFERENCE REPORT

TOWARD EXCELLENCE WITH EQUITY

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2009 AGI Conference Report

The Achievement Gap Initiative (AGI) at Harvard University is a University-wide endeavor based at the Harvard Graduate School of Education and the Malcolm Wiener Center for Social Policy at the Harvard Kennedy School. Its purpose is to focus academic research, public education, and innovative outreach activities on a critically important national challenge.

The AGI is creating important new mechanisms for bridging between universities and schools, enabling greater communication and cooperation not only among concerned researchers, but also between researchers and education practitioners who grapple with challenges every day in their classrooms. The AGI also seeks to engage organizations that work directly with children and families outside school hours.

The AGI includes roughly two dozen researchers from Harvard and a network of colleagues from other institutions, who aim together to accelerate the accumulation of "usable knowledge" and to bring that knowledge to bear on raising achievement among children of *all* racial and ethnic backgrounds, with a special emphasis on reducing racial and ethnic disparities in the United States. More than one hundred presentations by AGI researchers and colleagues at AGI events since 2005 are available online in the AGI video library for public viewing at http://www.agi.harvard.edu.

Laboring in a multitude of roles, sharing our energies and insights, together we have an opportunity, indeed, a responsibility, to make a difference to many future generations of Americans. Our nation's future can brighten even as its complexion darkens, but only if we accept this urgent responsibility to raise achievement levels among all children while also narrowing gaps.

We look forward to sharing this responsibility with you.

ACKNOWLEDGMENTS

ABSTRACT

This report features 15 outstanding public high schools from Massachusetts, Illinois, Ohio, Maryland, Texas and Washington, DC. All were featured at the Fifth Annual Conference of the Achievement Gap Initiative at Harvard University in June of 2009. The Massachusetts schools had unusually high value -added test score gains on the Massachusetts Comprehensive Assessment System (MCAS) from 8th to 10th grade. In addition, they had recently narrowed test score gaps between each of their racial/ethnic groups and white students in the rest of the state. Schools from the other states were highly recommended by experts. They too came with evidence of impressive achievement. At the conference, teams from each of the schools made brief presentations and then faced extensive questioning from experts about the methods by which they achieved such outstanding progress.

The main lesson from the presentations was that student achievement rose when leadership teams focused thoughtfully and relentlessly on improving the quality of instruction. Core groups of leaders took public responsibility for leading the charge to raise achievement. Stakeholders crafted mission statements that later helped keep them on track; planned carefully, sometimes with outside assistance, for how they would organize learning experiences for teachers; clearly defined criteria for high quality teaching and student work; and implemented in ways that engaged their whole faculties. As they implemented their plans, these schools carefully monitored both student and teacher work in order to continuously refine their approaches.

Leadership teams succeeded initially because they used their positional authority effectively to jump-start the change process. Then they built trust. More specifically, they demonstrated commitment through hard work and long hours; they studied research-based literature to expand their knowledge and competence; they persevered to follow through on the promises they made; and they found ways to remain respectful of peers, even when asking them to improve their performance. In these ways, leadership teams earned the respect of their colleagues and the authority to push people outside their comfort zones. With cultivated competence and earned authority, they were able to help their colleagues overcome the types of fear and resistance that so often prevent effective reforms in American high schools. All these schools remain works in progress, but they are not typical. Their stories convey critically important principles, processes, and practices that can help high schools across the nation raise achievement and close gaps.

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1. INTRODUCTION: HOW HIGH SCHOOLS BECOME EXEMPLARY

RONALD F. FERGUSON, AGI FACULTY CO-CHAIR AND DIRECTOR

In early 2009, the Achievement Gap Initiative (AGI) at Harvard University identified fifteen high schools with unusually strong evidence of student learning as measured by gains on standardized state exams. The schools had improved over a period of years. Most were racially and socioeconomically diverse. The AGI invited leaders of the identified schools to a two-day conference in June of 2009 to explain how their schools achieved such outstanding results.[1] This report, *How High Schools Become Exemplary*, reviews and summarizes the presentations. The featured schools come from Massachusetts, Ohio, Illinois, Maryland, Texas, and Washington, DC. Each chapter here details how leaders engaged other adults in successful efforts to improve learning outcomes. The central theme is that schools improved performance by striving relentlessly to improve instruction.

Located at the boundary between adolescence and adulthood, high schools are critically important institutions. Unfortunately, they are the most stubborn part of the K–12 system to reform—the most impervious to change.[2] In his recent book, *So Much Reform, So Little Change*, Charles Payne discusses the difficulty of reforming elementary schools and then comments that "The problems of elementary schools are exacerbated in high schools."[3] High schools tend to be fragmented organizations in which order is sometimes challenging to maintain and where responsibility for improving instruction resides mainly in isolated academic departments and classrooms. Principals are often distracted by crises. Many defer routinely to the subject-matter expertise of department leaders, seldom interfering with how departments monitor, evaluate, or attempt to improve teaching and learning.

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1. *Official reports issued on state websites since the conference indicate that 13 of the 15 schools have clearly sustained the type of performance that led the AGI to invite their participation. The most recently available results for the two Texas schools are more mixed, but their conference presentations demonstrated that these too are special schools, still worthy of inclusion in this report.*

2. *See, for example, Cuban (1984) and Evans (2003).*

3. *Payne (2008), p. 57.*

National and international data betray the apparent stalemate in American high school performance:

- The National Assessment of Educational Progress (NAEP) Long-Term Trend Assessment shows that American high schools made no progress raising reading and math test scores over the past few decades, while both elementary and middle schools showed at least modest improvement. (See Exhibits 1.1 and 1.2 on the following page.)

- Internationally, the Programme for International Student Assessment (PISA) of the Organisation for Economic Co-operation and Development (OECD) shows that many other nations outperform American teenagers by age fifteen. This is not only because students of color do poorly. For example, more than a dozen other nations outperform our *white* fifteen-year olds in mathematics problem solving.[4]

- In other nations, high school completion rates have increased over the past several decades. Meanwhile, the U.S. rate is mostly unchanged as we fall further back in the international competition.[5]

Despite these sobering trends, some high schools have been improving quite impressively, but their stories are not well known. Most of the literature on school change has focused on elementary and middle schools, where changes are more common and, dare we say, easier to achieve.

This report asks, "How do high schools with exemplary achievement growth achieve such results? In particular, how do they improve instruction?" Researchers and practitioners posed these and other questions in June 2009 at the Fifth Annual Research-to-Practice Conference of the Achievement Gap Initiative at Harvard University.

Chapters of this report are constructed from conference transcripts and exhibits and a limited number of follow-up interviews. Each session at the conference began with presentations from three schools, followed by an extensive interview by guest experts to elicit details. The experts for the various sessions were Karin Chenoweth of The Education Trust, James Connell from the Institute for Research and Reform in Education, Richard Murnane and

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4. Based on data in the PISA report for 2003. For more on the PISA, see http://www.pisa.oecd.org.

5. See "Education at a Glance" reports at the OECD website, http://www.oecd.org/document/24/0,3343,en_2649_39263238_43586328_1_1_1_1,00.html.

Thomas Payzant from the Harvard Graduate School of Education, and Jon Saphier of Research for Better Teaching. Stacey Childress of the Harvard Business School co-hosted the conference. Chenoweth, Payzant, and Saphier opened the conference with presentations that anticipated some of the themes that emerged later. Marian Brooks of Cambridge Education joined Chenoweth, Connell, and Murnane to wrap up the conference in a final session.

Exhibit 1.1 National Assessment of Educational Progress: Math
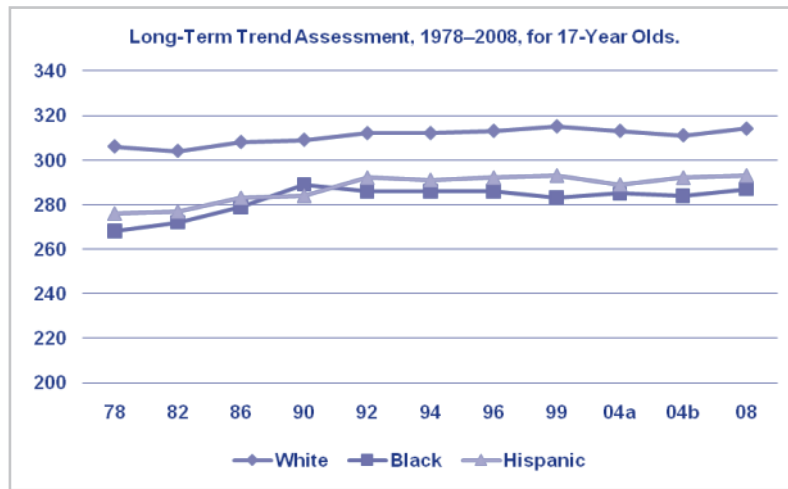
Source: See source for Exhibit 1.2 below.

Exhibit 1.2 National Assessment of Educational Progress: Reading
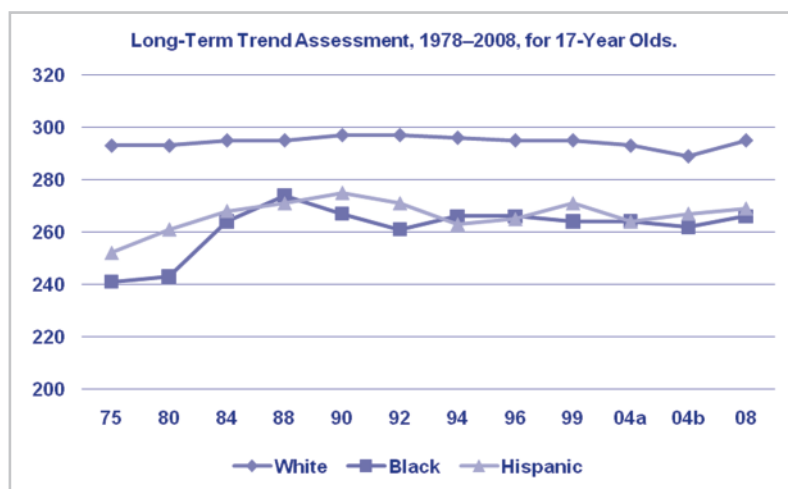
Source: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1978, 1982, 1986, 1990, 1992, 1994, 1996, 1999, 2004, and 2008 Long-Term Trend Reading Assessments. The years "04a" and "04b" represent two versions of the test—the old version (a) and the new version (b) to be used from 2004 and later.

The stories that school leaders told were *not* primarily about adopting and scaling up programs offered by external vendors, though the schools did draw upon external advisors. Instead, the stories entail a series of decisions and actions undertaken over several years, sometimes as whole schools and other times as departments. Small but expanding alliances of leaders in these high schools undertook the following *five steps to becoming exemplary*. They:

I.   Accepted their responsibility to lead the change process.

II. Declared the purposes of the work in mission statements that focused on a few key ideas and priorities that stakeholders could understand and embrace.

III. Designed strategies, plans, capacity, and incentives for broadly inclusive adult learning.

IV. Developed and refined quality standards for judging teacher and student work.

V.   Skillfully and relentlessly implemented plans, monitored quality, and provided appropriate supports and incentives.

These *five steps to becoming exemplary* can be understood as a cycle that repeats as a school's conception of "the problem to be solved" evolves. It is notable that none of the schools became successful primarily by replicating prepackaged programs. Instead, skilled and committed leadership teams combined principles and practices in novel ways to fit unique circumstances.[6] For example, Jon Saphier noted one key principle when he pointed out that school leaders recognized at least implicitly that dramatic progress required some changes that needed to be both non-negotiable and within the scope of their formal positional authority. In addition to their formal authority, teams' effectiveness depended as well upon their *informally earned authority*—a form of authority that grew hand-in-hand with the development of trust along the four dimensions of motives, competence, reliability, and collegiality.[7] We suggest that trustworthiness enabled teams of school leaders to help teachers and other stakeholders overcome their initial fear of change.

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6. Most students of school change make a similar point, concerning the need to craft unique solutions to fit local contexts, but using well-known principles. See, for example, readings in the bibliography to this chapter.

7. See Bryk and Schneider (2002) and Bryk et al. (2010) for related ideas about the importance of trust in schools.

We hope that the basic concepts we use to organize the conference's lessons—specifically, the *five steps to becoming exemplary,* the *four trust questions*, the *six fears,* and *earned authority*—will make the conclusions we distill in this introductory overview both coherent and useful. Following a section on the characteristics of featured schools, this chapter has sections on each of the *five steps to becoming exemplary*. Each ends with a set of implied prescriptions that are repeated in the appendix to this chapter.

CHARACTERISTICS OF FEATURED SCHOOLS

The featured schools come from several states. Those from outside Massachusetts come from Illinois, Maryland, Ohio, Texas, and Washington, DC. They were identified by key informants who responded to the AGI's national search in early 2009. Each school's write-up in the body of this report begins with some demographic and achievement data for that particular school and is followed by a story of progress.

Three distinct groups of schools are represented. Schools in one group (see Exhibit 1.3a) opened within the past decade. They were able to select their staffs and were guided from the start by strong leaders with ambitious visions.

Exhibit 1.3a New High Schools (Schools Started within the Past Decade)

> **TechBoston Academy** (Boston, MA) is a small, district-funded, non-charter public school with an interdisciplinary technology curriculum. Administrators have unusual control over staffing, curriculum, and governance, and all teachers learn in professional learning activities to integrate effective literacy and math instruction across subjects.
>
> **Thurgood Marshall Academy** (Washington, DC) is a small charter school where administrators use a quarterly benchmark system to identify learning gaps and reallocate resources–including staff—in ways that improve student achievement. Teachers participate in quarterly professional development activities with instructional leaders to develop strategies specific to their students.
>
> **Manor New Technology High School** (Manor, TX) is a small project-based instruction school where all teaching occurs through interdisciplinary projects that allow student-centered learning and collaboration, aided by cutting-edge computer technology.

A second group includes schools whose main story at the conference concerned mainly the work of a single department that had excellent leadership and strong working relationships among teachers who were committed to their students. (See Exhibit 1.3b.) The third is a group of schools that are not recent start-ups and whose stories entailed substantial *whole-school* reform. (See Exhibit 1.3c.) While the start-ups and exemplary

Exhibit 1.3b Schools Whose Presentations Focused on Departments

> **Amherst Regional High School** (Amherst, MA), **English Department**. Amherst English teachers collaborate to differentiate instruction in racially heterogeneous, mixed-achievement-level classrooms.
>
> **Boston Latin Academy** (Boston, MA), **English Department**. Boston Latin Academy is an exam school based on a classical, rigorous curriculum, where common assessments and planning time provide opportunities for teachers to confer about problems of professional practice.
>
> **Lynn English High School** (Lynn, MA), **Math Department**. Lynn English mathematics teachers collaborate to analyze common assessments, identify learning gaps, and improve their practice through key professional development partnerships with a local college and a school-improvement organization.
>
> **Paint Branch High School** (Montgomery County, MD), **AP World History**. Paint Branch recruits students—especially those of disadvantaged backgrounds—to AP-level courses, where teachers differentiate rigorous instruction across skill levels using techniques learned in school-based professional development activities.

Exhibit 1.3c Schools Whose Presentations Focused on Whole-School Change at Older High Schools

> **Naperville Central and North High Schools** (Naperville, IL) are schools where teacher-led steering committees write most of the curriculum and student assessments based on the *Understanding by Design* instructional framework.
>
> **Robert A. Taft Information Technology High School** (Cincinnati, OH) is a technical high school with strategic business partnerships that support the school with important resources. Teachers learn to excel from high-performing master teacher teams and incorporate writing and literacy instruction across the curriculum.
>
> **Brighton High School** (Brighton, MA) is a school where administrators partner with a local education non-profit to target interventions for entering students and to guide teacher professional improvement efforts in English Language Arts instruction.
>
> **Brockton High School** (Brockton, MA) is a school where administrators and teacher leaders direct teacher training workshops to incorporate literacy instruction across the curriculum. It is the largest school in Massachusetts and among the highest achieving, as measured by 8th-to-10th-grade test score gains.
>
> **Worcester Technical High School** (Worcester, MA) is a school where all teachers, technical and non-technical, are trained by model teachers to incorporate writing instruction across the curriculum.
>
> **Randolph High School** (Randolph, MA) is a school where administrators craft professional development activities to teach teachers how to embed higher-order thinking skills throughout the curriculum.
>
> **Lee High School** (Houston, TX) is a school where lesson planning and teacher professional development is driven by key indicators—student engagement, lesson alignment, and rigor of materials and content—in various interdisciplinary small group settings led by instructional coaches.

departments are impressive and will be of great interest to readers, most examples in this introduction come from the whole-school reform group.

VALUE-ADDED GAINS IN MASSACHUSETTS

Schools were selected for this study by making comparisons of their performance. Generally, however, test score levels or proficiency rates are not by themselves good indicators of school performance. Students start from different skill and knowledge levels and have different family background circumstances that may affect their learning.

Ideally, we want to compare how much students learn through their schooling—we want to know the value that the school adds to what the students know and are able to do. If done well, estimates of value-added achievement gains are superior to other test score indicators for judging whether students at some schools are learning more than students at others. Conceptually, a student's value-added achievement gain over any particular time interval is the increase in knowledge or skill that he or she accumulates during that period because of the value added by schooling.[8] Each school has an average value for any particular student cohort.

The AGI selected Massachusetts schools based, in early 2009, on their average estimated value-added achievement gains from when students were 8th-graders in spring 2006 to when they were 10th-graders in 2008.[9] The value-added gain for any given student in a subject such as math from 8th to 10th grade is estimated as that portion of the test score level at the end of the 10th grade that is left over after removing the portion that was predictable based on the student's prior test scores and demographic characteristics.

Exhibit 1.4 presents a graphical representation of this idea. For a group of students with equal 8th-grade scores and equal demographic characteristics, the value-added achievement gain for each one is represented by the distance from the dotted line to the end of each one of the arrows. As the exhibit shows, this "left over" gain that approximates value-added achievement growth can be either positive or negative.

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8. See Braun et al. (2010) for a recent National Research Council and National Academy of Education report on value-added methodology.

9. Some Massachusetts schools achieved quite high value-added levels and were more than ninety-percent white, with extremely low rates of qualification for free and reduced price meals. Others, however, were diverse both racially and socio-economically. The more racially and socioeconomically diverse schools were given priority as invitees because of the AGI's focus on achievement gaps.

Exhibit 1.4 Value-Added Achievement Gains
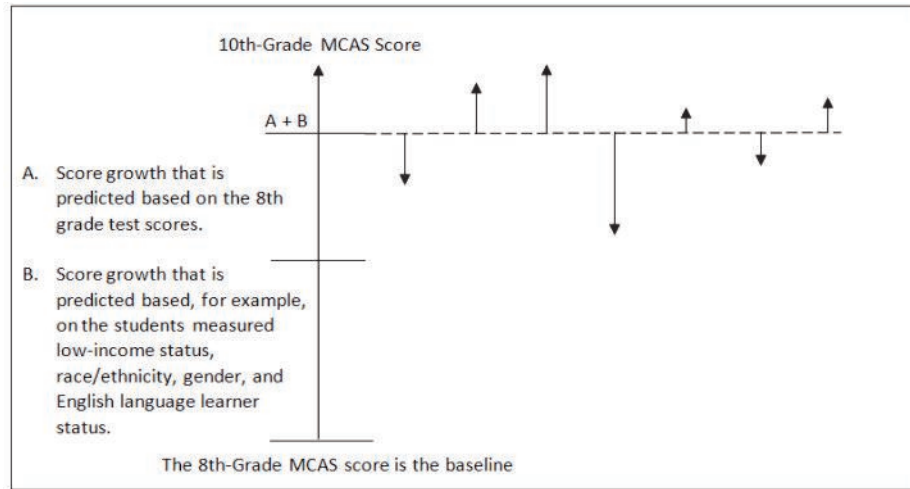
How 8th-to-10th-grade value-added achievement gains are measured for a group of students with identical scores and other characteristics at the end of 8th grade.

The level of the dotted line is the average 10th-grade score among all students in the state who had the same 8th-grade MCAS score and the same demographic characteristics. The dotted line is at a unique level for each unique combination of 8th-grade scores and characteristics.

Each arrow represents a student. For each student, value-added achievement growth is the distance from the dotted line to the tip of the arrow. After scaling to adjust for differences in the variation of growth at different starting 8th-grade values, summing the value-added growth measure across the 10th-graders in a school gives a measure of the average value-added achievement gain for the school.

Averaging this (scaled)[10] measure of value-added achievement gains across the students in each school shows that all of the featured schools from Massachusetts outperformed most other schools in the state. Gains were measured using the Massachusetts Comprehensive Assessment System (MCAS) test. The Massachusetts Department of Education (MADOE) supplied the data that the AGI used to calculate gains for 2006–08. Later, after the AGI conference, the MADOE released its own report on gains from 2007–09.[11] Most

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10. *Before compiling the school-average measures, the 8th-to-10th-grade gains were standardized statewide to have a mean of zero and standard deviation equal to 1 for each value of the 8th-grade score. This way, students from each point in the 8th-grade distribution have appropriately proportioned influence on their school-level averages.*

11. *Both the AGI and MADOE models for calculating gains compare each student to others who had the same MCAS test score as they themselves did in 8th grade (and sometimes in earlier grades as well). Both methods answer the question, "How well did students do over time, compared to students with similar achievement histories?" Both standardize in ways that make schools in different parts of the test score distribution comparable for the purpose of assessing gains.*

schools had similar rankings for the two periods, indicating both the stability of school performance and the close similarity of procedures that the AGI and the MADOE used to produce the estimates. Ranking schools by the average gains that their students achieved, we can calculate a percentile ranking for each school, equal to the percentage of other schools in Massachusetts that achieved smaller average gains. For the two periods 2006–08 and 2007–09, Exhibit 1.5 shows percentiles for each Massachusetts school in the subject for which it was featured at the conference. The exhibit shows that the featured schools achieved greater gains than 70, 80, and sometimes even 90 percent of

Exhibit 1.5 Rankings for Average 8th-to-10th-Grade Value-Added Gains at Featured Schools in Featured Subjects, Calculated for 2006–08 by the AGI and for 2007–09 by the MA Department of Education
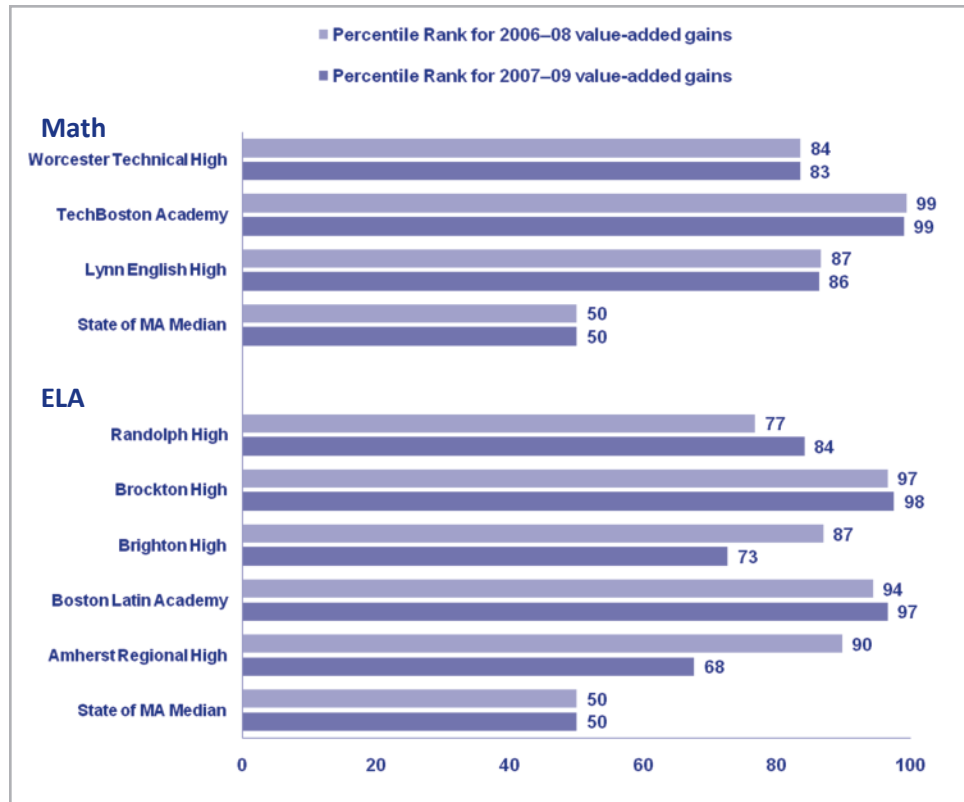
Note: School percentile ranks for value-added achievement gains for 2006–08 were computed by the AGI using data supplied by the Massachusetts Department of Education (MADOE).

For 2007–09, the MADOE published school average student growth percentiles by school on its website. The AGI ranked schools using the school average student growth percentiles on the MADOE website to get the school percentile ranks, shown here for 2007–09.

other Massachusetts high schools. The calculations are standardized in ways that do not advantage or penalize a school in the comparison because its students started from high or low baseline scores in 8th grade.[12] Each student is compared only to other students whose measured socioeconomic backgrounds and prior test performances match his or her own. In effect the rankings approximate how well each school performed compared to how other schools would have performed if all had served the same students.

TEST SCORE GAPS VERSUS PROFICIENCY GAPS

Progress on narrowing test score gaps for the Massachusetts schools is reported here using average test scores, not proficiency rates. Proficiency rates are less precise for such purposes and more likely to be misleading.[13] For example, the proficiency gap may change substantially with little or no change in the average score gap.

Simply imagine two student groups with different bell-shaped test score distributions on the same graph with similar degrees of spread, but one has a higher mean, such as the configuration for Panel A in Exhibit 1.6. Imagine a fixed proficiency cut score, such as that indicated by the vertical line in the exhibit. Basic statistics tells us that the area under each distribution to the right of the proficiency cut score equals the proficiency rate—the percentage of students in each respective group that is proficient.

Now, slide both distributions the same distance to the right, as in a move from Panel A to Panel B in the exhibit. This narrows the proficiency gap, since the area under the curve to the right of the proficiency cut point—in other words, the proficiency rate—changed more for the lower achieving group. Note also, however, that the difference in average scores is unchanged (the length of segment AB equals the length of CD).

Thus, narrowing the proficiency gap between groups does not necessarily narrow the test score gap. What we want is a move analogous to that in Panel C, where both groups have achieved complete proficiency *and* the achievement gap is closing as well. As measured by average scores, not only proficiency rates, the schools featured at the AGI conference made progress in closing test score gaps compared to white students in the rest of the state.

12. See footnotes 10 and 11.

13. See Koretz (2008, especially Ch. 8) for discussion of the many ways testing measures and uses can be misleading.

Exhibit 1.6 Proficiency Gaps versus Test Score Gaps
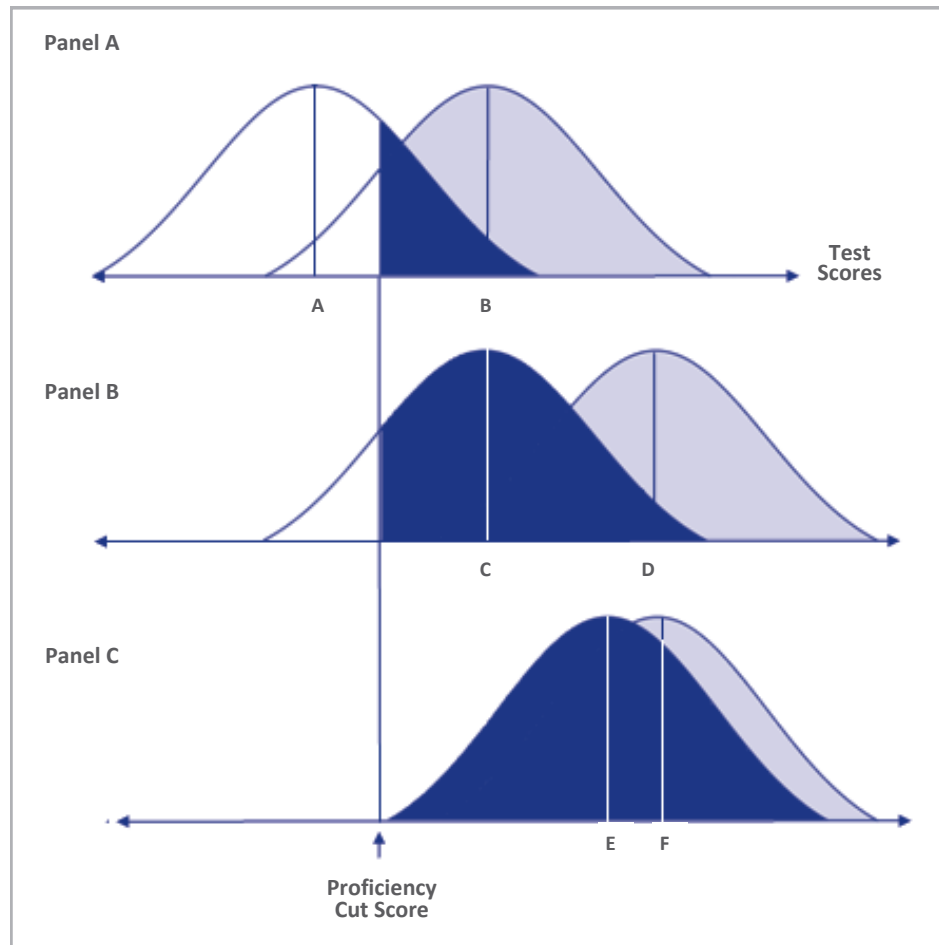
The _gap in average test scores_ between the groups represented by the two test score distributions in each panel above is the horizontal distance from point A to point B, or C to D, or E to F.

The _proficiency rate_ is the percentage of each group that achieves proficiency. For each group, this is represented by the area under the test score distribution to the right of the proficiency cut score.

The _proficiency gap_ is the difference between the areas to the right of the proficiency cut score. Regarding gaps, the proficiency gap gets smaller moving from panels A to B to C. However, the test score gap (AB) in Panel A equals the gap (CD) in Panel B, while the gap (EF) in Panel C is smallest.

NARROWING RACIAL GAPS USING EXTERNAL BENCHMARKS

Closing achievement gaps between racial groups in the United States is an important national goal. Nonetheless, school leaders who focus narrowly on closing gaps _between their own students_ face several risks. By focusing on closing gaps more than on raising achievement, schools may select less

effective intervention strategies and achieve less than maximal achievement growth, *even among students on the bottom side of the gap*. Schools may also squander the support of parents from higher achieving groups whose political backing is important for maintaining the flow of resources and authorizations.[14]

As adults, students will compete with the rest of the world, not their current classmates. Therefore, the most important standards of local comparison are broader, external benchmarks from the state, the nation, and the world. If a school's competitive benchmark is a measure of achievement representing the state as a whole—for example, the average score for white students in the state—then that school can focus on raising the performance of *every* group in the school, compared to the external benchmark. The school's focus on closing gaps can be served by raising achievement among children from every background, albeit with a special emphasis on students from the lowest performing groups. Closing the gap between each individual group and the external benchmark becomes the gap-closing goal.

Measured this way, the schools in this report have shown progress. For example, achievement gaps for each racial group at the featured Massachusetts schools were narrower in 10th grade than in 8th grade compared to the statewide average scores for white students. Exhibits 1.7 and 1.8 illustrate the degrees to which gaps narrowed for English Language Arts (ELA) and math, respectively. [15]

For example, Exhibit 1.7 shows that at the end of 8th grade, black and Hispanic students at Brockton High scored 19.4 percent fewer correct answers in ELA than white peers across Massachusetts did. This achievement gap diminished to only 6.7 percent in just two years—a gap reduction of 65.4 percent![16] At the same time, the exhibit shows that white students at Brockton High scored

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14. *Indeed, we know of at least two superintendents in suburban communities who have been pushed out of their jobs because parents of high-achieving groups resented the heavy focus on closing achievement gaps and elected school board members to change district priorities.*

15. *Because the purpose is to rate schools, we want the same students in the calculation for both 8th and 10th grades and we want them to have attended the high school long enough to have it affect their scores. So, students who did not attend the same school for both 9th and 10th grades or did not have scores for both 8th and 10th grade are not included in the calculations.*

16. *To convert to standard deviation effect sizes, note that the standard deviations of "percent correct" across all students in the state were: 17.4 and 14.4 in English Language Arts in 8th grade and 10th grade respectively; and 23.2 and 22.7 in math in 8th and 10th grades, respectively.*

Exhibit 1.7 Gaps in Percent Correct, for English Language Arts, in 8th and 10th Grades Compared to Massachusetts' White Students' State Average
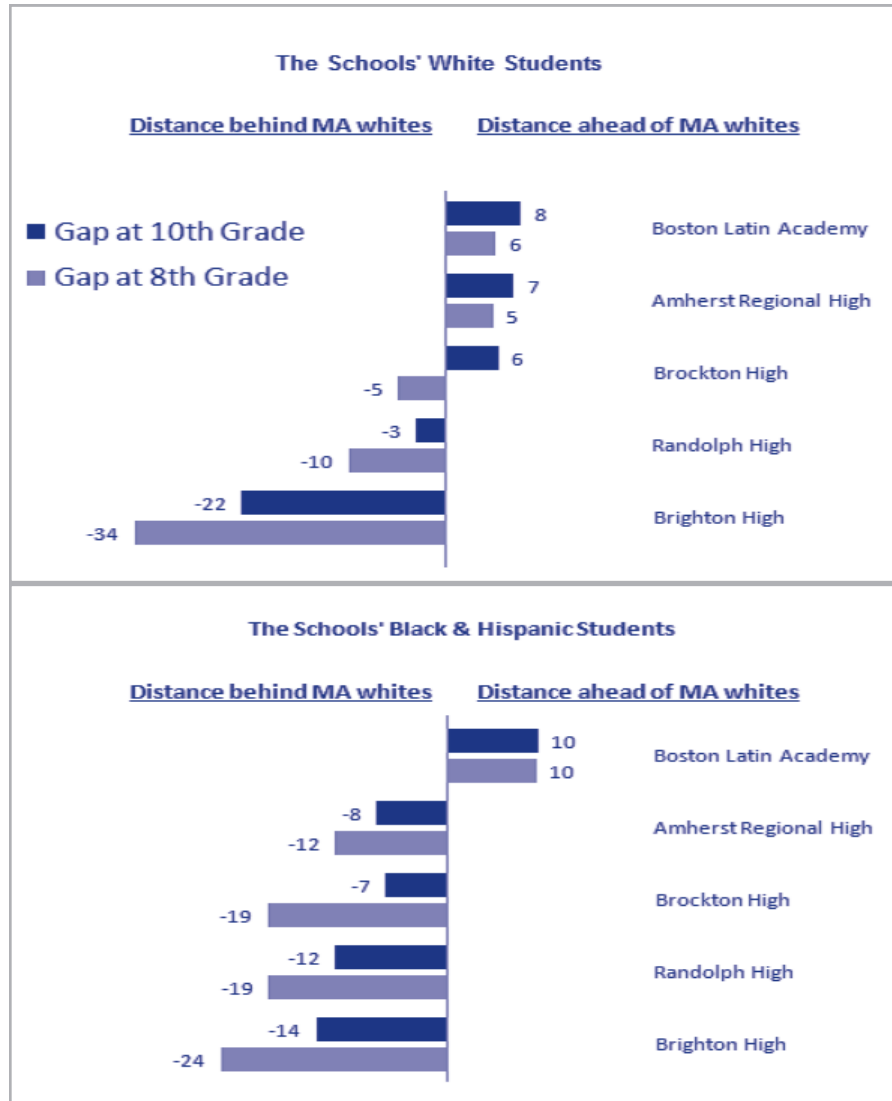
lower than other white students in Massachusetts at the end of 8th grade but surpassed them by the end of 10th grade. Exhibit 1.8 on the next page shows that in math, black and Hispanic students at TechBoston ended 8th grade 27 percentage points behind Massachusetts white students but closed to within 5.6 percent by the end of 10th grade. This represents a 79.4 percent narrowing of the MCAS mathematics gap.

FIVE STEPS TO BECOMING EXEMPLARY

All of the schools featured in this report have made impressive progress toward becoming exemplary. How did they do it? Teams came to the AGI conference

**Exhibit 1.8 Gaps in Percent Correct, for Math, in 8th and 10th Grades
Compared to Massachusetts' White Students' State Average**
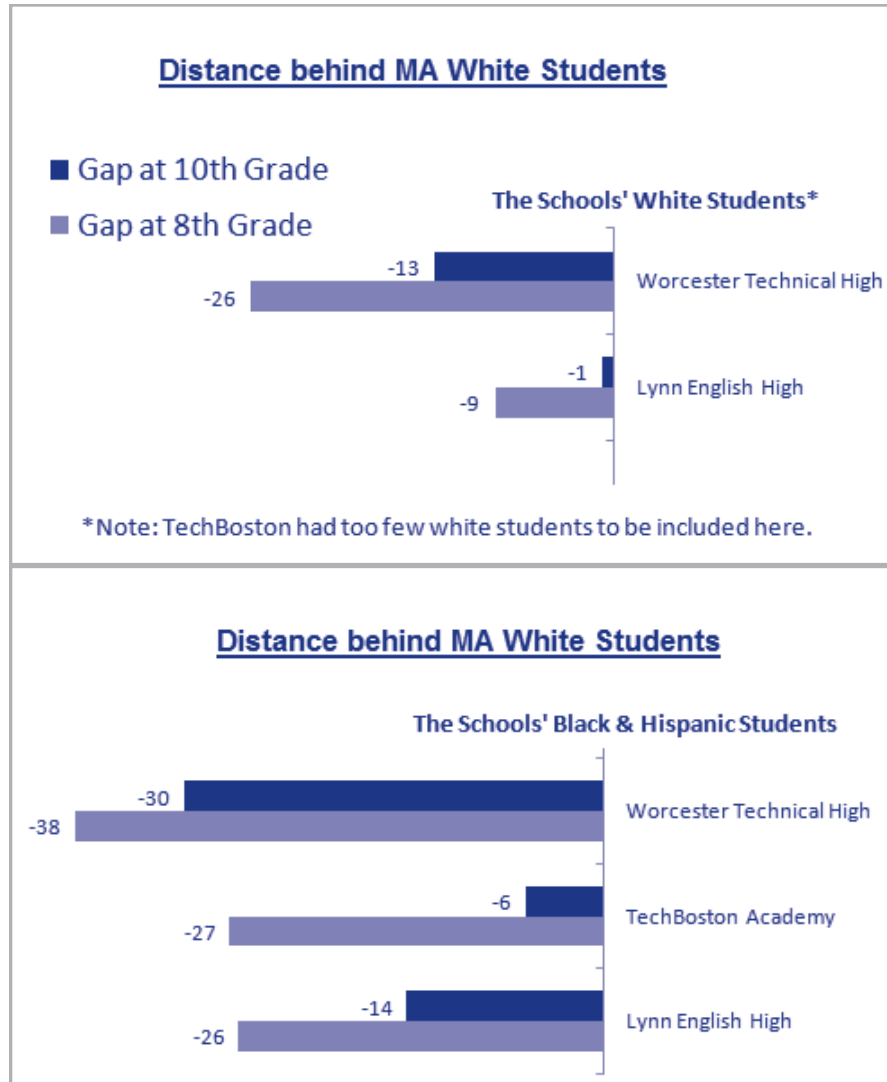
prepared to help us understand how multiple forms of transformational leadership, both organizational and instructional, have contributed to their progress.[17]

The impetus for transformation was often unexpected. Stakeholders were alerted to a problem or an opportunity that made the *status quo ante* unsatisfactory or unsustainable. Progress seldom unfolded smoothly, but required sustained effort over time through multiple phases. To distill themes, we organized what we have learned into *five steps to becoming exemplary,*

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17. For more on transformational leadership and student achievement, see Leithwood and Jantzi (2005).

listed previously on page 4. The next several sections give examples and summarize themes for each of the steps.

I. RESPONSIBILITY TO LEAD THE CHANGE PROCESS

The first step toward becoming exemplary was that a small group of leaders *accepted responsibility to lead the change process.* Early steps rested fundamentally on the work of this core group. The group composition varied, sometimes containing only administrators and sometimes mixtures of administrators and teachers. In each case, they shared convictions—often expressed as *moral* convictions—that they had a collective responsibility to improve. They expressed their convictions prior to proposing recipes for success or presenting evidence that success was possible.

State accountability policies were key. State test results gave schools ways to objectively compare their performances to others and to measure progress. The need to do better on state tests provided school leaders with rationales they could use to cajole others to join in efforts to improve.

For example, passing the MCAS examination is now a requirement for high school graduation in the state of Massachusetts. A decade ago, several years before the requirement was in force, people knew it was coming. At the time, MCAS results at Brockton High School were dismal. One staffer predicted that when the requirement was ultimately enforced, Brockton High, the largest school in the state of Massachusetts with well over 4,000 students, would "be able to hold the graduation ceremony in a classroom" because so few students would pass. Concern helped motivate a core group of leaders to form a Restructuring Committee that began meeting on Saturdays to chart a new course. The appointed leaders were the chairs of the English and Social Studies Departments. They had to beg their friends to participate. Now, a decade later, the Restructuring Committee still meets and is a big part of how the school became exemplary.

When the state of Illinois decided in the late 1990s to begin using the ACT college entrance exam as an accountability test for 11th graders, district leaders at Naperville, Illinois, used it as an opportunity to review and re-vision instructional norms at Naperville's two high schools. According to the associate superintendent for instruction, that was the "key defining moment" for Naperville Central and North high schools. Leaders decided that they were not preparing enough of their students for college and resolved to remake themselves as "college ready institutions."

However, accountability policies are not always the only impetus. Sometimes, conditions just hit rock bottom and something has to be done. When the current leaders arrived at Robert A. Taft Information Technology High School in Cincinnati, Ohio, in 2000, the school was among the lowest achieving in the state. It was chaotic and ineffective. The graduation rate was 18 percent and scores were extremely low. Cincinnati's superintendent recruited a new principal to turn the school around. On opening day of his second year at the school, the principal asked teachers: "Aren't you tired of teaching at the lowest-performing school in the state?" And the teachers responded, "Yeah, sure we are tired of teaching at the lowest-performing school in the state." He suggested that anyone who did not want to be part of the improvement process should not return after lunch. Everyone returned. By 2008, the school was still over 90 percent African American, with about half qualifying for free and reduced price lunches. However, the graduation rate was around 90 percent and black students at the school scored higher than the statewide average for white students on Ohio state exams in math, reading, and science.

The stories that some teams told at the conference focused mainly on leadership and professional community in a particular department. These included the World History Department at Paint Branch High School in Montgomery County, Maryland. In Massachusetts, they included the English Departments at Amherst Regional High School and Boston Latin Academy and the Mathematics Department at Lynn English High School. According to the department chair in mathematics at Lynn English, she and her staff were motivated by a combination of factors: a desire to be judged highly by an external accreditation board, a commitment to help students achieve adequate yearly progress on the MCAS, and competition with math departments at other city schools. Concerning the other schools, she reported, "We are always fighting for bragging rights."

Whether representing a department or a whole school, someone or some group at the featured schools decided that the *status quo* was unacceptable. More importantly, they decided that they had a responsibility to improve it.

Based on reports from the featured schools, an implied set of prescriptions about responsibility and change leadership emerged. These were:

- *A small core of current or potential leaders should decide together that change is necessary. They should <u>accept responsibility</u> (though not sole responsibility) for making it happen.*

- *Members of the leadership group should <u>agree upon a set of non-negotiable ideas and goals</u> around which they will be united as they engage others.*

II. Mission Statements and Focused Priorities[18]

The second step toward becoming exemplary was that the leadership group *declared the purposes of the work in mission statements that focused on a few key ideas and priorities that stakeholders could understand and embrace.* Change was not always welcomed. Some adults seemed to believe that they were performing as well as possible, given the students that they were serving. Still, leaders working to instigate change had a sense of responsibility that fueled their search for ways to improve.

In some cases, they convened community-level meetings to declare the need for improvement, to seek input for crafting mission statements, to seek support, and to give their efforts legitimacy. They developed mission statements, defined key priorities, and articulated principles. For example, the Restructuring Committee at Brockton High identified four skills—reading, writing, speaking, and reasoning—on which they intended to have the whole school focus, meaning every teacher in every subject. The committee chose these particular skills on the advice of members of the community, who told the committee that if students had those skills, they would be well-prepared for college or employment.

Around 2005, administrators at Randolph High School asserted three basic propositions concerning the way they would transform the school: (1) teach students, not subjects; (2) create school-wide change, not isolated change; (3) foster smaller learning communities that give all teachers and students opportunities for rigorous academic and social learning. They resolved to avoid the so-called pedagogy of the poor, meaning that they would refuse to use drill-and-kill to prepare students for the MCAS. Instead they would embed higher-order thinking skills throughout the curriculum to prepare students for being life-long learners.

Administrators at the Naperville high schools organized a visioning process. The outcome of that process was a vision statement. It stipulated that the schools' mission was to create students who would be "collaborative workers, self-directed learners, quality producers, and community contributors." They also resolved to "protect students from adverse consequences, give them choices,

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18. For more on the importance of vision in organizational change, see Kotter (1996), Kotter (1998) and Senge (1990).

and provide affiliation and affirmation." Leaders asserted that their existing approaches to curriculum and instruction were not sufficient to meet these ideals and that major reforms were needed in teaching and learning.

In Maryland, leaders in Montgomery County had decided several years ago to focus seriously on narrowing racial achievement gaps in Advanced Placement (AP) enrollment and performance. They considered the percentages of students of color taking and passing AP exams to be unacceptably low and pressed high schools to increase AP enrollment and performance. The principal at Paint Branch High School took this directive especially seriously and impressed it on her teachers. The school worked to have as many students as possible take and succeed in AP courses, including many students who would not have taken AP courses.

Most of the featured schools, including those cited above, have existed for decades. However, some are much newer, having opened during the past decade. The latter include TechBoston Academy in Boston, Massachusetts, and Thurgood Marshall Academy in Washington, DC. No matter how long their doors have been open, recent successes grow out of ambitious missions that have guided their work.

Based on reports from the featured schools, an implied set of prescriptions related to mission and focus emerged. These were:

- *Leadership groups should <u>engage other stakeholders</u> in crafting mission statements and articulating priorities.*
- *Mission statements should <u>emphasize big-picture outcomes of student learning</u>—the major skills the schools will teach more effectively, the qualities students will develop as a consequence of these skills, or the roles for which better skills and qualities will prepare students.*
- *As they engage other stakeholders, leadership groups should <u>make it clear that improving curriculum and instruction is a non-negotiable element</u> of the school's strategy to improve academic outcomes.*

III. Strategies and Plans for High Quality Adult Learning

The third step toward becoming exemplary was that leaders, in collaboration with various stakeholders and advisors, *designed strategies, plans, capacity, and incentives for broadly inclusive adult learning.*

The featured schools devoted a great deal of time and effort to developing strong capacities and norms for instructional leadership. In turn, instructional leaders worked hard to develop strategies and plans for effectively supporting

teachers. As a consequence, teachers at these schools had reasons to trust their leaders and to overcome fears that often undergird resistance to change. These schools tended to have well-developed, transparent, and dependable procedures for identifying professional development priorities and crafting associated materials and activities for adult learning.[19] Some relied heavily on external partners, including supports from their districts, while others did much of the work in-house.

Initially, most of these schools organized discussions among their staffs to identify specific professional development priorities. Often these conversations were tense, because there was no consensus that changes of particular types were needed. Typically, final decisions on how to proceed were not completely democratic.

Several of the featured schools described early disagreements. In Naperville, departments went through discussions aimed at getting buy-in to the themes that district leaders had selected (cited above). The Math Department chair reports that sometimes people "wanted to just walk out of the meetings." He told them, "We need to hear those voices, we need to hear what your concerns are, we need to talk about this, and we need to work through those issues." These discussions "created a trust system that allowed us to get down to the nitty-gritty of designing a curriculum that works." When asked how democratic the process of designing a new curriculum was, he acknowledged that, "We steered it... There were some non-negotiables."

For example, the idea that Naperville would promote inquiry-based learning was a non-negotiable. The ultimate outcome was the current arrangement, in which teacher representatives from both high schools sit on a steering committee for each subject area. This steering committee writes the inquiry-based curriculum and associated assessments and then teaches it to colleagues. The curriculum-writing process begins with an examination of state and national standards in the subject area. Development of new curriculums typically takes between two and three years, repeated in cycles of about seven years.

A non-negotiable at Brockton High and Worcester Tech was that every faculty member would have to teach writing and use a school-wide rubric for grading it. Both schools recognized that writing could support learning in every subject, and that learning to teach and grade writing could build staff unity across all

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19. For more information about the qualities of experiences that promote teacher professional development, see Garet et al. (2001).

grades and subjects. Leaders described how their schools developed lessons for teachers and students on the skills needed on open-response MCAS questions. However, the focus was not just on MCAS. Teachers in all grades and all content areas were required to emphasize skills involved in writing to a prompt, including active-reading strategies for understanding open-response questions. These skills were important for math and ELA alike—even for vocational skills classes. In fact, academic and vocation teachers actively collaborated on crafting open-response questions with real-life, relevant content.

Collaboration between administrators and teachers to design learning activities for both teachers and students were important in all of the featured schools.[20] Even the presentations that emphasized department-level rather than whole-school work—such as Lynn English, Amherst Regional, Paint Branch, and Boston Latin Academy—indicated that professional development planning was collaborative.

Among the whole-school examples, Naperville and Brockton had the most mature school-wide systems. As indicated above, teams of Naperville teachers design the curriculum, including associated assessments and methods for teaching the curriculum to peers. Similarly, Brockton High School's Restructuring Committee reviews the plans for professional development that their colleagues create under the leadership of the associate principal. Professional development sessions at Brockton are teacher-led in relatively small groups, using the approved scripts. When new materials are introduced, curricular adaptations take place in departmental meetings and are later reviewed by the associate principal.

All of the schools planned and implemented mechanisms through which department chairs or instructional coaches provide teachers with personalized feedback on their instruction. For example, presenters from Randolph High described how skilled instructional coaches work with teachers both individually and in small groups to provide differentiated support, tailoring their assistance to individual teacher's needs.

The schools also have arrangements in place to analyze and organize data for use in planning and professional development. For example, Brockton has a formal data team that analyzes data and prepares reports for use by various

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20. A meta-analysis from peer-reviewed articles from 1978-2006 by Robinson et al. (2008) identified that "promoting and participating in teacher learning and development" had the largest average effect size among five leadership qualities that lead to student achievement gains.

committees. Naperville has instructional coordinators who help teacher leaders to use data from the schools' data warehouse. The data warehouse is an online system for keeping track of the multiple types of data that inform planning and instruction.

Based on reports from the featured schools in the body of this report, an implied set of prescriptions for developing strategies and plans emerged. These were:

- *Set learning goals and professional development plans for teachers with the same care and quality as the best teachers use to set learning goals for their students.*
- *Pursue a limited number of adult learning priorities at any given time.*
- *Provide genuine opportunities for input from administrators, teachers, and other interested stakeholders.*
- *Maintain and monitor a formal calendar of specific dates and times for meetings and for completing important tasks.*
- *Formalize responsibility for the intellectual work that supports professional learning, including analyzing and reporting data for use in strategic deliberations (for example, establish a data team of administrators and teachers with clearly defined duties and dates for reporting).*

IV. Clear and Usable Criteria for Judging Quality Work[21]

The fourth step toward becoming exemplary was that the schools *developed and refined quality standards for judging teacher and student work.* Indeed, all of the schools had formal ways of making judgments about the quality of teaching and learning. These included rubrics for student work and associated formats for teacher evaluation. In addition, schools established both formal and informal procedures concerning the ways that these measures were to be used.

The Naperville high schools actively monitor student engagement, in addition to written work. Teams conduct walk-throughs to observe and rate student engagement behaviors. They compile building-level summaries and discuss the implications for school improvement. The schools have formal criteria for judging both how and how much students are engaged in their education.

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21. For more about setting quality standards for teacher work, see Danielson et al. (2010).

Almost all of the featured schools pay attention to the consistency of grading and feedback to students. For example, Naperville's curriculum committees and Professional Learning Communities (PLCs) designed new student assessments. They also began to review the grading system with a view toward standardizing what each grade means. Recognizing that different teachers had different grading standards, each PLC developed a universal "Grading Positioning Statement" (GPS). Once instated, the GPS became a tool for discussions among teachers and between teachers and students. It is used to explain grading criteria to students and to help them understand what they need to do in order to earn higher marks. Under certain circumstances, students can earn the privilege to repeat assignments in order to earn higher marks. Allowing students to repeat an assignment is one aspect of the schools' strategy to help students avoid adverse consequences, a goal expressed in the Naperville mission statement.

Instead of a GPS, Brockton has an open-response rubric that has undergone several revisions since its appearance almost a decade ago. The purpose of the rubric is to help guide the teaching and learning of writing and to align the grading of writing assignments across grades and subjects. As the Restructuring Committee continued to identify systematic weaknesses in student writing, they have revised the rubric. Brockton leaders judge the current rubric to be quite good, and they continue to use it. Teachers hand in graded student work to department chairs, and the chairs review a cross section of that work with the associate principal. Using the rubric, the associate principal advises the department chairs on the feedback that chairs provide to teachers and that teachers provide to students. This process is carefully scheduled in advance on a system of calendars that the department chairs and associate principal manage.

After Brockton High adopted its emphasis on the four skills—reading, writing, speaking, and reasoning—they conducted discussions to develop consensus about the core elements of each skill. Based on these discussions, they posted a 16x20-inch literacy chart on the wall of every classroom in the building, so that teachers and students alike would be constantly reminded of those elements.

Based on reports from the featured schools, an implied set of prescriptions for judging quality work emerged. These were:

- *Define rubrics for judging instructional practice, for use in teacher evaluation and professional development.*

- *Develop rubrics for judging student work, for use in lesson planning, grading, feedback from teachers to students, and feedback from supervisors to teachers.*
- *Periodically review and revise the rubrics to correct weaknesses identified by monitoring student work and instructional practices.*

V. Skillful and Relentless Implementation

The fifth step toward becoming exemplary was that administrators and teacher leaders *skillfully and relentlessly implemented plans, monitored quality, and provided appropriate supports and incentives*.

Implementation most strongly sets the featured schools apart from other schools. At the conference, discussions of implementation centered on overcoming resistance.[22] Indeed, more than anything else, researchers and practitioners wanted to know how leaders at featured schools overcame resistance to change, especially from their most experienced (and sometimes complacent) colleagues.

TRUST AND EARNED AUTHORITY

Featured schools overcame resistance only partly through the power that leaders exerted and the stresses that they were willing to impose and tolerate. Such tensions and stress were sometimes absolutely necessary. However, more important to their stories was the leaders' ability to build trust in their motives, their competence, their reliability, and their collegiality. Intellectual diligence, courage, and a willingness to make personal sacrifices helped these leaders *earn* the informal authority to wield effective influence—the capacity to lead.

Resistance Rooted in Six Fears

When speakers from featured schools responded to questions concerning resistance, several ideas emerged concerning standard roots of resistance among adult stakeholders. We call them *the six fears:*

1. Fear of wasting time and energy. Leaders might not follow through on new agendas, or the ideas embedded in those agendas might not be worth pursuing.

2. Fear of losing autonomy. New agendas might require activities, materials, or methods that differ from what the teacher prefers or is accustomed to.

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22. *For insightful readings on resistance and other impediments to change, see, for example, Elmore (2007); Heifetz and Linsky (2002); Kegan and Lahey (2009).*

3. <u>Fear of experiencing incompetence when trying new things</u>. The new agendas might require learning new skills or behaviors that seem difficult to master.

4. <u>Fear of becoming socially isolated</u>. Cooperating with new agendas might require behaviors that valued colleagues would object to. For example, colleagues might accuse cooperative teachers of selling out or breaking solidarity by "sucking up to the principal."

5. <u>Fear of unpleasant surprises</u>. New agendas might increase uncertainty for people who like stability and predictability.

6. <u>Fear of more work</u>. Complying with new agendas might require more work than people feel inclined to undertake.

All six fears are familiar to anyone experienced with change efforts, especially in high schools. All of the featured schools dealt with such fears and, purposefully or not, developed ways of overcoming them.

The Four Trust Questions

Leadership teams overcame resistance by virtue of their *clearly stated motives* concerning the goals of the work, their *growing competence* as organizational and instructional leaders, their *unwavering reliability* in keeping commitments and their *constant collegiality*, even when dealing with tensions. These qualities reflect the *four trust questions*. Can I trust them to:

1. Have the right motives—to care about the right things?

2. Be competent—to deeply understand key issues?

3. Be reliable—to keep their promises?

4. Be collegial—to treat me and others with respect?

Past research suggests that effective leaders develop reputations for being trustworthy on these and related dimensions.[23]

Earned Authority

Effective leaders in featured schools almost always had some form of *positional* authority, but they also *earned* authority by working hard in ways that teachers came to respect. For example, leaders worked with colleagues to refine ideas until they could articulate them clearly and with conviction; they sat through numerous meetings and dealt courageously with stressful situations when meetings were confrontational. They were not necessarily *charismatic*, but by

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23. For example, Bryk and Schneider (2002).

leveraging both their positional and earned authority, these *teams* of leaders (*not just individuals*) were able to place greater demands on colleagues and persuade people to sacrifice their attachments to the status quo and leave their comfort zones.[24]

The centrality of moral conviction, courage, and earned authority in pressing colleagues for commitments to the work—even before these colleagues believed the work would succeed—was emphasized by each panelist in the wrap-up session of the conference.

- Marian Brooks of Cambridge Education emphasized, "There are some strands of beliefs—some real values in here—that are common to all of these people we heard. Teaching is a moral proposition, that's what we heard very strongly."

- James Connell of the Institute for Research and Reform in Education pointed out that leadership teams used their influence to insist effectively upon broad participation. "We heard about equity, that everybody's got to play," he remarked. "All the adults have to play, not just some of the adults."

- Richard Murnane of the Harvard Graduate School of Education pointed out that placing new demands on staff creates tensions, but that leaders at featured schools did not shy away. They had "a willingness to have these difficult conversations, a term we heard again and again, and to develop the capacity to have them in a constructive way."

- Karin Chenoweth of The Education Trust pointed out that when leaders are able to get others to act, broadly shared expectations of success are not necessary at the outset: "Several schools talked about something very profound—that you don't have to start with everybody believing that success is possible, you have to start with somebody believing it, but as the successes build, the beliefs will build that successes are possible."

Leaders with earned authority were able to help colleagues overcome *the six fears* and participate effectively in the change process. When some colleagues resisted, the leaders were willing and able to initiate difficult conversations concerning non-negotiables. These were foundations for effective implementation of professional learning.

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24. On distributed leadership, see Spillane, Halverson, and Diamond (2001) and Spillane, Hallett, and Diamond (2003)

IMPLEMENTATION OF PROFESSIONAL LEARNING

Preparing teachers and supervisors for improvement at Randolph High School has involved professional development from external resources in addition to ongoing activities inside the school. In 2007, administrators committed to use the Research for Better Teaching (RBT) model to train all teachers. Several of the featured schools (e.g., Brockton, Lynn English, Randolph, Amherst, and Paint Branch) used the RBT model for professional development at one time or another. This model provided a common language for talking about instruction and was especially helpful in fostering a focus on higher order thinking at Randolph High.[25]

Randolph's administrators and literacy coaches took a companion course from RBT that strengthened their skills at supervision and evaluation. The head literacy coach reports, "The whole culture has changed: the principal has created a building where we talk about teaching and learning." The principal also asked all teachers at Randolph High to read *Understanding by Design* in order to strengthen their approach to developing students' thinking skills.[26] Naperville used the same text to establish their approach to curriculum development: namely, that the students learn by struggling with interesting questions that may not have clear answers.

All of the schools scheduled and managed professional development—meetings and common planning activities—with a determination to make the most effective use of available time together. At Randolph High, the literacy coach and instructional directors create professional development agendas for common planning meetings at the beginning of the year. Activities focus sometimes on examples of student work, sometimes on articles about instructional strategies, and sometimes on features of the curriculum. The agenda is moderately flexible in response to teachers' preferences, but it is always focused on important issues in teaching and learning.

In several of the featured schools, teachers play leading roles in the design and delivery of professional development. Indeed, teachers at schools such as TechBoston and Taft have become important players in the delivery of professional development to other schools in their systems. At Naperville,

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25. *This type of explicit attention to teaching—that is, pedagogy—is not necessarily the norm in schools responding to contemporary accountability pressures. Many change their content coverage, but less often the ways that they deliver instruction. See, for example, Diamond (2007). See Saphier et al. (2008) for more on the RBT approach to teaching. Also see* http://www.rbteach.com.

26. *Wiggins and McTighe (1998).*

where teachers design the curriculum, teachers rebelled against professional development run by administrators. Now, administrators help to scaffold the meetings and monitor their effectiveness, but teachers take the implementation lead.

The amount of professional development time at the featured schools is substantial, and all teachers are expected to participate. Nevertheless, despite the time invested, the range of topics covered during any particular year is often quite narrow. The focus is deep, instead of wide. Professional learning topics from previous years are reviewed, and new teachers receive special orientations to help them catch up. The associate principal from Brockton pointed out the importance of continuing to monitor topics covered in previous years. This instruction should be evident in teachers' lesson plans, in instructional practices, and in student work. She emphasized that what is monitored gets done, and what is not monitored is often neglected. Results from monitoring are incorporated into teachers' annual evaluations.

MAKING THE WORK VISIBLE

Another theme across all of the featured schools was that both student and teacher work are visible outside the classroom. A teacher from Lynn English said of his department chair, "There is nothing that she doesn't know that goes on in her department." Colleagues routinely visit one another's classrooms and discuss their work. The department chair collects student work and provides feedback to teachers based on what she observes.

One of the most dramatic examples of visibility occurred when the current principal arrived at Taft High School. He brought with him several teachers from his previous school and set them up as a separate team, working with a distinct group of students. After their first year at Taft, their students had better attendance, higher standardized test scores, and fewer disciplinary problems than the students whose teachers had taught at Taft for years. Teachers from the other teams were discouraged and wanted to split the teams, especially after learning that there were few if any differences between the students assigned to the different teams. Instead of splitting the teams, the principal chose to leave them as they were and to provide professional development supports for the other teams. Professional development occurred weekly in-house and emphasized differentiated instruction. As in the other featured schools, all classrooms at Taft are open for colleagues to visit at any time.

In addition to visiting one another's classrooms, teachers learn by looking together at student work. Instructional leaders at one of the featured schools match teachers in assigned pairs, sometimes pairing a teacher whose students are producing high-quality work with one whose students are producing low-quality work. The differences are readily apparent when the teachers compare their students' work. The reaction is often, "How did you get your students to do that?!" Teachers are then encouraged to coach one another about how to help their students produce higher-quality work.

Several of the schools also had common formative assessments in core subjects.[27] For example, Brighton High School in Massachusetts engaged teachers in studying the results of common formative assessments taken by students in different classrooms. Working with the Boston Plan for Excellence on ELA, teachers at Brighton High focused on two types of finding-evidence skills and five types of making-inferences skills. Teachers focused on how these skills were or were not reflected in their students' work. Instructional leaders helped teachers draw out implications for changes in classroom instruction.

Most of the featured schools talked about the growing pains associated with this kind of visibility. In each case, the challenge was to make the process feel safe. Teachers at Taft High School complained initially that the open-door policy would not be safe for students. That concern was then addressed. At each school, teachers came to understand that the purpose of visiting was not to point fingers, but to share ideas about teaching and learning and to build a professional, collegial staff. Almost all of the featured schools at the conference discussed ways of popularizing this ethic, and all of them seemed to have done so successfully.

Another challenge that all of the schools seem to have surmounted is that of finding time to conduct professional learning activities. Perhaps the most extreme solution is at Brockton High. Brockton has no professional development time allocated in the union contract, although two hours each month are set aside for teacher meetings. Instead of doing other school business during these hours, the school uses them to conduct its professional learning activities. Like Brockton High, in one way or another all featured schools found time for teachers to learn.

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27. A common formative assessment is a test administered in multiple classrooms for the purpose of tracking student progress. Teachers compare the results from different classrooms and often use the most successful class as a model for the others.

EVALUATING TEACHING

Featured schools took teacher evaluation seriously as part of professional learning. In Naperville, the evaluation process begins with a meeting between evaluators and an individual teacher. In this meeting, they discuss goals designed to support the teacher's professional growth. Before evaluators observe the teacher in the classroom, there is a pre-conference to discuss how the teacher might modify his or her instructional practice to better focus on the needs of particular students. Next, instructional leaders observe the teacher for a full 50-minute class period. After the observation, the teacher completes a self-reflection. The evaluators and teacher then hold a post-conference to discuss the teacher's practice, with the teacher doing much of the talking in response to evaluators' questions.

At most of the schools, administrators align both formal and informal teacher evaluations according to instructional priorities. Administrators, department chairs, coaches, and teacher leaders cultivate norms of support geared to reduce colleagues' fear of appearing vulnerable or of being humiliated. The associate principal at Brockton High recounted two particularly helpful phrases. "Help me understand..." is useful when someone is not performing in a satisfactory manner or is resisting a particular request. "Let me help you..." is helpful in dealing with someone who argues that a request is too difficult or beyond their capacity.

Sometimes administrators or teachers fail to comply with a school's quality standards or priorities, even after an extended period of assistance. When this happens, leaders in exemplary schools communicate to people that their performance is unacceptable and counsel them to seek employment elsewhere. Supervisors who hold these difficult conversations report using phrases such as, "You and I both know that this school is not the place for you."

However, before reaching the conclusion that a teacher should go, supervisors develop instructional improvement plans as needed, based on student work and classroom observations. To ensure consistency, some schools require a senior administrator to review all teacher evaluations written by department chairs or other instructional supervisors. Based on evaluations, which follow a standard rubric, senior administrators may provide differentiated support not only for teachers, but also for departments and department chairs, according to their needs.

Based on reports from the featured schools, an implied set of prescriptions emerged for effectively implementing professional learning. These were:

For Effective Management and Accountability:

- *Cultivate a leadership group of administrators, department chairs, coaches, teacher leaders, and others who are responsive to other stakeholders but nonetheless uphold a set of non-negotiables concerning the school's goals and fundamental approach to improvement.*

- *Individual members of the leadership group need to earn their authority in order to overcome the six fears that often motivate resistance by other stakeholders. This means working hard, standing up to challenges, and making appropriate sacrifices so that people come to trust their motives, competence, reliability, and collegiality.*

- *The leadership group should press to enlist the whole faculty in professional learning, respectfully but resolutely confronting any resistance to participation.*

- *Senior administrators should monitor how department chairs supervise teachers, including looking at graded student work and discussing the feedback that department chairs give to teachers and that teachers give to students.*

- *Hold department chairs responsible for ensuring that school-level priorities for effective instruction are tailored to fit individual subjects.*

For Teacher Support:

- *Instructional leaders should take care to streamline and clarify ideas so that teachers will know how to apply them and supervisors will know what to monitor.*

- *Supervisors and instructional leaders should solicit regular feedback from teachers to refine activities and cultivate a climate of respectful responsiveness.*

- *Use books and articles and look together at student work to engage teachers. Always seek to draw and apply lessons purposefully for instruction.*

- *Conduct most adult learning in small groups to enhance personalization. In large schools, this requires detailed planning, development of scripts, and train-the-trainer activities to prepare small groups to deliver trainings with fidelity.*

- *Deliver professional development in a planned sequence of learning experiences for teachers, with narrowly targeted themes for each school year.*
- *Assign department chairs, instructional coaches, and resource specialists to assist teachers who encounter difficulties. Enable and encourage teachers to seek advice from peers, watch peers teach, and generally support each other's professional growth.*

CONCLUSION

The Achievement Gap Initiative at Harvard University selected the schools that this report features based on their exemplary achievements on standardized exams. Most had diverse student bodies. For the eight Massachusetts schools in particular, all are schools whose students at any given achievement level on the 8th-grade MCAS would learn more by the end of 10th-grade than at most other high schools in the state. This is true not only for students who were 10th-graders in spring 2008—the cohort whose performance led to the conference invitation—but also for the next cohort of students, who were 10th-graders in spring 2009. The AGI selected schools from outside of Massachusetts in response to recommendations from expert colleagues. These recommendations were based upon a combination of outstanding achievement, as measured by test scores, and outstanding leadership, as judged by the referrants.

Groups of leaders at these schools worked to earn the authority that they needed in order to lead. They cultivated trust. Their sacrifices of time and energy helped establish their *motives*. Their efforts to learn and their willingness to implement what they learned established their *competence*. The care they took to follow through on their commitments established their *reliability*. And the respectful ways that they went about working with others, even while holding their colleagues accountable, established their reputations for *collegiality*.

It seems to us that by being morally credible, intellectually competent, reliable, and collegial, groups of leaders were able, in time, to help many of their colleagues overcome the *six fears*. These fears are often the basis of resistance to change. They concern the fear of wasting time, losing autonomy, experiencing incompetence, becoming socially isolated, dealing with uncertainty, and being asked to work harder.

Presenters indicated that the most effective way of overcoming the six fears was through demonstrated success. At the beginning of the change process, adults at featured schools were obliged to cooperate for change even before they believed that success would be the result. No doubt the six fears were actively felt. Nonetheless, core groups of leaders used their positional authority and their personal influence to engage colleagues in professional learning activities. There were confrontations, and there were courageous conversations. Some people lost their jobs, but not many. Presenters were reluctant to describe such confrontations in public at the conference and so they do not appear in this report. However, they did occur.

The biggest breakthroughs in reduced resistance came with "seeing-is-believing" experiences. For example, breakthroughs came when a teacher would see students from another's class producing high-quality work and ask, "How did you do that?!" Or when state-level test results were unexpectedly good, as they were following the first serious year of writing-across-the-curriculum at Brockton High School. That year the state commissioner of education called to say that their ELA scores had improved to a greater degree than at any other high school in Massachusetts. Administrators report that resistance melted away and progress continued. Ultimately, trust and success win hearts and minds. But it is the sense of responsibility among a small group of leaders, their hard work and their determination not to be put off by resistance, that builds the trust and wins the initial successes. Accepting responsibility is where it starts.

All of the schools featured in this report remain works in process. The report is based on presentations by school leaders, not impartial observers, and their successes are relatively recent. Therefore, the implied prescriptions that we list are suggestive, not definitive. Nevertheless, based on the schools' measured achievements, we are confident that they are worthy of our attention, admiration, and continuing study.

APPENDIX: PRESCRIPTIONS IMPLIED BY THE WORK OF FEATURED SCHOOLS

I. RESPONSIBILITY TO LEAD THE CHANGE PROCESS

- *A small core of current or potential leaders should decide together that change is necessary. They should <u>accept responsibility</u> (though not sole responsibility) for making it happen.*

- *Members of the leadership group should <u>agree upon a set of non-negotiable ideas and goals</u> around which they will be united as they engage others.*

II. MISSION STATEMENTS AND FOCUSED PRIORITIES

- *Leadership groups should <u>engage other stakeholders</u> in crafting mission statements and articulating priorities.*

- *Mission statements should <u>emphasize big-picture outcomes of student learning</u>—the major skills the schools will teach more effectively, the qualities students will develop as a consequence of these skills, or the roles for which better skills and qualities will prepare students.*

- *As they engage other stakeholders, leadership groups should <u>make it clear that improving curriculum and instruction is a non-negotiable element</u> of the school's strategy to improve academic outcomes.*

III. STRATEGIES AND PLANS FOR HIGH QUALITY ADULT LEARNING

- *<u>Set learning goals and professional development plans</u> for teachers <u>with</u> the same <u>care and quality</u> as the best teachers use to set learning goals for their students.*

- *<u>Pursue a limited number of adult learning priorities</u> at any given time.*

- *<u>Provide genuine opportunities for input</u> from administrators, teachers, and other interested stakeholders.*

- *<u>Maintain and monitor a formal calendar</u> of specific dates and times for meetings and for completing important tasks.*

- *<u>Formalize responsibility for the intellectual work</u> that supports professional learning, including analyzing and reporting data for use in strategic deliberations (for example, establish a data team of administrators and teachers with clearly defined duties and dates for reporting).*

IV. Clear and Usable Criteria for Judging Quality Work

- *Define rubrics for judging instructional practice, for use in teacher evaluation and professional development.*

- *Develop rubrics for judging student work, for use in lesson planning, grading, feedback from teachers to students, and feedback from supervisors to teachers.*

- *Periodically review and revise the rubrics to correct weaknesses identified by monitoring student work and instructional practices.*

V. Skillful and Relentless Implementation

For Effective Management and Accountability:

- *Cultivate a leadership group of administrators, department chairs, coaches, teacher leaders, and others who are responsive to other stakeholders but nonetheless uphold a set of non-negotiables concerning the school's goals and fundamental approach to improvement.*

- *Individual members of the leadership group need to earn their authority in order to overcome the six fears that often motivate resistance by other stakeholders. This means working hard, standing up to challenges, and making appropriate sacrifices so that people come to trust their motives, competence, reliability, and collegiality.*

- *The leadership group should press to enlist the whole faculty in professional learning, respectfully but resolutely confronting any resistance to participation.*

- *Senior administrators should monitor how department chairs supervise teachers, including looking at graded student work and discussing the feedback that department chairs give to teachers and that teachers give to students.*

- *Hold department chairs responsible for ensuring that school-level priorities for effective instruction are tailored to fit individual subjects.*

For Teacher Support:

- *Instructional leaders should take care to streamline and clarify ideas so that teachers will know how to apply them and supervisors will know what to monitor.*

- *Supervisors and instructional leaders should solicit regular feedback from teachers to refine activities and cultivate a climate of respectful responsiveness.*

- *Use books and articles and look together at student work to engage teachers. Always seek to draw and apply lessons purposefully for instruction.*

- *Conduct most adult learning in small groups to enhance personalization. In large schools, this requires detailed planning, development of scripts, and train-the-trainer activities to prepare small groups to deliver trainings with fidelity.*

- *Deliver professional development in a planned sequence of learning experiences for teachers, with narrowly targeted themes for each school year.*

- *Assign department chairs, instructional coaches, and resource specialists to assist teachers who encounter difficulties. Enable and encourage teachers to seek advice from peers, watch peers teach, and generally support each other's professional growth.*

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Note: An extensive list of related readings is posted with this report at http://www.agi.harvard.edu.

2. ROBERT A. TAFT INFORMATION TECHNOLOGY HIGH SCHOOL

PRESENTERS:

Anthony Smith, Principal

Michael Turner, Manager, Senior Institute

INTERVIEWERS:

Jon Saphier, Research for Better Teaching

Richard Murnane, Harvard Graduate School of Education

STUDENT DEMOGRAPHIC PROFILE

Exhibit 2.1 Student Characteristics for 2009

	Racial Composition					Poverty
	White	Black	Hispanic	Asian	Other	% Free Lunch
Taft	2.9%	95.6%	0.0%	0.0%	1.5%	68.4%
Ohio (all grades)	75.5%	16.3%	2.7%	1.6%	3.9%	40.2%
Number of Students at Taft: 506						

*Source: Ohio Department of Education, Interactive Local Report Card
(http://ilrc.ode.state.oh.us/).*

Meeting the Achievement Challenge

When Mr. Smith first arrived at Taft High School in 2000, it was one of the lowest-performing high schools in Ohio, with a graduation rate of 18 percent and test scores behind the state average. By 2008, after the school had restructured to focus on information technology, the graduation rate had grown to 90 percent, and students had made dramatic gains in achievement.

The average scores of Taft students on the Ohio Graduation Test (OGT) now surpass the statewide average in math, reading, and science. And this is not because Taft screens prospective students: Taft relies on a lottery, unlike most comprehensive technology schools across the country. The student population at Taft is 95 percent black students, and over 68 percent qualify for free lunch. And yet, in spite of a higher poverty rate than the district, Taft is beating the state average. The trends from 2005 to 2009 in math, reading, and science for students in Ohio and students attending Taft School are shown in Exhibit 2.2.

Exhibit 2.2   Student Proficiency Rates

Source: Ohio Department of Education, Interactive Local Report Card (http://ilrc.ode.state.oh.us/).
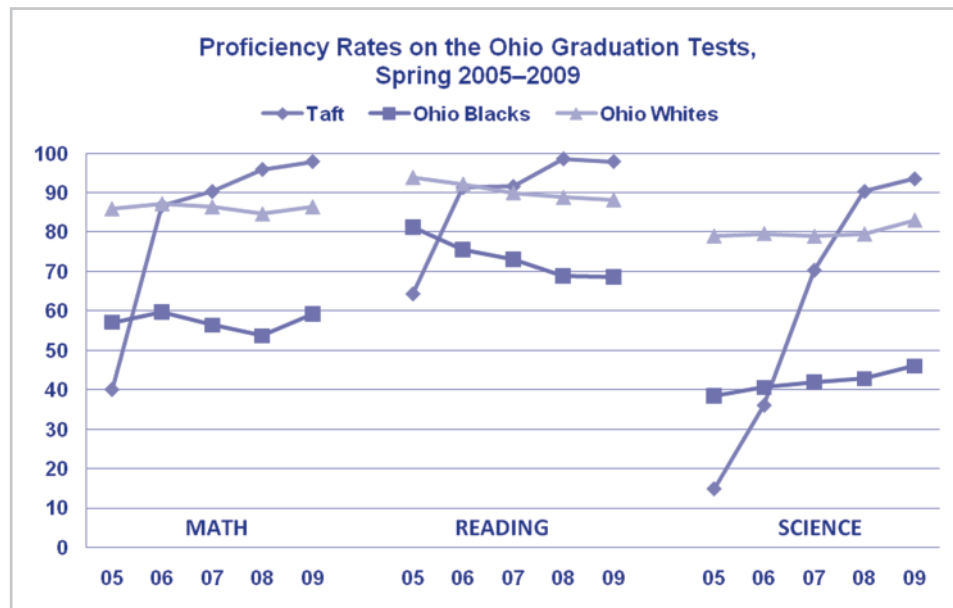
KEY INITIATIVES

Taft is divided into a Preparatory Academy for 9th- and 10th-grade students, and a Senior Institute for 11th- and 12th-grade students. Preparatory Academy students learn about 17 different areas of information technology and gain the opportunity to make informed decisions about areas of focus in the Senior Institute, while Senior Institute students specialize in many areas of technology.

Several key initiatives have helped the school close the achievement gap, including:

1. In-house, teacher-led professional development

2. Key partnerships, such as a partnership with Cincinnati Bell, the largest telecommunications provider in the city

3. A comprehensive safety net program for students

4. Higher parental engagement

PROFESSIONAL DEVELOPMENT THROUGH EMPOWERMENT

Taft puts teachers in charge of much of its professional development, and that makes it a powerful institution of learning. This empowerment is the product of the initiatives and activities that Taft has been using to help build a culture of trust and commitment among staff and administration.

IMPROVING INSTRUCTION WITH HIGH-PERFORMING TEAMS

When Mr. Smith became principal of Taft, he brought with him a core group of teachers from the middle school, including his colleague, Mr. Turner, now manager of Taft's Senior Institute.

Because the teachers who Mr. Smith and Mr. Turner brought with them were outstanding educators, the two leaders asked those teachers to model a team approach to teaching. After the first year at Taft, the students of high-performing teams had better attendance, higher standardized test scores, and needed less discipline than the students of other teams. Because they felt that competition was too stiff, long-standing Taft teachers became very discouraged and wanted to split the model team across the other teams.

To counter this opposition, Mr. Smith and Mr. Turner used data to show those teachers that they had not preselected the students that the model team taught. The data showed that students in every team had similar 8th-grade test

> Taft puts teachers in charge of much of its professional development, and that makes it a powerful institution of learning.

scores, and their success was solely from strategic instruction, which every teacher could learn to implement.

DEVELOPING A PERFORMANCE THEME: "FAILURE IS NOT AN OPTION"

Mr. Smith and Mr. Turner decided that rather than removing less-effective teachers, they would help them become better teachers. On opening day of the second year, Mr. Smith asked teachers: "Aren't you tired of teaching at the lowest-performing school in the state?" And they replied, "Yeah, sure we are tired of teaching at the lowest-performing school in the state." In response, Mr. Smith said, "Okay, it's time for lunch, and anyone who does not want to be part of who we are, don't return after lunch—I'll find new teachers."

They were very excited when all the teachers did return. The notion that the teachers were the worst group in the worst school in Cincinnati had become ingrained. To help the staff move forward, Mr. Smith adopted "Failure is not an option" as a motto. This slogan is now on the school website, because Mr. Smith believes that all Taft students need to understand that failure is not an option when they set foot in the school.

THE OPEN-DOOR POLICY

Mr. Smith also believes that one reason for poor performance in the past was that teachers had been working in isolation, behind closed doors. He asked all teachers to teach with doors open. Mr. Saphier noted that Taft's open-door policy suggests that the principal wants teachers to walk into each other's classrooms. He asked Mr. Smith how he convinced teachers to support that policy.

Mr. Smith noted that he wanted teachers to observe other people teaching. Long-standing Taft teachers had been very curious about the team from the middle school, but had never seen those teachers present particular lessons. So he came up with the idea that all classrooms would be open. At first teachers talked about the need to ensure the safety of the students, but after he addressed that concern, they had no reason to teach in isolation.

Mr. Saphier noted that there's a big bridge to cross between creating a policy and having people actually start visiting each other's classrooms. Mr. Smith concurred: the open-door policy started slowly and encountered some resistance. For example, some teachers asked their union, "Can they really make us do this?" But Mr. Turner was the union rep for the building, so the policy was a no-brainer.

The principal also extended the team approach to the whole school: teams of teachers now meet every day for 45 minutes. Instructional leaders used those teams to roll out the open-door approach, saying, "This is the initiative, this is what we are going to do—we just need everybody to try to embrace it."

Mr. Saphier noted that Mr. Smith had also made other high-profile decisions, such as having the school embrace writing across the curriculum. Mr. Saphier could imagine a physics teacher coming up to the principal and saying, "That's good for some people, but, look, I'm a scientist, I'm a physics teacher, take it somewhere else."

According to Mr. Turner, when Mr. Smith has an idea that he believes is best for the school, 99 percent of the time he asks a teacher rather than an administrator to present it to the staff. That goes a long way in overcoming resistance, especially because most of the staff is involved in district-level initiatives: that teacher has credibility in the district as a whole. Students present ideas, too, so that approach filters down to them.

Administrators do conduct a lot of informal classroom walk-throughs, asking to see lesson plans and instructional standards posted on the walls. If a teacher has to search for a lesson plan in a box under a table, then Mr. Smith knows that's a problem. "And then what happens?" asked Mr. Ferguson. According to Mr. Turner, Mr. Smith would then ask the teacher, "Where is your lesson plan, and why don't you have it? The next time I come, I would really like to see it."

WRITING AND LITERACY ACROSS THE CURRICULUM

Mr. Ferguson asked how Taft produced a massive jump in reading and math skills in one year. Mr. Turner replied that, if anything precipitated the turning point in Taft's journey, it was Daniels and Zemelman's *Subjects Matter*.[28] This book taught teachers how to incorporate writing and literacy across the curriculum. The staff began to understand that literacy is not just about what happens during 45 or 50 minutes in the English classroom.

Mr. Smith and Mr. Turner also showed the faculty that more than half the points on state tests stem from questions requiring short answers and extended responses, rather than multiple choice. This realization also forced teachers to embrace literacy across the curriculum.

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28. Subjects Matter *is a teacher's guide to content-area reading, published in 2004 by Heinemann.*

All classrooms have implemented several specific strategies from *Subjects Matter*. One is the four-column method, which has students ask about each question on a test: "What do I know? What am I being asked? What is the answer?" Our fourth column is: "How does my answer connect to other ideas?"

BOOK STUDIES

The books that the staff has studied include *Subjects Matter: Every Teacher's Guide to Content-Area Reading*, by Harvey Daniels and Steven Zemelman; *How to Differentiate Instruction in Mixed-Ability Classrooms,*[29] by Carol Ann Tomlinson; *What's Worth Fighting For Out There,*[30] by Michael Fullan; *Good to Great,*[31] by Jim Collins; and *Community: The Structure of Belonging,*[32] by Peter Block.

Mr. Ferguson asked whether teachers volunteer to participate in the book study, or whether it is required. According to Mr. Smith, teachers know when they sign on the dotted line that they will have to participate in book studies and other professional development. The principal starts out leading the book study sessions, and then turns them over to teachers, who introduce each new book and provide reference materials. The teachers then try to replicate the ideas they read about in the classroom.

Mr. Saphier asked how leaders keep the conversation going after teachers present an approach but before the school declares it a policy. According to Mr. Turner, the leader of a book session might say, "Let's all implement one idea from chapter one, and share what happened when we reconvene next week." When 90 percent of teachers are sharing experiences, the other 10 percent realize that, "I'd better have something to share next time."

THE IMPORTANCE OF SHARING IDEAS AND EXPERIENCES

The district requires each school's instructional leadership team—a union-negotiated committee—to meet with the principal once a month. At Taft, that

> The leader of a book session might say, "Let's all implement one idea from chapter one, and share what happened when we reconvene next week."

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29. How to Differentiate Instruction in Mixed-Ability Classrooms*, by Carol Ann Tomlinson, published by Association for Supervision & Curriculum Development (April 2001).*

30. What's Worth Fighting For Out There*, by Michael Fullan, published by Teachers College Press (March 1998).*

31. Good to Great*, by Jim Collins, published by HarperBusiness (October 2001).*

32. Community: The Structure of Belonging*, by Peter Block, published by Berrett-Koehler Publishers (September 2009).*

team meets once a week. Teacher leaders on the team feel comfortable saying, "This teacher on my team is struggling, here are the issues." What the teachers say in the room stays in the room, but at least everyone knows which teachers are having a difficult time and can assist accordingly.

Taft was one of the first schools in the district to train teachers in differentiated instruction. The school provided the training in-house, and the weekly meetings allowed teachers to talk about how the approach was working in their classrooms. Under previous administrators, Taft teachers took a lot of trips for professional development. Those trips petered out after the principal began requiring faculty members to present what they learned to the rest of the staff. However, teachers are now again starting to take such trips, to bring back fresh ideas about how to engage young people in the classroom. When Mr. Smith and Mr. Turner arrived at Taft, very few teachers, if any, were involved in district-level initiatives. Today, 35 of 43 onsite teachers help lead professional development activities for the district.

THE COMMITMENT OF TEACHERS

Mr. Ferguson asked if the school would have as much success if administrators were dealing with an aggressive teachers' union and facing the possibility of class-action suits. The school does have one of the strongest American Federation of Teachers locals in the country, Mr. Turner said, and Mr. Smith has had grievances filed against him—that happens in every school in the district. However, Taft teachers have buy-in and trust that what the school is doing is for the betterment of the students and the school. Mr. Turner noted that teachers at some schools in the district will not work one minute without being paid. At Taft, every faculty member recently committed to two hours of blackboard training after school, and not one person asked about being paid.

Taft also has teacher buy-in because many children of the faculty attend the school, even though they could go to any school in the district, Mr. Smith said. Mr. Smith himself is a Taft graduate, as is his son, and Mr. Turner's daughter currently attends the school. So the school has developed buy-in on what it means to be educated. Fortunately, the staff has remained essentially the same as it was seven or eight years ago, Mr. Turner said. The only teachers the school has lost have retired or moved out of the area because of life changes.

The team meets once a week. Teacher leaders on the team feel comfortable saying, "This teacher on my team is struggling, here are the issues."

FORGING KEY PARTNERSHIPS

Taft was also able to establish an important partnership with Cincinnati Bell. When Mr. Smith met the president of that company on his first day on the job, the president asked, "What do you really want this school to look like?" After some lengthy conversations, the company decided to invest a lot of time, energy, and money in Taft.

INCENTIVE PROGRAMS

For example, students who maintain a 3.3 GPA for an entire year receive a free cell phone with unlimited use and a laptop computer, and Cincinnati Bell comes to their homes and installs free high-speed Internet access. If a student's GPA drops, the agreement is that the principal goes to the student's house and picks up those materials. However, in eight years Mr. Smith has not had to do that.

TUTORING PROGRAMS

Cincinnati Bell also provides 70 to 80 tutors, who give up part of a workday every week to come to Taft and tutor students in exactly what they need to pass the OGT. Although Taft teachers do not teach to the tests, they are held accountable for student performance on them, so that's where tutors concentrate their efforts. No tutor has missed a tutoring session in seven years. Nor has failure to pass the tests prevented any student from graduating in the last three or four years.

INTERNSHIPS

Mr. Murnane asked whether Taft also offers internships to students. Mr. Smith responded that Taft wants to ensure that the business community understands the school's students, and vice versa. So Cincinnati Bell does offer internships to 20 students each summer, each of whom earns about $5,000. The company also provides $20,000 scholarships to 10 top seniors.

NEW NETWORKS

The partnership with Cincinnati Bell has enabled Taft to draw in other companies. For example, Hewlett-Packard (HP) employees recently talked to seniors in four weekly sessions about topics such as: What is a career with a purpose? What is it like to work out in the world? What are business ethics?

Junior Achievement provided free training to the HP employees on how to give the presentations. That program provided a great opportunity for the adults to connect with Taft students, and the school is planning to expand it next year.

A COMPREHENSIVE SAFETY NET FOR STUDENTS

At Taft, teachers create an individualized instruction plan for every student. The school also has a comprehensive safety net that catches students immediately when they suffer any type of setback.

As soon as a student fails a test, the team immediately puts him or her into an intervention program to address the deficiency.

Mr. Ferguson asked about the process for notifying students when the school identifies an academic deficiency. Who is involved in that conversation? All Taft students are assigned to a teacher team, those teachers have a real pulse of what's going on with each student, Mr. Turner responded. In August or September, the principal asks teachers to identify students who may have behavioral or instructional challenges, and either the principal or the team meets with those students early in the year. And as soon as a student fails a test, the team immediately puts him or her into an intervention program to address that deficiency.

Because of that program, some kids are at school from 8:00 in the morning (school starts at 8:45) to 7:00 or 8:00 at night, getting caught up with teachers. The program—which is called Fifth Quarter, and includes summer school—has helped get Taft's graduation rate up to 90 percent.

MORE PRODUCTIVE PARENT CONFERENCES

Conferences can engage parents if students present a portfolio of their work, including a "capstone" project.

Early on, a key challenge at Taft was the lack of parental involvement. Open houses drew 20 parents at best. And at parent conferences, faculty hammered students, focusing on what they were doing wrong. When school leaders realized that neither parents nor students were attending those conferences, they investigated best practices. Research suggested that conferences can engage parents if students present a portfolio of their work, including a "capstone" project. That approach allows teachers to have an open dialogue with both parents and students, and encourages everyone to consider, "What am I doing right, what am I doing wrong, and what do I need to improve on?"

Today, students lead parent-teacher conferences. This model has created a more positive atmosphere and helped increase parental involvement across the school. Cincinnati Bell was crucial in that endeavor, too: the company paid for raffle items early on, to attract parents to such events.

3.   BRIGHTON HIGH SCHOOL

PRESENTERS:

Joyce Campbell, Assistant Headmaster, former Chair, English Language Arts

Karen Coyle-Aylward, Teacher Leader

INTERVIEWERS:

Jon Saphier, Research for Better Teaching

Richard Murnane, Harvard Graduate School of Education

STUDENT DEMOGRAPHIC PROFILE

Exhibit 3.1   Student Characteristics for 2009

	Racial Composition					Poverty Rate
	White	Black	Hispanic	Asian	Other	% Free Lunch
Brighton	5.0%	38.0%	52.7%	3.3%	1.0%	78.6%
MA (all	69.1%	8.2%	14.8%	5.3%	2.6%	32.9%
	Number of Students at Brighton: 1,208					

Source: Calculations by the Achievement Gap Initiative at Harvard University, using unpublished data from the Massachusetts Department of Education. The Massachusetts Department of Education bears no responsibility for any errors or omissions.

MEETING THE ACHIEVEMENT CHALLENGE

Brighton High School is located in the city of Boston. It serves a student body that faces many challenges. Over 90 percent of the school's students are black or Hispanic and almost 80 percent qualify for free lunch.

Brighton High School draws incoming students from as many as 16 middle schools across the city. Teachers and instructional leaders rely on a Composite Learning Index to target students who need help on the Massachusetts Comprehensive Assessment System (MCAS) exam, which students must pass to receive a high school diploma. To support this work, the school relies on professional learning communities and a collaborative coaching and learning model to foster a climate of trust among its staff.

Based on average scores on the MCAS, Exhibit 3.2 shows the percentage of Brighton's 10th-graders in 2008 who were in each quintile of the state's 8th-grade English Language Arts (ELA) distribution in Massachusetts two years earlier, in 2006. It shows that over 70 percent scored in the bottom two quintiles as 8th-graders, with almost half (45%) in the bottom quintile.

Exhibit 3.2   8th-Grade ELA Distribution
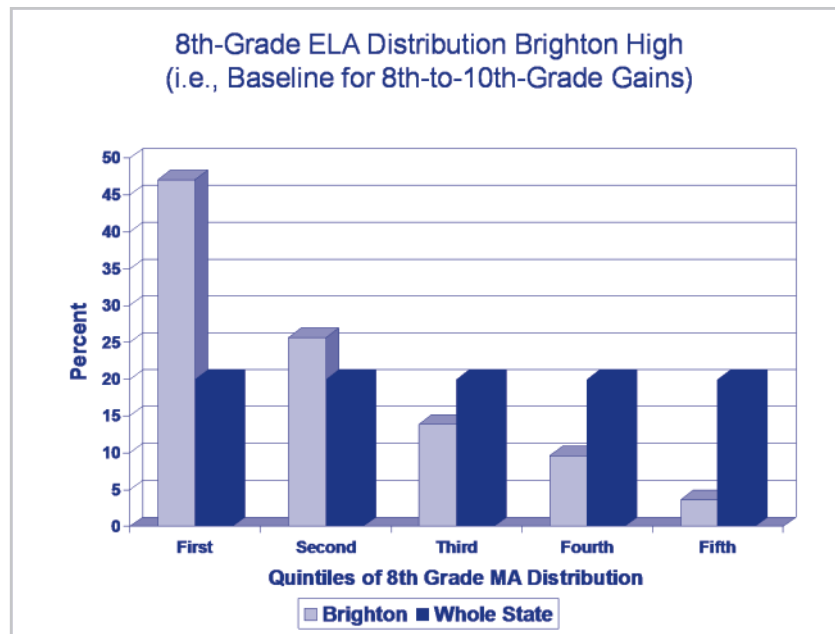
Source: Calculations by the Achievement Gap Initiative at Harvard University, using unpublished data from the Massachusetts Department of Education. The Massachusetts Department of Education bears no responsibility for any errors or omissions.

Exhibit 3.3 shows that when gains from 8th grade to 10th grade are compared with other high schools in the state, Brighton ranks high—performing better than 80 percent of other schools in the state when gains are adjusted for students' backgrounds. The light grey bars in Exhibit 3.3 show numbers that are unadjusted for background characteristics; the dark grey bars show numbers that are adjusted. (Background characteristics include race, gender, free and reduced lunch status, limited English proficiency status, 8th-grade attendance, and age.)

Exhibit 3.3   8th-to-10th-Grade ELA Gains
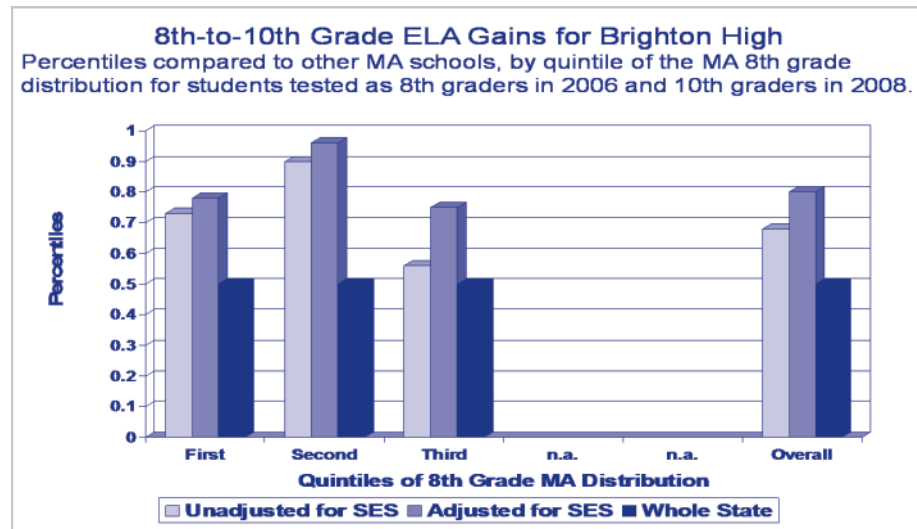
Source: Calculations by the Achievement Gap Initiative at Harvard University, using unpublished data from the Massachusetts Department of Education. The Massachusetts Department of Education bears no responsibility for any errors or omissions. The label "n.a." indicates that there were not enough students in the sample to ensure a reliable calculation.

TARGETING "THE BUBBLE"

In 2007–08, under the Boston Plan for Excellence (BPE),[33] which helps schools restructure, BPE consultants used a Composite Learning Index (CPI) to assess Brighton High School's incoming 9th-grade class, said assistant headmaster Ms. Campbell. The CPI includes 16 indicators on every child—from test scores, attendance, suspensions, repeated grades, and special ed status to the language spoken at home. The higher the score, the more challenges facing the child as a learner.

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33. For more information on the Boston Plan for Excellence (BPE), a local education fund and nonprofit, visit http://www.bpe.org/.

Although administrators were thrilled to have that information, they weren't quite sure what to do with it, said Ms. Campbell. So they decided to target the neediest 25 percent of students, based on the students' CPI score. During the first half of the year, staff members tried different initiatives aimed at boosting achievement among that group.

However, reality quickly hit. Ms. Coyle-Aylward explained: "When we tried to match instructional changes to students who had very bad attendance, we were feeling very frustrated because it wasn't making a difference. So we had to find other strategies to work with kids at the very bottom percentage who had attendance issues."

Consequently, administrators decided to shift to intervening with students "on the bubble"—those in the 30–49 percent range of the CPI. The BPE consultants helped administrators analyze data on those students and plan initiatives for them. For example, aside from using the common midterm and final exams that are written by the teachers themselves, school staff also used Formative Assessments of Student Thinking in Reading (FAST-R), developed by BPE, to determine which students had a good chance of passing the MCAS exam. Staff members then divided those students into three Small Learning Communities[34] (SLCs), and planned instruction for them. Their teachers also agreed to tutor those students after school for an hour and a half on Mondays, Tuesdays, and Thursdays.

When teachers also experienced attendance problems with these students, administrators decided that the tutoring sessions were so important that the school would treat them like a job. Students began to receive a stipend—an hourly wage—to attend the sessions: their part-time job was to do better on the MCAS. The results were astounding—that group really made good progress, said Ms. Campbell.

RESPONSIVE INSTRUCTION

To develop classroom and after-school instruction for these students, BPE consultants used FAST-R to break down the skills required to answer the multiple-choice questions on the ELA section of the MCAS. The BPE consultants divided those questions into two skills—finding evidence, and making inferences—and then broke down those two groups further, into two types of

34. Small Learning Communities (SLCs) subdivide large school populations into smaller, autonomous groups of students and teachers. Each community will often share the same teachers and student members from grade to grade.

finding-evidence skills, and five types of making-inference skills as illustrated in the diagram below.

Exhibit 3.4   Seven Types of Thinking Skills

Seven types of thinking skills give instructional leaders and teachers a common language.
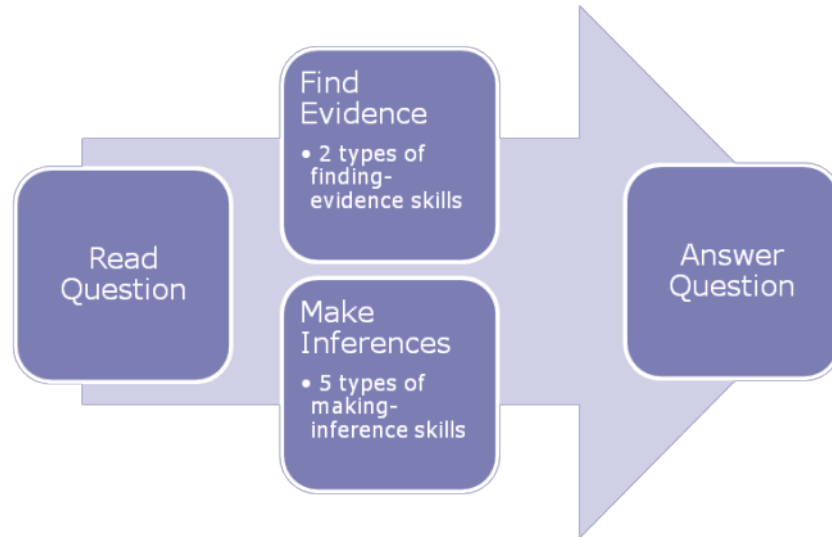
Source: Based on Brighton's presentation to the AGI conference

These seven types of thinking skills gave instructional leaders and teachers a common language. That, in turn, enabled teachers to tailor class discussions and test questions to the specific skills students were struggling with, said Ms. Coyle-Aylward. The targeted students took FAST-R tests every few weeks, and she and the instructional coach looked at the resulting data, tracking which questions students were doing well on and which they were not. The leaders then met with teachers to re-plan instruction to address the needs of the targeted students.

Teachers tailor class discussions and test questions to the specific skills students are struggling with.

As instructional leaders went through this process, they definitely used data, but they also listened to teachers, explained Ms. Campbell. For example, teachers could add students to the list of those receiving the intervention. Although that meant that teachers ended up teaching more students than instructional leaders had expected, teachers' involvement in the selection process was important, because they knew their students' needs.

Teachers also helped devise teaching strategies to address the needs of these students, and helped assess the results, said Ms. Coyle-Aylward. The teachers felt very accountable for helping students improve: they knew students were counting on them to pass this graduation requirement.

Brighton High School also has a very effective instructional leadership team, and many teachers on that team participated in this project, she said. All worked together to adjust the approach to instruction to ensure that students responded.

In fact, administrators and teachers were so pleased with the success of the approach that they took a little too much for granted, said Ms. Coyle-Aylward. During the second year the staff used the same approach, but found that students again did not want to attend the tutoring sessions, so administrators put a lot of effort into calling homes to explain the initiative to parents.

Headmaster Toby Romer also called students who were not attending tutoring sessions into his office as a group, and asked them why. He then brought in students who had received the intervention and passed the MCAS the previous year to talk to the students, and that was very effective in raising attendance, according to Ms. Coyle-Aylward.

Guidance counselors have also played a critical role in helping teachers motivate students to attend the tutoring sessions, Ms. Campbell noted. Even now, counselors remind students at the end of the school day to attend the tutoring sessions. This is part of a larger plan the counselors initiated called "Pathway to Success," under which counselors share responsibility for students and work with other staff members in SLCs to address the needs of kids who are not achieving.

After a while, the work of instructional leadership became part of a much larger initiative. Ms. Coyle-Aylward explained how one of the major things the staff learned was that if students are already three to four years behind when they arrive at Brighton, teachers do not have enough hours in the day to overcome those deficiencies. So the school broadened its MCAS intervention this year: it added an after-school E block to the daily A, B, C, D block schedule to allow seniors to retake courses they had failed.

DEVELOPING A CULTURE OF TRUST

> A culture in which teachers feel comfortable sharing challenges and strategizing on how to overcome them has developed over time.

A culture in which teachers feel comfortable sharing challenges and strategizing on how to overcome these challenges has developed over time, according to Ms. Coyle-Aylward. For example, for at least the 10 years during which she has taught at Brighton, the school has held case management sessions where teachers strategize about particular students and feel comfortable sharing their struggles in the classroom. Professional development during departmental

meetings focuses on best practices, and teachers can talk about their experiences at these meetings, too. This process of talking about challenges has fostered a culture of trust, she said.

The school established true professional learning communities four years ago, when it used funding from the Gates Foundation to form SLCs, said Ms. Campbell. That initiative—along with support from the school's instructional coach, and professional development during departmental meetings—enabled administrators to engage teachers in presenting to each other and being even more open about their experiences. It became okay for teachers to fail when they tried something new, she said. If a teacher tried a recommended approach to instruction and it didn't work, everyone would attempt to find out why.

"Karen, you've been at the school for 10 years, is that right? And how about you, Joyce, how long have you been there?" Mr. Saphier asked. "Just about 30 years," Ms. Campbell replied.

"Karen, you said that Brighton is a place where it's okay to fail," said Mr. Saphier. "You are talking about the adult culture: if I'm a teacher, and I try something out and it doesn't work, I can be vulnerable in front of my peers and let them know. Was it like that when you joined the faculty 10 years ago?"

As a first-year teacher a decade ago, Ms. Coyle-Aylward said she did not feel pressure to hide her failures or vulnerabilities. Teachers are very open to sharing during case management meetings and departmental best-practices sessions, and they also collaborate informally. However, the teamwork and feeling of trust have strengthened over the years, she noted.

Mr. Saphier responded that he had to turn the question over to Ms. Campbell, because that kind of environment does not build itself. "Who did what along the way? How did that [environment] grow?"

Boston Public Schools launched a school-restructuring initiative about 14 years ago, said Ms. Campbell. When Brighton High School started to restructure, some faculty members began kicking and screaming. However, many realized that they had been working in isolation.

When the school started to restructure, many faculty realized that they had been working in isolation.

Because they serve a challenging population, the Boston Teachers Union contract calls for additional hours of professional development, she said. The school is under pressure to use that time wisely, and teachers helped design the use of that time. The administration needs teachers' input, and relying on them to help plan professional development helped enormously in creating a culture

of trust. The school has also benefited from having good headmasters as well as an extremely successful instructional coach program, Ms. Campbell noted.

Mr. Ferguson asked the team to talk more about what exactly the instructional coach does, and with whom. According to Ms. Coyle-Aylward, the instructional coach uses a collaborative coaching and learning model, which means that she works with teachers in small study groups. Each group chooses a focus and examines student work, and members observe each other teach during eight-week cycles. The instructional coach has also trained teacher leaders to conduct their own study groups, so that approach has spread significantly.

Mr. Ferguson also asked how important focus is in developing such a culture of success. SLCs and the school's challenging population have taught staff members to focus on each child, said Ms. Campbell. Before making any decision, they ask themselves, "Is this going to help this student? Is this going to help our school? And we go from there."

DISTRICT SUPPORT

Mr. Ferguson asked how the district has supported and even enabled their work. Gates Foundation funding has been critical to the Boston Public Schools, Ms. Campbell responded. Each of the school's three SLCs received about $36,000 and had significant autonomy in spending those funds. The SLCs were free to use the funds to pay for the initiatives they devised, although the expenditures had to reflect annual goals set by the superintendent. For example, the SLCs used some of the funds to give stipends to teachers who provide after-school tutoring.

However, the school no longer receives Gates funding, and that is a significant loss, given that in January every school in Boston had to cut its budget by 15 percent, Ms. Campbell said. Brighton High School has lost two administrative positions and 10 teaching positions, and "frankly we're pretty scared about how we will maintain the progress we have made." But while Gates funding was important, Ms. Campbell maintains that it was the district that enabled the school to move forward.

> Each study group chooses a focus and examines student work. Teachers observe each other teach during eight-week cycles.

4. Brockton High School

CASE STUDY:

BROCKTON HIGH

SCHOOL

BROCKTON, MA

A SCHOOL-WIDE

FOCUS ON LITERACY

View the Video
(Realplayer Format)

Presenters:

Maria LeFort, Associate Principal for Curriculum and Instruction

Cary Copp, Art Coordinator, K–12

Jennifer Morgan, Instructional Resource Specialist and Teacher Coach, Science Department

Mike Thomas, Housemaster, Asher Building

Nicole McClaren, Instructional Resource Specialist, English Department

Interviewers:

Jon Saphier, Research for Better Teaching

Richard Murnane, Harvard Graduate School of Education

Student Demographic Profile

Exhibit 4.1   Student Characteristics for 2009

	Racial Composition					Poverty Rate
	White	Black	Hispanic	Asian	Other	% Free Lunch
Brockton	27.3%	56.2%	11.7%	2.3%	2.5%	69.4%
MA (all	69.1%	8.2%	14.8%	5.3%	2.6%	32.9%
	Number of Students at Brockton: 4,029					

Source: Calculations by the Achievement Gap Initiative at Harvard University, using unpublished data from the Massachusetts Department of Education. The Massachusetts Department of Education bears no responsibility for any errors or omissions.

MEETING THE ACHIEVEMENT CHALLENGE

Almost two-thirds of Brockton's 10th-grade students are black or Hispanic and 64 percent qualify for free or reduced-price meals. Still, these students outperform most other schools in the state with regard to the gains that they achieve from 8th to 10th grade on the English Language Arts (ELA) section of the Massachusetts Comprehensive Assessment System (MCAS).

Based on average scores on the MCAS, Exhibit 4.2 shows the percentage of Brockton's 10th-graders in 2008 who were in each quintile of the 8th-grade ELA distribution in Massachusetts two years earlier, in 2006. It shows that over 50 percent scored in the bottom two quintiles as 8th-graders.

Exhibit 4.2   8th-Grade ELA Distribution
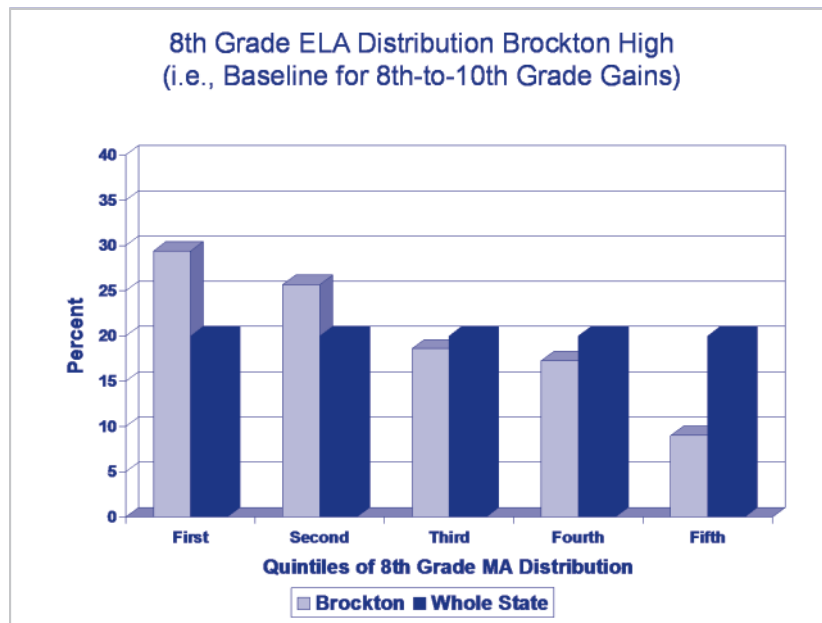
Source: Calculations by the Achievement Gap Initiative at Harvard University, using unpublished data from the Massachusetts Department of Education. The Massachusetts Department of Education bears no responsibility for any errors or omissions.

Nonetheless, as shown in Exhibit 4.3, when Brockton's gains from 8th grade to 10th grade are compared to those of other high schools in the state, the school ranks above the 90th percentile—performing better than 90 percent of other schools—in 4 out of 5 quintiles. The light grey bars in Exhibit 4.3 show numbers that are unadjusted for background characteristics; the dark grey bars show numbers that are adjusted. In either case, Brockton outperforms most other schools. (Background characteristics include race, gender, free and reduced lunch status, limited English proficiency status, 8th-grade attendance, and age.)

Exhibit 4.3   8th-to-10th-Grade ELA Gains
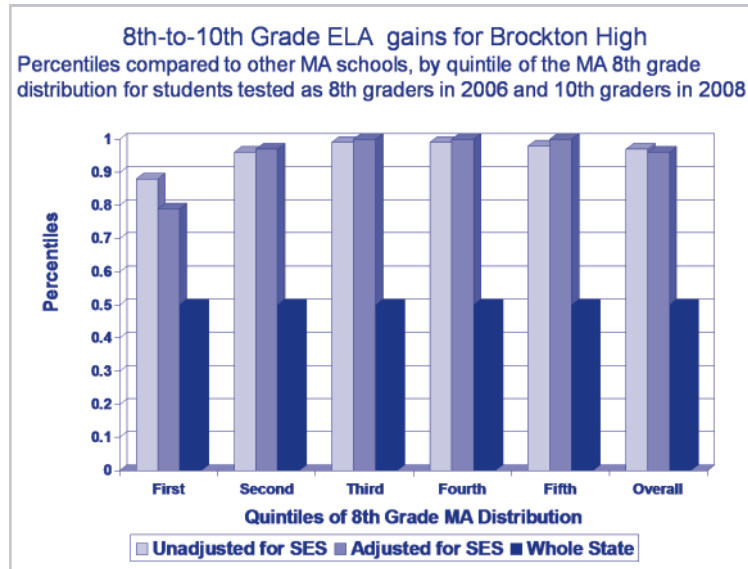
Source: Calculations by the Achievement Gap Initiative at Harvard University, using unpublished data from the Massachusetts Department of Education. The Massachusetts Department of Education bears no responsibility for any errors or omissions.

FOUR KEY LEADERSHIP GROUPS

Nearly a decade ago a few teachers and administrators started work on an ambitious school-wide literacy initiative and enlisted every teacher in every department as participants. The school relies on four key groups (described in Exhibit 4.4 below) to spearhead its literacy initiative and to choose and implement its annual focus, Ms. LeFort, associate principal for curriculum and instruction, shared.

Exhibit 4.4   Four Key Leadership Groups

Restructuring Committee	Think tank that meets once a month and is comprised of administrators, teachers, and guidance counselors who represent each department.
Administrative Leadership Team	Comprised of the principal, associate principal, department heads, housemasters, and assistant housemasters.
Data Analysis Team	Small group that analyzes data to inform the school's ongoing work.
Curriculum Steering Committees	Committees in each department that address curriculum.

Source: Based on Brockton's presentation to the AGI Conference

The first key leadership group is the restructuring committee, which consists of a mixed group of administrators and teachers representing each department in the school. The restructuring committee serves as the school's think tank, said Ms. LeFort. Composed of about 30 administrators and teachers representing every department, the committee meets once a month on Saturday mornings. Members do a lot of talking: everything is on the table, and they solve problems. The restructuring committee formed about 10 years ago, according to Ms. Copp.

The second group, the administrative leadership team, consists of department heads, housemasters, assistant housemasters, and the principal, along with Ms. LeFort herself. A smaller data analysis team, which Ms. LeFort heads, performs very fine-grained analysis of all the tests students take. That team, along with instructional leaders, brings the resulting information to the other groups for discussion. A steering committee in each department addresses curriculum. Some staff members serve on all four committees, while others serve on just one.

PATH TO SUCCESS: THE LITERACY INITIATIVE

The school-wide focus is one reason why the school has accomplished more than many other schools.

Brockton High School developed its literacy initiative after taking a hard look at the data and where the school was going. A few members of the staff realized that Brockton needed a whole-school effort, and thought a literacy initiative would provide that, said Ms. Copp, K–12 art coordinator. Mr. Ferguson asked how important a school-wide focus is to a culture of success. The school-wide focus has really helped Brockton Ms. LeFort replied. It's one reason why the school has accomplished more than many other schools.

The school's restructuring committee was the driving force behind this initiative. A group of teachers and administrators got together and asked one big question: What are the skills we want our students to have by the time they leave Brockton High School?

FOUR CORE LEARNING SKILLS

With input from students and members of the community, the committee identified four core learning skills: reading, writing, speaking, and reasoning. The committee focused on those skills—which the school calls its core learning—because community members told the committee loudly and clearly that if students had those skills, they would be well prepared for college or the world of work.

Exhibit 4.5   Four Areas of Identified Skills

The restructuring committee identified four core learning skills: reading, writing, speaking, and reasoning to focus on.
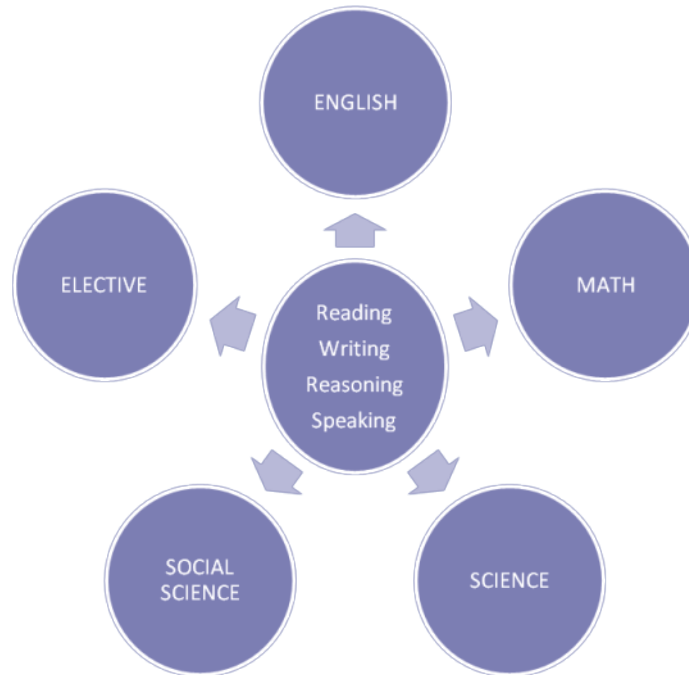
Source: Based on Brockton's presentation to the AGI conference

The committee decided that the best approach was to make the core learning an integral part of the entire curriculum (as illustrated in Exhibit 4.5 above), and to ask all teachers to implement reading, writing, speaking, and reasoning within their own content areas, Ms. Copp said. Everyone from physical education teachers to art teachers to guidance counselors focuses on helping students develop these skills.

LITERACY CHARTS IN EVERY CLASSROOM

The school posted 16x20 literacy charts in every classroom outlining the core elements of each skill. For example, the reading chart in Exhibit 4.6 lists eight elements that students need to master within that overall skill. The writing chart stipulates that students should be able to compare and contrast, and to know how to take notes, among other elements.

According to Ms. Copp, teachers might say: "Oh, yeah, my students know how to take notes." But the chart reminds them to consider: Do the students really know how to take notes? Can they demonstrate to the teacher that they know how to take notes? Effective notes? The speaking chart might ask students in an art class to be able to explain why they like a piece of art, she explained.

Exhibit 4.6   Examples of Literacy Charts

LITERACY CHART: READING

- Read for content (both literal and inferential)
- Apply pre-reading, during-reading, and post-reading strategies to all reading assignments, including determining purpose and pre-learning vocabulary
- Research a topic
- Gather information
- Comprehend an argument
- Determine the main idea of a passage
- Understand a concept and construct meaning
- Expand one's experiences

LITERACY CHART: WRITING

- Take notes
- Explain thinking
- Argue a thesis and support thinking
- Compare and contrast
- Write open response
- Describe experiment, report findings and conclusions
- Generate a response to what one has read, viewed, or heard
- Convey thinking in complete sentences
- Develop expository essay with formal structure

LITERACY CHART: REASONING

- Create, interpret, and explain a table, chart, or graph
- Compute, interpret, and explain numbers
- Read, break down, and solve a word problem
- Interpret and present statistics that support an argument or hypothesis
- Identify a pattern, explain a pattern, and/or make a prediction based on a pattern
- Detect the fallacy in an argument or a proof
- Explain the logic of an argument or solution
- Use analogies and/or evidence to support thinking
- Explain and/or interpret relationships of space and time

LITERACY CHART: SPEAKING

- Convey thinking in complete sentences
- Interpret a passage orally
- Debate an issue
- Participate in class discussion or public forum
- Make an oral presentation to class, peers, and community
- Present one's portfolio
- Respond to what one has read, viewed, or heard
- Communicate in a manner that allows one to be both heard and understood

Source: From Brockton's presentation to the AGI conference

FOCUS ON OPEN RESPONSE

Brockton focuses on one or two elements of a core learning skill each year, and devotes every professional development session to those elements, Ms. Copp said. The school's first big push—where they got the biggest bang for their buck—was in writing. The school tried to zero in on a skill every faculty member could work on in his or her classroom.

The MCAS for 10th-graders includes an open-response section. The restructuring committee decided that teachers would emphasize that element—which involves writing to a prompt—in all grades and all content areas. So the school trained all its teachers how to teach open response. The school also gave students active-reading strategies (shown in Exhibit 4.7) for understanding and assessing open-response questions, so they knew exactly what we expected of them, according to Ms. Morgan, instructional resource specialist and teacher coach in the Science Department.

In every classroom, for example, teachers would say: "I want you to actively read this handout. What am I asking you to do? Show me evidence that you are following the strategies that you see here." The school was tenacious in implementing this strategy, Ms. Morgan said. The associate principal created a calendar that specified when teachers in every content area would give assignments emphasizing the focal aspect of writing. School staff members used every moment with kids as a learning opportunity.

Sidebar (left margin):

Brockton focuses on one or two elements of a core learning skill each year, and devotes every professional development session to those elements.

The associate principal created a calendar that specified when teachers in every content area would give assignments emphasizing the focal aspect of writing.

Exhibit 4.7   Active Reading Strategies

1. Read the Question.

2. Circle Key Direction Verbs.
For example: "write", "draw", "explain", "compare", "show", "copy"

3. Underline Important Information.
Often there is information in a question that is irrelevant to finding the answer.

4. In Your Own Words, Write What the Question is Asking You to Do.

5. Develop Your Plan/Answer the Question.
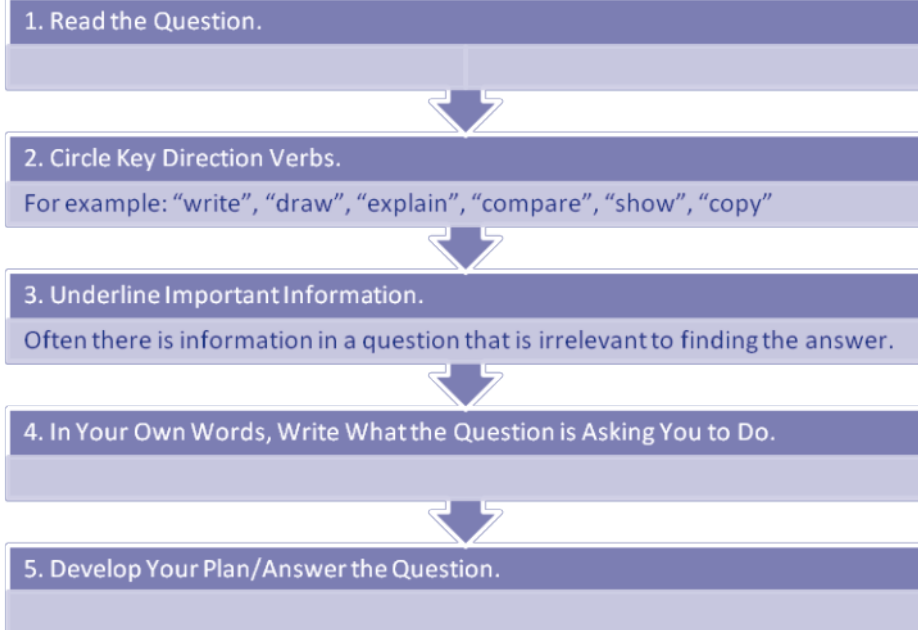
Source: From Brockton's presentation to the AGI Conference

"You'll see [reading and writing] in your formal evaluation, you'll see it in your informal evaluations," Mr. Thomas attested. The department also made sure that literacy-related work focused on class content. For example, the gymnasiums have heart rate monitors, so open-response questions in physical education focused on heart rates and physical fitness.

In one year, students' failure rate on the ELA portion of the MCAS dropped from 44 percent to 23 percent, and the failure rate has since dropped to 5 percent. When teachers saw those powerful results, there was buy-in for implementing the next round of the literacy initiative, according to Ms. Morgan.

REACHING BEYOND THE MCAS

Mr. Murnane asked, "If I were a beginning high school principal in Massachusetts with a student population that did not do well in the 8th grade, I would wonder if my school adopts a broad literacy initiative like Brockton's, will our MCAS scores be okay?"

Ms. LeFort responded that school leaders look at MCAS data very carefully, and base professional development on that information, because they realize that those tests do measure skills students need. However, the school's literacy charts also include speaking, which MCAS does not test. Overall, the school tries to focus on the skills students need to be successful after high school, she said.

Mr. Murnane noted that in talking to teachers about No Child Left Behind, he has heard time and again that there's too much drill and kill—too much focus on test preparation—and that that means the country is not educating our children well. Brockton seems to have a much more nuanced view of how to use high-stakes tests, he observed. Those tests clearly play a role in instruction, but the staff uses them to support mastery of skills and information that matter. The whole approach goes beyond simply passing the MCAS. Brockton believes that the way for students to master core skills is ask them to demonstrate them in every subject, said Ms. Copp. That approach is not about the MCAS. However, it will help students do well on those tests.

FOSTERING STUDENT ENGAGEMENT

With a focus on standardized testing, education can become drudgery, Mr. Ferguson noted. He asked how schools can foster student engagement given high-stakes testing.

One thing Brockton has done well in is keeping the high school comprehensive, said Ms. Copp. Brockton's principal, Susan Szachowicz long ago decided the school would not address students' deficiencies by asking them to take two math or two English classes a day. She wanted to give kids what they need throughout all content areas.

Many of Brockton's kids don't come to school for math or physics, said Ms. Copp: they come because of their relationship to sports, fine arts, or drama. The school has found that it needs to keep kids invested in the subjects they really liked: these are the hook. Staff members engage students by enabling them to take the subjects and participate in the activities they like, rather than pushing them toward those they don't like.

The school also emphasizes personalization, according to Mr. Thomas. With 4,500 students, staff members can talk about improving academic achievement, but they must ensure that each student feels connected to the school and the adults in it. Mr. Thomas attended Brockton when it had almost 6,000 students,

and no one really knew individual students—they felt they were a number. You can't overestimate the importance of personalization, he said.

According to Ms. LeFort, "Our kids now never talk about passing MCAS, they talk about being proficient. And it is an amazing conversation when you overhear kids saying I scored proficient, I did really well. So it's a whole mind shift of not only the teachers but also of the students."

THE PROFESSIONAL DEVELOPMENT MODEL

Mr. Saphier observed that Brockton has shown that good professional development can be top-down and bottom-up at the same time. The school has also shown that when students improve at nonfiction writing, that generalizes to every other subject: they get better at math and science. It makes sense, if you consider the thinking skills and self-organization required to do nonfiction writing, said Mr. Saphier.

Ms. McClaren explained that the restructuring committee chooses one focus, such as open response, each year, although it might have different facets. That element is then taken through a formal process leading to effective instructional practices, as shown in Exhibit 4.8. School leaders use scripts, workshops, and department meetings to talk about that element. However, leaders do continue to emphasize elements that the school focused on in previous years. If leaders stop asking teachers to include those elements in their lesson plans, and stop asking for samples of student work that reflect those elements, teachers will stop talking about them. "What gets monitored gets done," Ms. McClaren said.

The data analysis team and restructuring committee first identify an area of weakness, and instructional leaders then develop a workshop to address that weakness. To ensure that teachers across the entire school receive the same message, the leaders actually create a script for each workshop. Brockton has no contractual in-service time for professional development, so the school needed to get creative in training teachers about literacy instruction, said Ms. Morgan. Rather than devoting two one-hour contractual faculty meetings to announcements and other routine business, the school uses this time for interdisciplinary professional development workshops.

The data analysis team and restructuring committee first identify an area of weakness, and instructional leaders then develop a workshop to address it.

Exhibit 4.8   Adopting Effective Instructional Practices
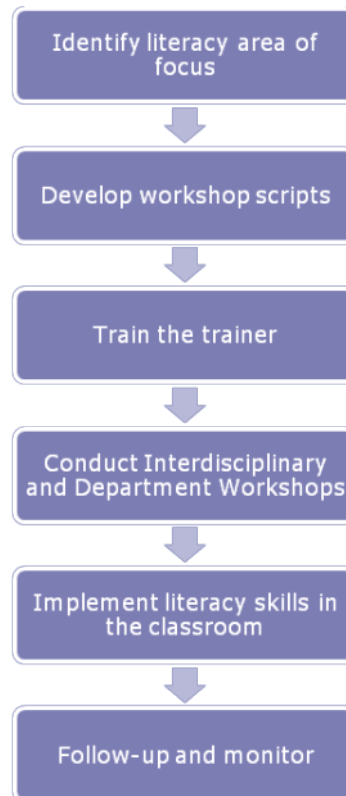
Source: Based on Brockton's presentation to the AGI conference

Instructional leaders always follow up: whatever they monitor gets done, and whatever they don't monitor doesn't.

The instructional leaders then train the trainers: the teachers, guidance counselors, and administrators who will teach the actual interdisciplinary workshops. Leaders conduct the workshops again for new teachers each year, so everyone is trained in the same techniques, said Ms. McClaren, an instructional resource specialist in the English Department.

After hearing about an element such as open response in the interdisciplinary workshops, teachers learn how to apply that element in their specific subject at departmental workshops, according to Ms. Morgan. The associate principal then develops the calendar for implementing the element: this department will work on open response on this day, or during this week.

Instructional leaders always follow up and monitor teachers' use of the techniques they learn, because leaders know that whatever they monitor gets done, and whatever they don't monitor doesn't get done, said Ms. Morgan. The school also uses interdisciplinary small-group discussions to ask faculty leaders how things are going, and where teachers need more support.

Ms LeFort explained "It really is about changing attitudes, and the change comes after the success. When we hold meetings now and we show data, we talk to our teachers and teachers say we really could do this. The culture of the school has changed dramatically and it is a belief that every student can and must learn and our responsibility is to figure out how. We are always looking in the mirror. "

A RESPONSIVE FEEDBACK LOOP

After Brockton introduced active-reading strategies across the school, according to Ms. Morgan, instructional leaders brought the document with those strategies back to the restructuring committee and asked, "What is it missing? How can we revise it?" The committee felt that it needed more language to help students and teachers apply it more effectively in subjects such as math, science, and history. So the committee revised it and presented it again to the staff with the new information, she said.

Faculty members in each department use common assessments. The school developed "an assessment rubric for our open responses. We are in the process of developing one for science and math open responses because we've decided they are different," said Ms. Morgan.

FOCUSING TEACHER EVALUATION ON INSTRUCTION

Part of Brockton's success entailed changing both its formal and informal teacher evaluation system, said Mr. Thomas, housemaster for the Asher Building. To do so, the school relied heavily on Jon Saphier's *The Skillful Teacher*[35] course, which administrators took in 2003.

Housemasters and department heads now use the same criteria to evaluate all 300 teachers across the school. And those criteria are no longer about classroom management—how fast a teacher gets kids outside during fire drills. They now focus on instruction, according to Mr. Thomas. The school now provides in-house training in using this system to all new administrators.

The department heads collect samples of students' open responses from each teacher, read the responses, and give feedback to each teacher, said Ms. Morgan. The associate principal similarly collects samples of student work from

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35. *Research for Better Teaching (RBT) is a school improvement organization founded by Dr. Jon Saphier in 1979. For more information, please visit* http://www.rbteach.com.

the department heads, reads them, and gives feedback to the department heads as illustrated in Exhibit 4.9 below.

Exhibit 4.9   Open Response Feedback Loop
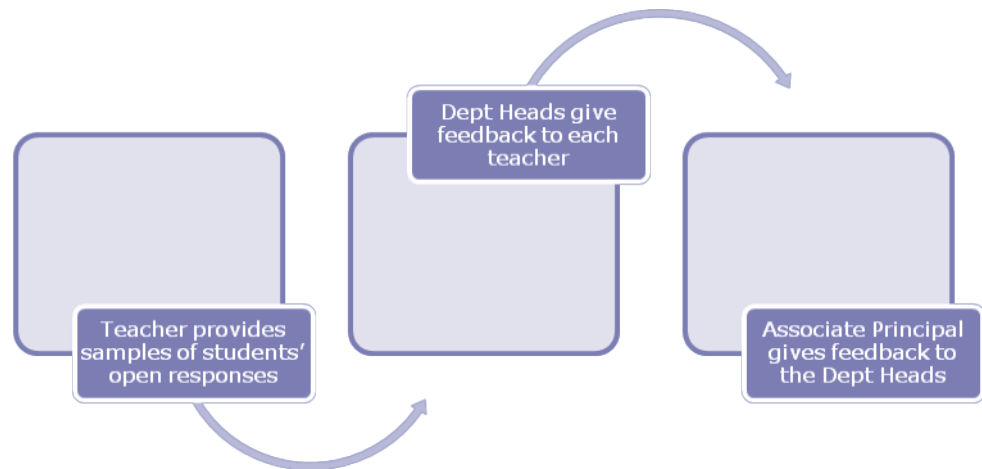
Source: Based on Brockton's presentation to the AGI conference

Brockton gives all its students access to the same curriculum, and expects them—without exception—to master the skills entailed in the literacy initiative, Ms. LeFort said. However, the school does provide a safety net and interventions for struggling students, including special education students and English language learners.

MONITORING EFFECTIVENESS

Mr. Ferguson asked what data school leaders use to monitor the literacy initiative, and how they use that information. According to Ms. Copp, leaders usually obtain data by looking at student work and having interdisciplinary discussions. After the school implements any kind of instructional approach, the leaders solicit feedback from teachers through either departmental or interdisciplinary meetings about how the approach is going and what needs to change.

A perfect example is the revision to the open-response rubric, she said. When the school first implemented open response, the restructuring committee devised what it thought was a great rubric for teachers to use to assess student writing. And at first that rubric seemed to work. However, leaders realized after

talking to faculty members and looking at students' work that the rubric really wasn't helping students become proficient in writing, Ms. Copp said. So the restructuring committee revised the rubric and reintroduced it to the faculty through another professional development series.

Mr. Ferguson suggested that, in many schools, teachers do not expect anyone to ever ask what they do after professional development—no one knows whether a teacher ever tried to apply the professional development lessons. He asked the Brockton team to confirm that they actually follow up most of the time and ask teachers how an instructional approach is going. "We always follow up," Ms. LeFort responded.

CLOSE SUPERVISION

According to Ms. McClaren, the English Department has 45 teachers, so they break into groups of seven or eight to talk about what worked and what didn't. If teachers are not getting what they want from their students, they know they have to ask their colleagues for help.

Looking at student work is critical to understanding what's going on in a school.

Department chairs are also closely supervised. Mr. Saphier asked how often school leaders collect student work from every department, and what they collect. Looking at student work is critical to understanding what is going on in a school, said Ms. LeFort. When Brockton implements a school-wide approach to teaching such as open response, she creates a calendar of implementation that says, "Phys ed, you are going to include that approach in your lesson plans this week." So department heads can walk into any class that week and collect student work that reflects that focus.

Each department head creates a calendar showing when he or she will collect various types of student work.

Ms. LeFort asks each department head, in turn, to create a calendar showing when he or she will collect various types of student work—whether homework, tests, or projects. Ms. LeFort always asks for a range of student work: excellent, mediocre, and poor. The department heads show her the calendar, they collect the work, and they have a conversation about what they have collected. They talk about educational rubrics, grading, and teacher feedback, and then they give that feedback to the teachers.

"Who gives the feedback to the teachers?" asked Mr. Saphier. "The department heads," Ms. LeFort responded. "And you sit with each department head going over the information that needs to be fed back?" he asked.

Ms. LeFort says she might ask a department head, "What observations do you have about this work?" The department head will tell her, "Well, so and so's teaching is really good—I would love to see that approach throughout the department." Then Ms. LeFort might ask, "What was good about it? Maybe that teacher can share a particular tool with other teachers."

Or she might look at student work that the art coordinator brings her and observe, "You have to provide more feedback to your faculty." The art coordinator would then take the conversation back to teachers and talk more specifically about teaching strategies. The feedback Ms. LeFort gives to department heads varies depending on the assignment and the department. Some departments are stronger than others, she said.

"Let me just underline this," Mr. Saphier said. "Supervision of department chairs happens at Brockton High School in a fairly close way, and department chairs are supervised by having them bring the work that their teachers are producing to the head of curriculum and instruction. That person sometimes coaches a department chair, and sometimes endorses his or her insights into what's good or what isn't, and talks about how he or she will follow up." Ms. LeFort agreed.

Then Mr. Saphier noted that in some cities, regional superintendents could play that role, working with principals. But at a large high school, the department chairs are the key lever for reaching teachers. "Without question," Ms. LeFort responded. "Nobody works in isolation in our school—it's just too big. And I have to say that without the department chairs, I couldn't do my job."

> Supervision happens in a fairly close way; the department chairs bring work that their teachers produce to the head of curriculum and instruction.

BUILDING A CULTURE OF TRUST

Mr. Saphier observed that the culture change at Brockton High School required developing trust between administrators and teachers. That is an aspect of school culture about which people have tacit knowledge—they know more than they can say. In *The Five Dysfunctions of a Team*, Patrick Lensioni defines trust simply as the confidence that no one on someone's team will humiliate him or her—it is safe to be vulnerable.[36]

The stories that Brockton presenters told attested to that attribute, and this type of trust is the foundation for most schools that improve quickly, said Mr. Saphier.

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36. *Patrick Lensioni, 2002.* The Five Dysfunctions of a Team. *Jossey-Bass.*

LAUNCHING THE RESTRUCTURING COMMITTEE

Mr. Saphier asked Ms. LeFort to speak more about the restructuring committee and how it has helped to spearhead the culture change at Brockton. Was Susan Szachowicz on that committee? Ms. Szachowicz, the current principal, was a leader, Ms. LeFort confirmed. Ms. Szachowicz was then head of the Social Science Department, and she and Paul Laurino, then head of the English Department, co-chaired the group. The rest of the school did not regard the committee favorably, according to Ms. LeFort: Ms. Szachowicz and Mr. Laurino basically begged their friends to be on it and 15 to 20 people joined.

Ms. LeFort said that the restructuring committee grew out of the school's response to the education reform law passed by the Massachusetts Legislature in 1993. Initially, the principal created a committee to revise the school's schedule to increase instructional time in accordance with the law's requirements. Later, around the year 2000, the committee was renamed the Restructuring Committee and put in charge of reforming the school's approach to instruction. The main impetus was the impending requirement that students would have to pass the MCAS in order to graduate.

The committee became empowered over time as hard work raised student achievement, Ms. LeFort said. Today the committee is much more popular. Some 80 people apply to join the restructuring committee every year, and committee members must choose among them. The committee adheres to a basic rule during meetings: no griping. Everyone comes to the table constructively, and no one denigrates any ideas. Members consider them politely, openly, and positively, said Ms. LeFort.

This is a story of two department chairs who, in the end, transformed the school.

There is little doubt that Sue Szachowicz and Paul Laurino were the main driving forces in the transformation. "Now that's a story of two department chairs who, in the end, transformed the school," said Mr. Saphier. Mr. Laurino "just retired maybe two years ago, and Sue became associate principal and really moved [restructuring] forward." Meanwhile the person who was the principal through the initial period "just let it happen." The principal empowered some people almost by accident because "he wasn't very interested," Ms. LeFort concurred.

So committee members during the initial period acknowledged that they had a problem, had to respond, and would not stop working until they succeeded, Mr. Saphier observed. The Restructuring Committee then created the literacy initiative, and the internal staff development process required to train teachers to implement that initiative. It was a slow process, but it was also relentless. "Yeah, we are relentless, we are that," Ms. LeFort agreed.

Defining Instructional Non-Negotiables

The school then used Mr. Saphier's teacher evaluation course to define instructional non-negotiables, he noted. That gave everyone who provides feedback to teachers the opportunity to build courage and conviction around the core learning the school wanted to stress. Giving a leadership group extended time together to develop non-negotiables is an important part of this work, said Mr. Saphier.

"Yes, we all speak the same language," agreed Ms. LeFort. "Teachers know that housemasters and department heads will address literacy during their evaluations. I read every evaluation that's done at the school, and there is a consistency there and there is the expectation that there are certain things that will be done in classrooms."

"And when I see that a teacher is not doing them, I call in the department head, I call in the housemaster, or they come to me first and say, 'You know, we're having an issue with so and so,' and then they will actually forward me a copy of the evaluation before they actually give it to the teacher, so that we can all be on the same page with it and have a conversation about what we are going to do."

Providing Teachers with Supports

The school's approach to evaluation is actually extremely supportive, she said: it is about encouraging people, it is about putting supports in place. And administrators do create instructional improvement plans for individual teachers. Of course, administrators sometimes get to the point where they say to a teacher, "You know what, Brockton High is not the place for you," acknowledged Ms. LeFort.

Whenever the school rolls out a core element or teaching technique, leaders provide an incredible amount of support for the entire faculty on how to implement the new element, according to Ms. Morgan. All teachers are trained, and if they encounter a problem, they call an instructional resource specialist. That specialist helps make the approach more viable in the teacher's classroom, Ms. Morgan said.

If that does not work, teachers can then consult department heads or housemasters. Teachers jump through a million hoops before everyone concludes that they are not working out, she said.

Giving a leadership group extended time together to develop non-negotiables is an important part of the work.

Administrators sometimes get to the point where they say to a teacher, "You know what, Brockton High is not the place for you."

The school also supports teachers by developing common assessments, said Ms. Copp. Both teachers and students know what a good open-response essay looks like because instructional leaders are telling them and providing examples.

OVERCOMING RESISTANCE

When Mr. Thomas first came to Brockton High School from a junior high school eight years ago—when the school first began teaching literacy skills across curriculum—he became department head of physical education. "It was a lot of fun getting the physical education teachers to teach writing and reading," he said. For example, "the football coach—who was a great guy with more than 500 wins, the most in Massachusetts—wasn't big on teaching reading and writing in the gymnasium."

Mr. Thomas had to work through such barriers to make reading and writing part of the department's culture. "It was a battle, and a lot of the conversations were not fun, and made your stomach turn. But you just had to plow ahead because you knew it was good for the kids and not for the convenience of the teachers." The department secured teacher buy-in when test scores rose, he said. Today physical education teachers do not even question the school's approach. They say, "Okay, we are in the gym, but what else do we need to work on?"

Mr. Ferguson asked Mr. Thomas to give an example of a conversation that was not fun. "What kinds of things did people say to one another during those conversations?" According to Mr. Thomas, a gym teacher would say, "You are asking me to grade an open-response writing assignment. How will I do that?" The physical education teachers were nervous.

However, Mr. Thomas said, "We always focused it on the kids. I would say, 'Listen, you went to school for four years. You're a physical education teacher, but a lot of the classes you took were pre-med. You wouldn't be here if you couldn't read and write, so you should be able to give a student a writing assignment, get that back and grade it, if you get the proper training.' And once they heard that they were going to get assistance from the English Department or from the Math Department for whatever initiative we were doing, that relieved their apprehension." Sometimes, the teachers would still say, "It's the gym, it's phys ed, we shouldn't have to teach writing." "And what would you tell them?" Mr. Ferguson asked. "If you want to work at Brockton High, it's your job," replied Mr. Thomas.

"It was a battle, and a lot of the conversations were not fun...you just had to plow ahead because you knew it was good for the kids."

5. WORCESTER TECHNICAL HIGH SCHOOL

PRESENTERS:

Sheila Harrity, Principal

Betty Copeland, Head, Math Department

Paul Silverman, Math Teacher

Dan Fitzpatrick, Math Teacher

INTERVIEWERS:

Jon Saphier, Research for Better Teaching

Richard Murnane, Harvard Graduate School of Education

STUDENT DEMOGRAPHIC PROFILE

Exhibit 5.1   Student Characteristics for 2009

	Racial Composition					Poverty Rate
	White	Black	Hispanic	Asian	Other	% Free Lunch
Worcester	50.5%	9.8%	34.0%	3.7%	2.0%	65.4%
MA (all grades)	69.1%	8.2%	14.8%	5.3%	2.6%	32.9%
Number of Students at Worcester Tech: 1,396						

Source: Calculations by the Achievement Gap Initiative at Harvard University, using unpublished data from the Massachusetts Department of Education. The Massachusetts Department of Education bears no responsibility for any errors or omissions.

MEETING THE ACHIEVEMENT CHALLENGE

Worcester Technical High School is a racially diverse vocational high school serving a mostly low-income population. Over 50 percent are students of color. Almost 70 percent qualify for free or reduced price meals.

Exhibit 5.2 shows that in 2006, 87 percent of entering 8th-graders had either failed or scored "needs improvement" on the Massachusetts Comprehensive Assessment System (MCAS) in math, while 50 percent had failed or scored "needs improvement" in English Language Arts (ELA). When Ms. Harrity became principal of Worcester Tech three years ago, she had held many jobs in the district, and was herself a product of Worcester Public Schools. She knew that a large school can spin its wheels when trying numerous initiatives. So when she met with the school's 140 faculty members, she told them, "I promise you this: we will do one or two things well—we will not lose focus."

Exhibit 5.2   Student Scores in 2006

GRADE 8 MCAS SCORES	MATH	ENGLISH
Failure	54%	10%
Needs Improvement	33%	40%
Total Percentage of Students That Failed or Need Improvement	87%	50%

Source: From Worcester's presentation to the AGI conference

To address these challenges, Worcester Tech decided to focus on "open response"—or writing to a prompt—in every class throughout the school. After one year, the principal Ms. Harrity reports, the number of students who scored "proficient" or "advanced" on the ELA portion of MCAS test rose by 40 percentage points, while math scores rose by 15 percentage points.

Based on average scores on the MCAS, Exhibit 5.3 shows the percentage of Worcester Tech's 10th-graders in 2008 who were in each quintile of the 8th-grade math distribution in Massachusetts two years earlier, in 2006. It shows that over 60 percent scored in the bottom two quintiles as 8th-graders.

Exhibit 5.3   8th-Grade Math Distribution
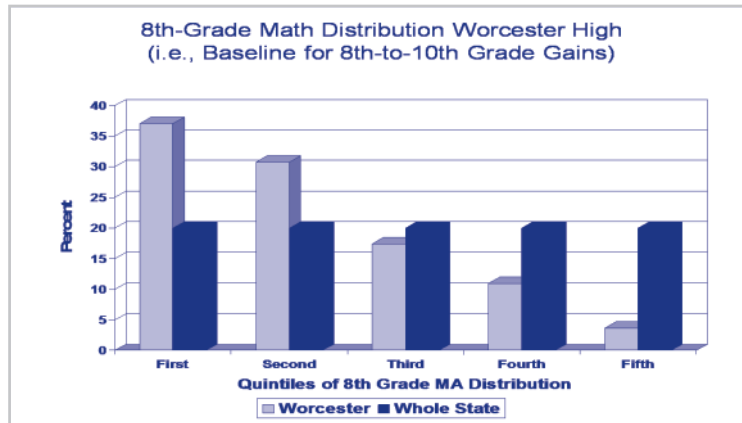
Source: Calculations by the Achievement Gap Initiative at Harvard University, using unpublished data from the Massachusetts Department of Education. The Massachusetts Department of Education bears no responsibility for any errors or omissions.

Exhibit 5.4 shows that when Worcester Tech students' gains from 8th grade to 10th grade are compared with other high schools in the state, Worcester Tech ranks at the 80th percentile—performing better than 80 percent of other schools in the state. The light grey bars in Exhibit 5.4 show numbers that are unadjusted for background characteristics; the dark grey bars show numbers that are adjusted. In either case, Worcester Tech ranks high. (Background characteristics include race, gender, free and reduced lunch status, limited English proficiency status, 8th-grade attendance, and age.)

Exhibit 5.4   8th-to-10th-Grade Math Gains
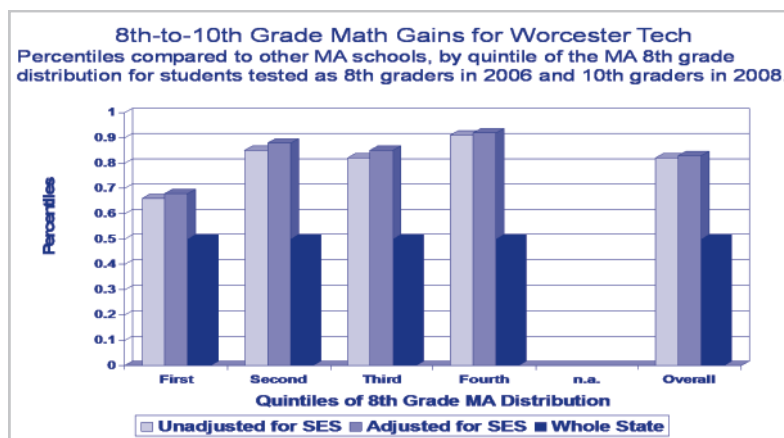
Source: Calculations by the Achievement Gap Initiative at Harvard University, using unpublished data from the Massachusetts Department of Education. The Massachusetts Department of Education bears no responsibility for any errors or omissions.

A FOCUS ON MASTERING OPEN RESPONSE

Mr. Ferguson asked how important focus is to the culture of success at Worcester Tech, and how the school has managed to avoid the "this-too-shall-pass" syndrome among teachers, which occurs when schools try to do too much.

"We can all agree, when we are in public education, that you can rub your belly, tap your head, stand on one foot and jump, and that sometimes feels like education," Ms. Harrity said. However, she promised her staff that the school would "stop the insanity and do one or two things well, instead of going in a hundred directions, because we all know that does not work."

When Worcester Tech was designing its school improvement plan, it became obvious that the school really needed to address the fact that 40 percent of its students had scored a zero on the open-response portion of the MCAS, Ms. Harrity recounted.

She called many of those students to her office and asked them why they had scored a zero. They told her they didn't know what they were expected to do on the open-response test, or how it was scored. As a big sports fan, she said, she believes that everyone needs to know the rules of the game. So she decided that the school improvement plan would focus on open response.

She told the entire staff and student body: "I don't mean to insult you, but we are going to start from the ground level and work our way up, so that everyone is on the same page." School leaders then devoted five early-release days to training the staff in what good open-response writing looks like, and on the state rubric for scoring it.

A group of faculty and staff even downloaded and examined MCAS open-response "anchor papers"—student essays from earlier years. This group included vocational teachers, which Ms. Harrity felt was critical, as vocational teachers and academic teachers need to work collaboratively in offering "applied learning"—lessons that relate to the real world.

Instructional leaders asked teachers to assign open-response writing in every single subject. The vocational component was actually easy, said Ms. Harrity, as in those classes, open-response writing focused on standards of the Occupational Safety and Health Administration (OSHA), workplace safety practices, and other work-related topics. Teachers and staff then used samples of student work to decide together which responses to rate "advanced," "proficient," and so on, so everyone understood how to grade them accurately.

> Students said they didn't know what they were expected to do on the open-response test, or how it was scored.

> Instructional leaders asked teachers to assign open-response writing in every single subject. The vocational component was actually easy.

USING MODEL TEACHERS

In emphasizing literacy across the curriculum, Mr. Ferguson asked, how do instructional leaders help teachers who do not like to write, who might be poor writers, or who do not value writing? How do leaders judge whether teachers are up to speed in teaching writing? And what kinds of support do leaders provide to teachers who don't want to teach literacy, or who struggle?

The school relies on the "model teacher" approach to train faculty to teach literacy, Ms. Harrity responded. For example, although the ELA Department head teaches during four of five classes daily, she taught a lesson on developing a topic for a long composition to more than 200 students seated in the school's auditorium. At the same time, elsewhere in the building, another model teacher showed students how to tackle an open-response question. Other teachers then chose one model teacher to observe in action, Ms. Harrity said.

The school relies on the "model teacher" approach to train faculty.

THE "SUCCESS" CAMPAIGN

A POSTER

To emphasize the key elements of how to effectively answer open-response questions, the school created a poster that used those elements to spell S-U-C-C-E-S-S, Ms. Harrity recounted. To help ensure school-wide buy-in, she turned the poster over to the Graphics Department for students to design and produce. That poster now hangs in every classroom and every hallway in the school.

AN OPEN-RESPONSE BANK

Each department head also created an open-response bank to preserve all the open responses from previous MCAS exams in each subject. "We saw no reason to reinvent the wheel," according to Ms. Harrity, "Teachers and staff at high schools often forget to share information and materials—they need to rediscover the kindergarten model of working in the sandbox together."

A talented English teacher created a rap spelling out the elements of S-U-C-C-E-S-S. The school plays it before students take an open-response test.

THE RAP SONG

Ms. Harrity asked a talented English teacher who is also a rapper to create a rap spelling out the elements of S-U-C-C-E-S-S. The school plays the rap—based on "Conjunction Junction, What's Your Function?" from the TV show *Schoolhouse Rock*—before students take an open-response test every two weeks. Students can also play the song at home, in class, or before taking the MCAS, she noted.

Because Worcester Tech is a vocational school, it was also important to integrate work-readiness skills into learning, such as ensuring that students arrive at school and in class on time, so instead of playing the "gotcha game" when the bell rings, she decided to broadcast music—to prompt students to move willingly to their first-period class on time.

Guidance Counselors

Mr. Ferguson asked what role guidance counselors play in the school's success. "They are a major ingredient in students' success," Ms. Harrity responded. At Worcester Tech, counselors write the improvement plan for students in the "needs improvement" category, so they help identify students' strengths and weaknesses. Guidance counselors also help students pick appropriate courses to help them succeed.

After one year, the number of students who scored "proficient" or "advanced" on the English Language Arts MCAS test rose by 40 percentage points, while math scores rose by 15 percentage points, she said.

Tackling Math Achievement

Although 80 percent of Worcester Tech students enter the school either failing or scoring "needs improvement" in the math portion of MCAS, math teacher Mr. Silverman sees that as an opportunity rather than an obstacle to success. "We are starting pretty close to the bottom, we have a long way to go, and we have many ways of getting there," he said.

One challenge is that when freshmen arrive at the school, administrators don't yet have their 8th-grade MCAS results. Administrators also know little about the students because they come from many middle schools. And of course students have attitude issues that are typical of city students, Mr. Silverman said.

Math teachers work with shop teachers and faculty in other technical subjects to create open-response questions that reflect real life.

However, administrators and teachers do eventually analyze the results of MCAS tests to create an individual plan for every student, so the school does not lose a lot of time, he said. Teachers use that information—along with the state frameworks for what students should learn in every subject—to guide their lesson plans. Each department, including math, also has an MCAS problem bank, so that teachers can share lesson plans and open-response questions that they are assigning students.

A big key to the success of Worcester Tech students is that math teachers work with shop teachers and faculty in other technical subjects to create open-response questions that reflect real life, Mr. Silverman contended. Instructional

leaders then use student work to guide professional development in open response.

However, Mr. Murnane surmised that when students arrive at Worcester Tech, many might not know basic arithmetic and other subjects that they should have learned in 4th and 5th grade. He asked how they deal with that problem. Do they plan remedial courses to ensure some consistency for those students, for example?

"You're absolutely correct," said Mr. Fitzpatrick "the basic skills of many students are not where they should be." During his first few years at Worcester Tech, he taught inclusion classes, which are open to all students, and tests showed that the students often had 4th-grade skills.

The math teachers decided they had to start somewhere, so they began to teach students new basic skills every week, he said. The faculty also found from studying MCAS results that if teachers "beat number sense to death, kids will be successful" on MCAS tests. "So no matter what skill we teach, we include number sense. And believe it or not, kids will come and ask to learn extra skills," he said. The teachers try to show students that they can succeed, and "most will come on board because they want to be successful."

In algebra classes, teachers try to integrate new skills and number sense into everything they teach, Mr. Silverman concurred. For example, while math teachers at other schools might shy away from including fractions in their lessons, Worcester Tech teachers stress them, because "we know kids are afraid of fractions," he said.

"If I hear one more kid tell me, 'I stink at math and I'm not going to do well this year'…. What do you do with that kid? You find out why they think they stink at math, and you try to fix the problem. There is no magic pill to take: it's just hard work, and the kids are willing to do it, if you let them."

Explicit Curriculum Maps and Lesson Plans

To make instruction as easy as possible for teachers, said Ms. Copeland, head of the Math Department, instructional leaders create curriculum maps that essentially say, "Can you please try to teach these topics by these dates?" In geometry, for example, such a map, as shown in Exhibit 5.5, would specify the topics that teachers are expected to cover during the first semester by key dates, such as Thanksgiving, winter break, and January 31.

> "No matter what skill we teach, we include number sense. And believe it or not, kids will come and ask to learn extra skills."

> The teachers try to show students that they can succeed, and "most will come on board because they want to be successful."

Exhibit 5.5   Example of a Geometry Curriculum Map

Geometry Curriculum Map (1st Semester)	
TOPIC	**TARGET DATE**
Ch. 1: Essentials of Geometry	-
Points, lines, planes, segments and congruence, midpoint and distance formulas, measure and classify angles, angle pair relationships, polygons, perimeter, circumference and area	
Ch. 3: Parallel and Perpendicular Lines	-
Pairs of lines and angles, parallel lines and transversals, find and use slopes of lines, write and graph equations of lines, perpendicular lines	
Ch. 4: Congruent Triangles	-
Angle sum properties, congruence and triangles, SSS, SAS, HL, ASA, AAS, use congruent triangles, use isosceles and equilateral triangles, perform congruence transformations.	
Ch. 5: Relationships with Triangles	-
Perpendicular bisectors, angle bisectors of triangles, medians and altitudes	
Ch. 7 (7.1-7.4): Right Triangles	-
Pythagorean Theorem, similar right triangles, special right triangles	

Source: From Worcester's presentation to the AGI conference

Department heads do track teachers' progress on these maps, but do not hold their feet to the fire, according to Ms. Copeland. No one goes up to teachers with a stern warning to teach all the topics listed within the first semester, she said. Instructional leaders know that teachers are doing the best they can to get through the materials, and that teachers are focusing on their students, not on the list of topics.

IMPROVED LESSON PLANS

A new online template includes all the state standards, the methodology for teaching them, and the school's approach to assessing student work.

To make instruction as proficient as possible, Worcester Tech improved the traditional lesson plan to include all of the standards for assessment. An old-style lesson-plan book was simply a grid that teachers filled out to show what topics they intended to cover on any given day, Ms. Copeland related. Teachers simply filled in their name and the week number and put an X next to the standard they planned to teach that week. There were drop-down menus that stated what the objective was, and teachers just put an X next to it.

However, the template did not include all the state standards, even though students need to learn all state standards to score "proficient" on the MCAS tests. So a new online template was created that now includes all the state standards, the methodology for teaching them, and the school's approach to assessing student work. Teachers put an X next to the standards they are addressing, and a C next to those they have completed.

Before e-mailing their lesson plans to the department heads, teachers also attach to the template examples of slides, worksheets, and book pages they are using in their classrooms. This sort of sharing enables instructional leaders to ensure that teachers are in fact addressing the standard they cite—not teaching middle school math and calling it high school math.

Teachers also e-mail department heads examples of slides, worksheets, and book pages they are using.

Because Worcester Tech covers a large campus, the best way for teachers and staff to work as a team is by using school technology, math teacher Mr. Fitzpatrick said. All teachers have laptops, which they use to exchange lesson plans and PowerPoints. This technology also engages the students.

GOING BEYOND THE MCAS

Given the high "point value" of open-response questions on the MCAS, improving students' scores on that portion of the exam is a powerful strategy, Mr. Murnane observed. He asked the team whether Worcester Tech teachers think they are doing a good job of educating kids, given that they are focusing so strongly on MCAS scores.

Worcester Tech leaders emphasize integrating academics with the Small Learning Community (SLC) model, Ms. Harrity responded. For instance, one SLC concentrates on the construction trades: students take classes in carpentry, plumbing, electrical, and related subjects. Vocational schools formerly sequestered such classes in their own wing. However, Worcester Tech integrates

them in the same wing with classes devoted to science, math, and English. This is a recipe for "applied academics," she said.

The reality is that students need to perform well on the MCAS or they will not receive a high school diploma, Ms. Harrity pointed out. "And let's be honest, we need to make AYP"—Adequate Yearly Progress, as defined by the 2002 federal law, No Child Left Behind. The faculty also wants as many students as possible to score "advanced" and "proficient" so the students can qualify for the John and Abigail Adams Scholarship, under which the state will pay tuition at public universities.

MOTIVATING THE STUDENTS

Faculty members also target open response to empower students: they are trying to change the culture so students believe that college is for everyone, including themselves.

However, faculty members also target open response to empower students: they are trying to change the culture so students believe that college is for everyone, including themselves, Ms. Harrity said. And she is a big proponent of motivating students to believe in themselves. For example, before they "sit for an exam, they must be convinced they were properly prepared, because, as we all know, if you don't go in with a positive mindset, you've already defeated yourself," she said. The faculty has always told students that "they are ready, that they can do it, that we believe in them," she said. However, students often say, "Yeah, Miss, but you don't know me, you haven't walked in my shoes." She responds, "We all have crosses to bear, everybody's cross just looks a little bit different."

This year, to motivate students and build their confidence, the school transported all 1,400 on 35 buses to a "pre-game" talk with Liz Murray two weeks before MCAS, Ms. Harrity said. Ms. Murray, the subject of the movie *Homeless to Harvard*, grew up on the streets—actually the subways—of New York City. At age 17 she decided to return to school for a high school diploma. She ended up graduating in two years and attending Harvard, from which she recently graduated.

Ms. Murray spoke to the students for an hour and a half, and "you could have heard a pin drop that entire time," said Ms. Harrity. The students dressed for the talk, held at the Hanover Theater—"a gorgeous 100-year-old renovated venue in our city." And the field trip became a citywide effort: everyone, including the police, got involved. So while Worcester Teach does emphasize MCAS, Ms. Harrity explained, that focus has many facets.

Reaching for the SAT

Mr. Ferguson asked whether the school's instruction and curriculum would change if MCAS were one of several measures determining graduation. He also asked whether such a broader approach would affect the achievement gap, and whether Worcester Tech students have made equal progress on college admissions tests such as the SAT.

School staff have a professional responsibility to follow state frameworks, and "we do that as well as we can," Ms. Copeland responded. "You can see from the answers of the teachers that their focus is working with the students, but we have to follow the frameworks. We cannot ignore what the state is telling us to do." Nonetheless, Ms. Copeland did acknowledge, "As far as the exam itself, nobody likes it. Nobody likes standing in front of a classroom worried because we have these children's names and faces waking us up during the night. It's awfully difficult to look at a student and be worried about them, whether they are going to pass a test that may determine whether they get a high school diploma. That is a very difficult challenge for all of us."

"We extend our focus beyond the MCAS, because we have to," she explained. The reality is that the MCAS does not prepare students for college-level work, and the faculty knows that. So they try "very hard" to prepare students for college or another next step, because that is the purpose of high school.

According to Ms. Copeland, a "good portion" of juniors took the SAT this year. About 70 percent of the class of 2009 is going on to college or a technical school. However, "that percentage is not high enough for us," she says, so faculty are looking at where they are falling short with students beyond 10th grade. Administrators and teachers have stopped sitting back and saying, "Phew, we got through another year of MCAS."

Trade Certifications

"Most of our kids also take certification tests in their trade," Mr. Silverman pointed out. "Students' MCAS scores are going up, certification scores are going up, because we are teaching our kids to think, and to do better in life, not just in math and ELA."

Honors Classes

The school has also doubled the number of honors courses it offers. It is adding Spanish classes, and 11th- and 12-grade students can now take AP biology and English, said Ms. Harrity, "So the rigor and relevance are there."

The MCAS does not prepare students for college-level work.

The faculty tries "very hard" to prepare students for college or another next step, because that is the purpose of high school.

6.   AMHERST REGIONAL HIGH SCHOOL

PRESENTERS:

Jane Baer-Leighton, English Teacher, former Department Head

Chris Herland, English Teacher

Danae Marr, English Teacher

Kristen Iverson, English Department Head

INTERVIEWERS:

Karin Chenoweth, The Education Trust

Thomas Payzant, Harvard Graduate School of Education

STUDENT DEMOGRAPHIC PROFILE

Exhibit 6.1   Student Characteristics for 2009

	Racial Composition					Poverty Rate
	White	Black	Hispanic	Asian	Other	% Free Lunch
Amherst	66.8%	7.9%	11.0%	9.1%	5.2%	19.6%
MA (all grades)	69.1%	8.2%	14.8%	5.3%	2.6%	32.9%
Number of Students at Amherst: 1,168						

Source: Calculations by the Achievement Gap Initiative at Harvard University, using unpublished data from the Massachusetts Department of Education. The Massachusetts Department of Education bears no responsibility for any errors or omissions.

MEETING THE ACHIEVEMENT CHALLENGE

At Amherst Regional High School, in western Massachusetts, the mission of the English Department is educational equity. The department fulfills its mission in heterogeneous classrooms, by including students of all levels in all classes. The department also makes social justice a core focus of all its courses. The mixed-level approach puts the department at odds with the rest of the school, which has opted for more traditional course ability levels. The department's philosophy of heterogeneity also creates friction with some highly educated parents in this college town, which is home to Amherst College and the University of Massachusetts, and within striking distance of several other institutions of higher learning.

The student body at Amherst Regional High School has a racial composition quite similar to Massachusetts high schools overall. In addition, students are relatively well-off: the percentage who qualify for free or reduced price meals is lower than the state average. Amherst students also have relatively high average test scores in 8th grade. Based on average scores on the Massachusetts Comprehensive Assessment System (MCAS), Exhibit 6.2 shows the percentage of Amherst 10th-graders in 2008 who were in each quintile of the 8th-grade English Language Arts (ELA) distribution in Massachusetts two years earlier, in 2006. In contrast to other featured schools from Massachusetts, where a majority were low achievers in 8th grade, a majority of Amherst students scored in the top two quintiles as 8th-graders.

Amherst students achieved high average gains from 8th grade in 2006 to 10th-grade in 2008, no matter from what quintile of the 8th-grade distribution they started. Exhibit 6.3 shows that when their gains from 8th to 10th grade are compared to those of other high schools in the state in 2008, Amherst Regional High ranks near the 80th percentile—performing better than 80 percent of other schools in the state. The light grey bars in Exhibit 6.3 show numbers that are unadjusted for background characteristics; the dark grey bars show numbers that are adjusted. (Background characteristics include race, gender, free and reduced lunch status, limited English proficiency status, 8th-grade attendance, and age.)

Exhibit 6.2   8th-Grade ELA Distribution

Source: Calculations by the Achievement Gap Initiative at Harvard University, using unpublished data from the Massachusetts Department of Education. The Massachusetts Department of Education bears no responsibility for any errors or omissions.

Exhibit 6.3   8th-to-10th-Grade ELA Gains
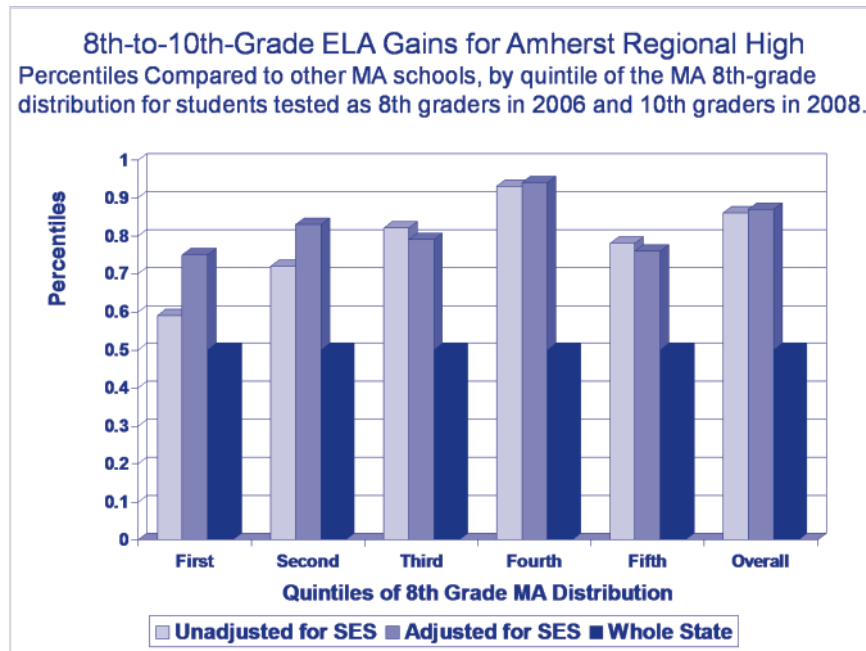
Source: Calculations by the Achievement Gap Initiative at Harvard University, using unpublished data from the Massachusetts Department of Education. The Massachusetts Department of Education bears no responsibility for any errors or omissions.
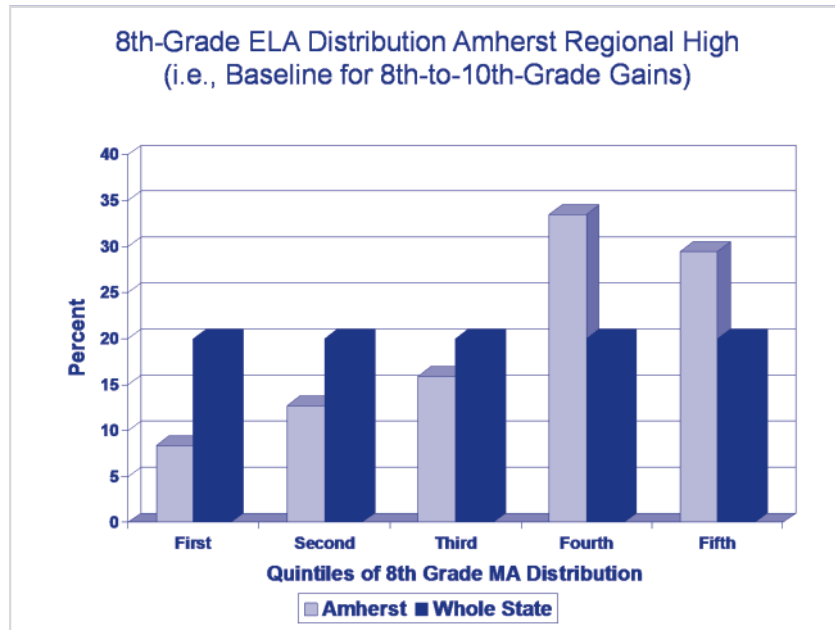
PURSUING RACIAL EQUITY IN HETEROGENEOUS CLASSES

Amherst English teachers are thrilled with their students' scores on the MCAS ELA exam, and even more thrilled with data on the department's "value-added," Ms. Baer-Leighton, English teacher and former department head, stated. However, although the department's curriculum is closely aligned with state standards, teachers do not focus on the MCAS tests per se. Rather, teachers aim to "inspire all students to listen and read critically, speak and write effectively, and actively engage with each other on an educationally level playing field."

Some context is important, she said. Until about 15 years ago, Amherst Regional High School had divided courses into three ability groupings: basic, standard, and advanced. The English Department struggled with problems affecting each group. These included behavioral problems among students in the basic classes, attempts by some students to avoid a more challenging curriculum by opting into standard classes, and attitudes of entitlement among students in advanced classes.

Most importantly, a keen observer of two 11th- and 12th-grade African-American literature classes noticed an important social justice issue: the advanced class was entirely white, while half the students in the basic class right next door were children of color. According to Ms. Baer-Leighton, the English Department's good friend and colleague Bruce Penniman, former director of the Western Massachusetts Writing Project, aptly asked, "What's the matter with this picture?"

In 1990, the English Department piloted the first courses at Amherst Regional High School—journalism and American literature—taught to students of all levels in the same classroom. The following year, the department voted unanimously to offer only mixed-level classes. The department's endorsement of such classes solidified in 1992, Ms. Baer-Leighton said, when the NAACP filed a lawsuit against Amherst Regional Schools in U.S. District Court, charging that ability groupings had produced de facto segregation.

Many researchers and scholars, including Jeannie Oakes and Anne Wheelock, have presented solutions to the segregation that occurs when students are tracked. Despite their testimony, many people inside and outside the school assumed that detracking is a zero-sum game, according to Ms. Baer-Leighton. That is, if heterogeneity works for struggling students, it must compromise the education of gifted students.

In eventually settling the suit, the superintendent of Amherst Regional Schools granted concessions to both sides, Ms. Baer-Leighton said. The superintendent agreed to eliminate the basic track, but he allowed each academic discipline to address de facto segregation internally. The English Department was the only discipline that chose heterogeneity: all the other departments retained both standard and advanced classes.

OVERCOMING OBJECTIONS TO HETEROGENEITY

Mr. Ferguson asked how English teachers explain the segregation that occurs in other classes at Amherst Regional High School to students who are reading literature that raises issues of race and class. "That's what helps us," said Ms. Iverson, the department head. Amherst is a suburban university town, and many students come highly prepared and go on to attend the most prestigious universities. "Some people in Amherst still believe that 'my child is going to have social justice values, but will sit in a classroom only with people who look like him or her.'"

What the English Department has proven over and over again, she said, is that faculty can teach an African-American literature course to a student who is probably going to Harvard, a student who is newly mainstreamed from an English Language Learners (ELL) program, and a special education student who cannot read the entire text. The department also tries to model social justice studies in the classroom: teachers try to convey that every student brings something to the table. By the end of each course, she said, students tend to ask questions such as, "If this approach works in this department, why don't other departments use it?"

However, other departments at the school continue to believe they will lose academic rigor if they teach heterogeneous classes. But English teachers counter that social justice education based on heterogeneous classes "is the way to go." The major resistance to heterogeneity remains the zero-sum game mentality, according to Ms. Baer-Leighton. Some parents and administrators continue to worry that mixed-level classes lack rigor, and have urged departments at the high school to provide further levels of challenge. Most departments have added honors and AP sections to accommodate that request.

Ironically, that means that today's program of studies at the school largely mirrors the former three-tiered structure—it simply uses new names: "college prep," "honors," and "advanced placement," according to Ms. Baer-Leighton. However, the English Department relies on other methods to maintain rigor in

regular classrooms, in hopes of avoiding that stratification. That is, it tries to provide additional challenge and support without removing students from a heterogeneous environment.

Mr. Ferguson asked what distinguishes college-prep and honors work by students in the same class. Mr. Herland responded that honors students work with teachers on an outside project, which may involve reading another book and writing another paper. Such projects sometimes replace some class work. So when a class is working on a particular project, an honors student may be working on a similar but longer and more involved project.

Students in all English classes create portfolios, and honors students might include more materials in their portfolio. The advantage of a portfolio is that it allows teachers to assess an individual student's improvement, said Mr. Herland. Teachers can see where a student began and where he or she ended up, and give the student a grade based on that progress, rather than simply comparing him or her with other students.

The English Department remains the only academic department at the high school that has embraced heterogeneity, Ms. Baer-Leighton said, which has led to some departmental isolation within the school.

COMMITMENT TO ACADEMIC FREEDOM

Teachers create and modify curricula for all courses.

If the English Department has one significant source of support, Ms. Baer-Leighton said, it is the strong commitment by Amherst Regional Schools to academic freedom. For the most part, the district heralds teachers as professionals. Teachers create and modify curricula for all courses, which enhances their commitment to each course and the educational program as a whole, according to Ms. Baer-Leighton.

The district also has a long tradition of supporting teacher growth and innovation, she said. Teachers are charged, both individually and collectively, with researching solutions to educational challenges. And until recent budget cuts, the district had also made professional development a priority.

PROMOTING WRITING ACROSS THE CURRICULUM

Mr. Payzant asked how Amherst students would apply what they learn in English classes to courses in other departments, and whether doing so would prove challenging. Ms. Baer-Leighton responded that many years ago the school offered a writing-across-the-curriculum seminar to teachers, and the principal asked the English Department to lead it. That was not a good political

move, she said, because teachers in other departments wondered why they had to cover what the English faculty is supposed to teach. However, because of high-stakes MCAS tests, which include open-response essays (writing to a prompt), Ms. Baer-Leighton expects teachers of mathematics, science, world languages, and other subjects to assign more and more projects that entail writing. And some of those assignments will mimic the approach of the English Department, she surmised. Teachers from other disciplines also participate in the Western Massachusetts Writing Project,[37] which provides professional development seminars, she noted. Those teachers bring back various forms of writing to their classrooms.

RELATIONSHIPS BUILT ON TRUST

The English Department has almost no hierarchy, according to Ms. Iverson: relationships are built on trust. Exhibit 6.4 on the next page illustrates the dynamic. All teachers have a mixed schedule of 9th- and 10th-grade required courses and a nice selection of electives. No one is pigeonholed into a specific course, and that supports teachers' ability to constantly share without fear, she said. If each member of the department expects that he or she should understand many different courses, teachers avoid the ownership dilemma that can create competitiveness around who owns what.

No one is pigeonholed into a specific course, and that supports teachers' ability to constantly share without fear.

"We are a small, close-knit group fluctuating between 10 and 15 members, depending on the budget, and [we are] rather remarkably candid with each other about our successes and challenges on a weekly if not daily basis," Ms. Iverson said. "In fact, when trying to describe our department, the notion of a critical-friends group" makes the most sense. "Our first level of accountability is to ourselves and to our students. We are a highly self-reflective lot by nature: we constantly scrutinize our practice and ask, 'Are we doing it the best way we can for our students?'"

Departmental decisions are based on a time-consuming yet rewarding process of consensus building.

Teachers in the department are communally responsible for all classes. And all departmental decisions are based on a time-consuming yet rewarding process of consensus building. "With all this team building and coming to consensus, you could imagine that there could be challenges for those new to the department," Ms. Iverson noted. However, every teacher is responsible for integrating new teachers into the department, she said, although each is assigned a mentor for specific courses.

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37. The Western Massachusetts Writing Project (http://www.umas.edu/wmwp/) is a local site of the National Writing Project (http://www.nwp.org), a federally funded program that focuses on the teaching of writing.

Exhibit 6.4   **English Department Teacher Dynamic**
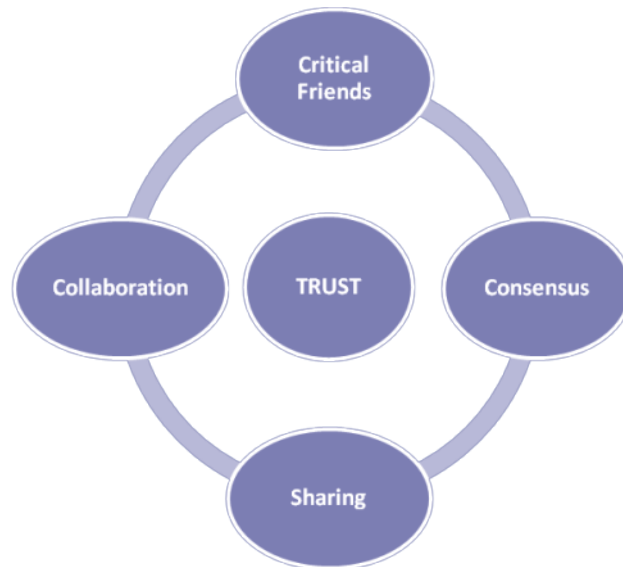
Source: Based on Amherst's presentation to the AGI conference

"I would describe us as teacher-researchers, and that motivation comes from within us," Ms. Marr observed. "No one is standing over us monitoring us: no one has to." Teachers also feel accountable to the philosophies that chiefly inform our practices, Ms. Iverson explained. Those include the Western Mass Writing Project, Research for Better Teaching (RBT)[38,] and the Bard College Institute for Writing and Thinking. And, of course, teachers look to students' work to gauge their progress and the effectiveness of lessons and assessments, she said.

How the Department Sustains Solidarity

The department seems to have achieved 100 percent collaboration among its teachers, Mr. Ferguson observed. He asked how they had developed and strengthened that collaboration.

Professional Development

The school joined RBT this year, and all administrators and department heads have taken RBT's Observing and Analyzing Teaching (OAT)[39] course, Ms. Iverson

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38. *Research for Better Teaching (RBT) is a school improvement organization with extensive experience in teaching and leadership. More information can be found at http://www.rbteach.com.*

39. *RBT's Observing and Analyzing Teaching (OAT) courses are leadership courses for staff who write observations for staff evaluations. OAT also focus on the development of classroom observation and conferencing skills.*

said. So Amherst Regional High School is implementing "the same school-wide programs that other schools are."

However, "we have done incredible amounts of work within our department to manage and motivate ourselves. The difference might be that our department has already constructed a way of being and supporting one another that we would like to share with the rest of the school through what we've learned during RBT and OAT trainings."

SHARED IDEOLOGY

Mr. Ferguson observed that the department has ideological solidarity. Ms. Iverson agreed, and said that makes the department a minority within the school. Mr. Ferguson asked her to comment on the seeds of that ideological solidarity. Was one person at the root of it? "I don't think there was one person," Ms. Baer-Leighton responded. Even before she came to Amherst Regional High School 33 years ago, the roots of independence and concern for educational equity already existed in the department, she said.

When the department shifted to heterogeneous classes 20 years ago, every single member did not say, "Oh, yeah, let's go ahead and do this." But teachers were willing to experiment and try very hard, and to resolve that what's best for students has to be what the department delivers, she explained.

SUPPORTING DIFFERENTIATED INSTRUCTION

Mr. Ferguson asked how the English Department prepares, supports, and monitors teachers to ensure differentiated instruction, which is central to heterogeneous classes. Because the school operates on trimesters, each teacher has just three classes at a time, and no teacher's student load ever exceeds 80. That allows teachers to get to know their students very well, Ms. Marr said. The desire of many in the school to move to semesters worries English teachers, she noted, because in that case their student load would jump to 125 or 150.

Each new teacher has a mentor. Teachers share all course materials.

MENTORING NEW TEACHERS

The departmental structure itself probably provides the most support and monitoring, Ms. Baer-Leighton commented. Each new teacher has a mentor who helps him or her with differentiated instruction as well as the curriculum. Teachers share all course materials, and department heads and mentors visit

classrooms and give advice. "The department as a whole is very helpful in supporting teachers in any areas where they might have difficulty," she said.

Mr. Ferguson asked whether the department has veto power over the hiring of new teachers. "Yes," Ms. Baer-Leighton answered. "What is the most important question you ask a potential new hire?" he asked. Her response: "What would you do, if you were teaching a heterogeneous class, to ensure that you are challenging and supporting our students at the same time?"

An Innovative and Inclusive Curriculum

All 9th-grade students take writing and literature A and B, and all 10th-grade students take literature of social criticism and oral communication, according to Ms. Iverson. Students can take each course at either the college prep or the honors level, but they sit and learn in the same classroom. The department also offers inclusion programs for a large majority of (ELL) and special education students, Ms. Iverson said.

Eleventh- and 12th-grade students choose elective courses based on interest. Each course includes students from both grades, newly mainstreamed ELL and special education students, and some students who are working at the advanced-placement level. The department's elective program is the result of years of teacher-initiated scholarship and creativity, according to Ms. Iverson. And many electives reflect the fact that equity has always been and remains the department's primary interest. "Social justice education is at our core," she noted.

For example, teachers created two electives, African-American literature and women in literature, in the 1970s—reflecting the social justice movement then occurring at the university level. The department also teaches a class on the Bible as literature, and offers one of the only high-school-level gay and lesbian literature courses in the country, Ms. Iverson said. Offerings also include a writing program and performance classes.

Encouraging Critical Thinking

In heterogeneous classrooms, all students are immersed in the same challenging texts, said Ms. Marr. Not only does the department not teach to MCAS tests, but teachers also shun the dreary five-paragraph essay. Instead, 9th grade immediately emphasizes a broad exposure to English literature and language. Classes introduce students to all major literary genres, a broad

Department heads and mentors visit classrooms and give advice.

The department's elective program is the result of years of teacher-initiated scholarship and creativity.

spectrum of writing, and a rigor they will come to expect of the language arts program throughout their four years, Ms. Marr said.

"For example, the department teaches the language of literary analysis right off the bat to 9th-graders at a sophisticated level, giving them tools for discovery and discussion," Ms. Marr explained. That approach also "politicizes literature and gives kids multiple interpretations of the same text. As in life, there is no one right answer."

"We cultivate warm relationships with our students, inspiring two-way trust and respect," said Ms. Marr. "We care about them and believe they can succeed, and we are demonstrative about that. As we hand them off to 10th-grade teachers, we are confident that that good faith continues."

Building on 9th-grade work, the 10th-grade curriculum continues to develop the social justice component by exploring authors as a social critic, according to Mr. Herland. Teachers ask students to "make connections between the literature they are reading, the writing they are doing, and the larger issues of the world," including race, class, and gender.

During a trimester course, students will write theme-based analyses, journals and personal narratives, poetry and short stories. "They do a lot of personal reflecting, and grow through practice and application," he noted.

"Writing instructions focus on the process of writing, and students go through multiple revisions of everything they write." They also "participate in peer-editing workshops, sometimes on a weekly basis. They are constantly reading and helping each other grow as writers," Mr. Herland said.

Teachers also stress the importance of audience and purpose in writing by exposing students to all kinds of writing, according to Mr. Herland. Toward that end, teachers divide writing into low stakes, medium stakes, and high stakes. Low-stakes writing includes brainstorming activities, "free writes," and writing to learn. Most assignments are middle stakes: writing intended to be read in class or by the teacher. However, teachers also try to assign some high-stakes writing for student publications.

"The goal is for students to move from thinking critically about their writing, reading, and performance to thinking critically about the world they will soon inherit," said Mr. Herland.

SUPPORTING AND ENCOURAGING EACH STUDENT

English teachers at Amherst constantly try to foster self-confidence among their students, according to Ms. Marr. Teachers promote and model the underlying assumption that everyone "can do," and then make it possible for each student "to do," by providing whatever support students need in and outside the classroom. The more than 20 percent of the school's students who are receiving special education services can also substitute academic support for elective courses.

"We engage in activities that will enable even students who are struggling to read at home to find themselves on a level playing field in class—at least long enough to enjoy some success," Ms. Marr said. "We do a lot of close reading in class, to model analysis and make it a collective exercise…Reading aloud is a wonderful way to celebrate story and explore language, and it does not slow things down for the kids who are more advanced. We might read part of book nine of *The Odyssey* aloud in class, and then ask students to do a writing-to-learn activity, to ensure that each has something to offer up in the whole-class discussion." Teachers try to encourage students who are reluctant or unable to articulate their contribution, to help them complete their thinking and receive the public affirmation they deserve, according to Ms. Marr.

> If students who struggled in middle school get an extra trimester of English at the beginning of high school, they are much more successful.

Amherst Regional High School's trimester schedule has also allowed the English Department to support struggling students in a variety of ways, Ms. Iverson noted. For example, the department has found that if it gives students who struggled in middle school an extra trimester of English at the beginning of their high school career, they are much more successful. The trimester schedule also allows students to focus on a few core subjects, and, most importantly, to retake a course if they fail it. That is especially important for seniors who are in danger of not graduating, Ms. Iverson said.

> The trimester schedule allows students to focus on a few core subjects, and, most importantly, to retake a course if they fail it.

CLOSING THE GAP FOR MALES OF COLOR

The department's challenges include budget cuts and the fact that the school as a whole does not embrace heterogeneity, Ms. Baer-Leighton noted. A third challenge is a disparity between the department's MCAS scores, "which are great, and the current D and F list."

The school's latest report concludes that males of color have statistically higher percentages of Ds and Fs than other groups of students, she explained. English teachers have not yet examined how those data apply to their department, or tried to figure out how to tackle the problem. "That's where we are going next."

Attracting Faculty of Color

Mr. Ferguson asked whether nonminority teachers can integrate academic rigor with authentic cultural relevance. "Right now I do not have any nonwhite teachers in my department," Ms. Iverson admitted. "So African-American literature sections are taught by white, middle-class educators…. And that is a big problem. But we don't shy away from it—we talk about it in our classrooms.

"One of the hugest challenges in our district is not only hiring but retaining staff of color, and making that a mission of the school," she said. The department does not necessarily determine which prospective teachers the school will interview. English teachers have talked about cultivating relationships with historically black colleges that are preparing teachers to develop a diverse teaching staff as well as a diverse student body.

7.   BOSTON LATIN ACADEMY

PRESENTERS:

Lydia Francis-Joyner, English Program Director

Miranda Lutyens, English and Writing Teacher

INTERVIEWERS:

Karin Chenoweth, The Education Trust

Thomas Payzant, Harvard Graduate School of Education

STUDENT DEMOGRAPHIC PROFILE

Exhibit 7.1   Student Characteristics for 2009

	Racial Composition					Poverty Rate
	White	Black	Hispanic	Asian	Other	% Free Lunch
Boston Latin	30.4%	27.4%	17.6%	21.9%	2.7%	53.0%
MA (all grades)	69.1%	8.2%	14.8%	5.3%	2.6%	32.9%
Number of Students at Boston Latin: 1,759						

Source: Calculations by the Achievement Gap Initiative at Harvard University, using unpublished data from the Massachusetts Department of Education. The Massachusetts Department of Education bears no responsibility for any errors or omissions.

MEETING THE ACHIEVEMENT CHALLENGE

One of three public exam schools in Boston, Boston Latin Academy serves 1,800 racially diverse students in grades seven through twelve. Despite its selectivity—students must take a test before applying—the school faces a number of challenges in educating the students it does admit. The impressive achievement record of those students attests to the school's many strengths.

Boston Latin Academy is one of Boston's three exam schools. Compared to Massachusetts state averages, the school is more racially diverse and students are more likely to qualify for free or reduced-price meals.

Based on average scores on the Massachusetts Comprehensive Assessment System (MCAS), Exhibit 7.2 shows the percentage of 10th-graders in 2008 who were in each quintile of the 8th-grade English Language Arts (ELA) distribution two years earlier, in 2006. Consistent with being an exam school, Exhibit 7.2 shows that almost 70 percent of 10th-graders in 2008 at Boston Latin Academy had scored in the top two quintiles in ELA when they were 8th-graders in 2006.

Exhibit 7.2   8th-Grade ELA Distribution
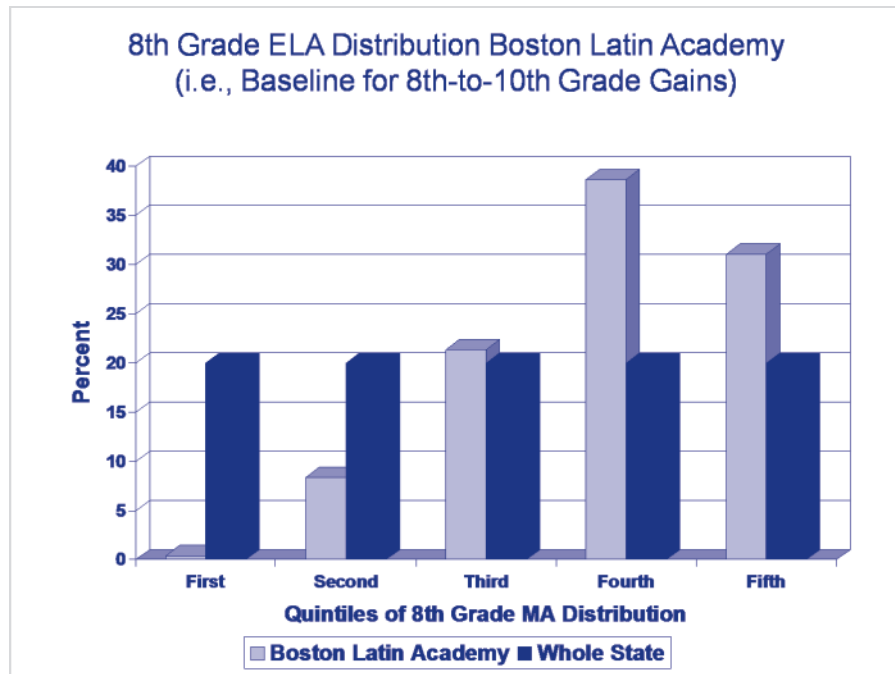
Source: Calculations by the Achievement Gap Initiative at Harvard University, using unpublished data from the Massachusetts Department of Education. The Massachusetts Department of Education bears no responsibility for any errors or omissions.

Boston Latin Academy students not only have high 8th-grade scores, they also achieve high gains by 10th grade compared to other high schools. Exhibit 7.3 shows that when their gains from 8th to 10th grade are compared to those of other high schools in the state in 2008, Boston Latin Academy ranks near the 90th percentile—performing better than 90 percent of other schools in the state. The light grey bars in Exhibit 7.3 show numbers that are unadjusted for background characteristics; the dark grey bars show numbers that are adjusted. (Background characteristics include race, gender, free and reduced lunch status, limited English proficiency status, 8th-grade attendance, and age.)

Exhibit 7.3   8th-to-10th-Grade ELA Gains
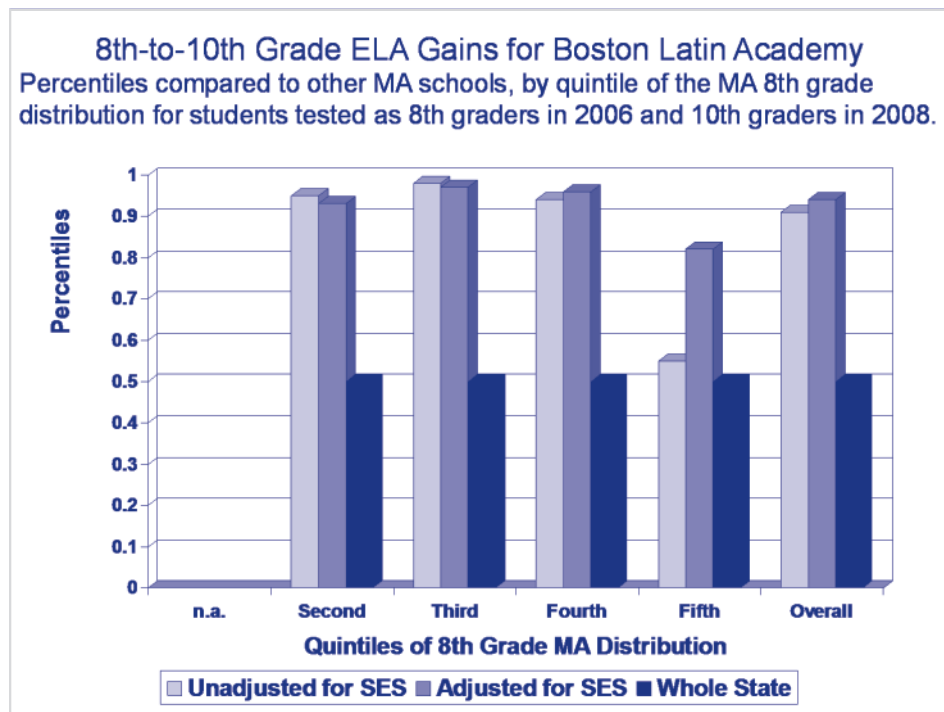
Source: Calculations by the Achievement Gap Initiative at Harvard University, using unpublished data from the Massachusetts Department of Education. The Massachusetts Department of Education bears no responsibility for any errors or omissions.

A Rigorous Common Curriculum

According to Ms. Francis-Joyner, director of the English program, Boston Latin Academy prides itself on having a classical curriculum marked by academic rigor. Her department has also developed a common curriculum for each grade level—another strength, she says.

For example, all 7th-grade students study Shakespeare, and students continue to study that author at all grade levels. Eighth graders also read Dickens and

other challenging authors, although the department does try to balance rigor with contemporary works that students can relate to, she explained. An honors program begins in 10th grade, and continues with advanced placement in 11th grade, and a literature and composition course in 12th grade.

The curriculum includes summer reading, and "students know that when they come back in September, they will be held accountable for the required portion," according to Ms. Francis-Joyner. All sophomores also take a writing class in addition to their regular English class, "and that, too, is a strength."

THE WRITING PROGRAM

Ms. Lutyens said that she went to Ms. Francis-Joyner partway through her first year at the school, when she was teaching writing as well as 11th- and 12th-grade English, and "said the unthinkable": she wanted to teach only writing the following year. "That's an atypical request at the school," she said, because each instructor teaches 140-plus students every day. She and another instructor did teach writing exclusively this past year, which she found very rewarding. "As much as I respect the idea of teaching multiple disciplines…to me it was great… to focus all my planning time on that one class."

The writing course aims to improve students' ability to write for different purposes and audiences.

Teachers at Boston Latin Academy have a great deal of autonomy, particularly in teaching writing, according to Ms. Lutyens. Having come from a middle school where she had to adhere to a scripted curriculum, the autonomy "has been a dream for me—that's the type of teacher I am." Unlike other English classes, which focus on literary analysis, the writing course aims to improve students' ability to write for different purposes and audiences, Ms. Lutyens said.

The writing teachers also "work on fostering students' self-perception as authentic writers." Students begin by writing an autobiography: "they pretend that they are writing the inside flap of their first bestseller." Students also create their own websites where they present themselves as writers. The writing course also aims to prepare students for standardized tests, and the teachers "make that explicit to students," according to Ms. Lutyens. "As rookies, 7th-graders sometimes get teased," Ms. Lukyens noted. So she worked with 7th-grade English teachers to pair their students with 10th-graders in the writing classes, who served as "writing buddies" and mentors for the younger students.

In the six years that the writing program has been in place, it has helped drive up the school's MCAS scores, according to Ms. Lutyens, who has taught at the school for two years. "More importantly, it has helped support our students in becoming more effective writers." Unfortunately, budget cuts have forced

Boston Latin Academy to eliminate the writing program, so Ms. Lutyens is returning to teaching English, she said.

PREPARING STUDENTS FOR THE MCAS TESTS

The middle school where Ms. Lutyens previously worked offered a class called MCAS Prep to 7th-graders, and it was not very popular, she observed. However, for the past two years, she has taught a unit in her writing classes based on that curriculum: the test as a genre in its own right. The goal is to prepare students for the reading comprehension section of the MCAS. Students often aim to score "advanced" on the MCAS because that qualifies them for the Adams Scholarship (under which the state pays tuition at public universities), and they also want to drive up their SAT scores, according to Ms. Lutyens.

To begin the unit, the class downloaded MCAS tests and student answers from prior years, from the website of the state Department of Education. Students then analyzed that information to identify the types and tricks of multiple-choice questions, the qualities of open-response prompts (on which students write a short essay), and high- versus low-scoring responses. Students then adopted the role of test maker: they created their own test item, based on an original piece of writing they had already polished and that Ms. Lutyens had already assessed. The students also wrote multiple-choice questions based on the test item, and created an answer key. Finally, they crafted an open-response prompt, and wrote an essay that would receive the top score on the MCAS exam.

For example, one student used a poem as his test item, even numbering the poem's lines. That student also created multiple-choice questions on the poem's vocabulary, mood, and tone, and other questions requiring analysis and interpretation of the poem. He also developed an answer key. The student then created an open-response prompt based on the poem, and a model response. Although the latter might actually be too long to fit in the MCAS test booklet, the student recognized "that open response is a serious piece of analytical writing," Ms. Lutyens observed.

The 10th-graders sent the test items they had created to their 7th-grade writing buddies, who then answered the questions. The next day—a week before the actual 7th-grade MCAS test—the buddies convened to review the test together, so the 10th-graders could "impart some of the wisdom that they had gained in creating the test," Ms. Lutyens said. This mentoring was important because 7th-graders who previously attended parochial or private schools had not taken the

4th grade MCAS exam. "It will be interesting to see whether this mentoring had an impact" on the actual MCAS results, Ms. Lutyens commented.

"Some students really got into the idea of trying to create a test that looked just like the MCAS, while other students hated it, pulled their hair out, and e-mailed me at 2:00 a.m. with complaints," she noted. However, during student reflections at the end of the unit, one student wrote that the exercise was useful because it enabled her to put herself "in the shoes of the test maker." Another student commented that the project was interesting because it was as if "I was taking on about three or four roles in this project, which was kind of hard but fun." Still another attested that "it was rewarding to see my buddy take my test and actually do well on it, and then tell me she enjoyed my story."

A COLLEGIAL PROFESSIONAL LEARNING COMMUNITY

The department tries to foster collegiality and a professional learning community, Ms. Francis-Joyner said. For example, teachers share instructional practices and curriculum materials. And because of significant staff turnover in recent years, "new English teachers have looked to older teachers for guidance and help in working through the curriculum."

New teachers look to older teachers for guidance. They share instructional practices and curriculum materials.

The Boston Teachers Union contract mandates 30 hours of professional development—a built-in vehicle for sharing, Ms. Francis-Joyner said. The school devotes that time to departmental meetings, run by program directors such as herself; common planning time, directed by teachers; and whole-school meetings. A recent whole-school meeting addressed bullying, specifically in relation to lesbian, bisexual, gay, and transgender students.

As a supervisor, Ms. Francis-Joyner often visits classrooms, and she sees "a lot of good things going on. I ask teachers if they will please share some of those lessons at the departmental meeting, so we learn from each other." Departmental meetings are "also a time for discussing problems that teachers are experiencing and sharing possible solutions. And they are "a time for deciding on curriculum content, and for discussing administrative concerns as well." "We also use departmental meetings to look at student work," Ms. Francis-Joyner said. For example, teachers in the English Department administer common final exams, and then analyze the results. "The information we get informs our instruction and helps us improve."

"We use departmental meetings to look at student work. The information we get informs our instruction and helps us improve."

Staff members also examine results from the MCAS exam. "Our students do quite well on the MCAS, given our population," she noted. For example, 47 percent of Boston Latin Academy students scored "advanced" this past year,

while 52 percent scored "proficient." Only 1 percent scored "needs improvement." Although the department is proud of those accomplishments, "it is not satisfied," according to Ms. Francis-Joyner: "Our goal is to push as many students as we can into the advanced category."

The city pays the cost of taking the PSAT for 10th-and 11th-graders, and "the College Board provides us with a lot of analytical data specific to our school, so we use department meetings to look at how our students have performed," she said. Using item analysis, the staff "looks for weaknesses, and then we try to use our curriculum to address those weaknesses. Again, the goal is to try to get those SAT scores higher and higher."

Using item analysis, the staff "looks for weaknesses; the goal is to try to get SAT scores higher."

RESISTANCE TO WRITING ACROSS DISCIPLINES

Ms. Chenoweth asked how the programs and approaches of the English Department relate to those of the rest of the school. Some of what the English Department is doing reflects administrative priorities, Ms. Francis-Joyner responded. This year a program administrator led the faculty in talking about active learning strategies, and also provided "a huge amount of support at the classroom level" to interested teachers, according to Ms. Lutyens. The response among teachers even within the English Department has been mixed, but that was definitely an administrative initiative, she said.

To help promote whole-school improvement, the district is also moving toward writing across disciplines, Ms. Francis-Joyner noted. Ms. Lutyens said she has "heard grumbling from history teachers saying, 'Isn't your job to teach the writing?'" They feel that the need to assess writing is "putting them over the top in terms of workload."

MOTIVATING STUDENTS

A second challenge is student motivation, especially given the school's rigorous curriculum, according to Ms. Francis-Joyner. Although the school has "a number of really good students, a certain segment of the population seems content with Cs and Ds—just getting by," she said. The school has tried to create a strong culture of academic achievement by setting up a chapter of the National Honors Society, and presenting book awards to students. However, "trying to meet with struggling students and inspire them and get them to work up to their potential" is difficult, said Ms. Francis-Joyner.

DIFFERENT TEACHING STYLES AND PHILOSOPHIES

A third challenge is the diversity of teaching styles and philosophies among the English faculty, she said. "Some members of the department like the traditional way of teaching, and it works for them to some degree." However, that also means "there's some resistance and reluctance to take risks and implement new teaching strategies."

THE UNIQUE CHALLENGE FACING EXAM SCHOOLS

Outside observers often do not give exam schools much credit, Mr. Ferguson observed, because "you've got good kids," and people think those kids "are going to do great anyway." Still, he was "impressed that all three exam schools in Boston are among the state's highest gainers: they are producing the biggest gains [in MCAS scores] from 8th grade to 10th grade," compared to students at other schools who have the same scores at the end of 8th grade. This is in spite of the fact that students at Boston's exam schools are disproportionately non-white and many qualify for free or reduced-price lunch.

He asked to what degree the school's results reflect the quality of education at Boston Latin Academy, and how an exam school education differs from an education at other Boston public schools. Ms. Lutyens replied that, to apply to Boston's three 7th-through-12th-grade exam schools, students must take the Independent Secondary Enrollment Exam, which is also the entry exam for private schools. Of those three schools, Boston Latin School ranks at the top, Boston Latin Academy ranks second, and the O'Brien School, which focuses on math and science, ranks third.

> The Latin Academy faculty is known for being nurturing, and the curriculum is a strength.

Although the majority of top-scoring students choose Latin School because of its history and prestige, some do choose Boston Latin Academy, Ms. Francis-Joyner said. The Boston Latin Academy faculty is known for being nurturing, and the curriculum is also a strength, and that probably helps account for students' success, she said.

> The school could do much more to help students recognize that ability is developed rather than innate.

"I have taught at other schools in Boston, and anyone who says we have it easy needs to come and visit us for a day, because we have a much larger student load," Ms. Lutyens commented. The school also has many frustrated students, she said. They arrive seeing themselves as the "smart kid who got into an exam school," but when they are suddenly surrounded by other high-achieving, students, they begin to think, "Maybe I'm not smart." The school could do much more to help students recognize that ability is developed rather than innate, she said.

In fact, many Boston Latin Academy students would prefer to transfer to another school. However, parents "have worked very hard to get their students to this academic institution, where they do have a lot of potential and a lot of opportunities." So parents often resolve that their child will remain at the school no matter what. Working with students who do not want to be there and arrive late, act out, or do not complete their work is a challenge, Ms. Lutyens attested. However, the English Department does "a good job of trying to work with those students, and we are adjusting as a faculty to changing demographics and some changing attitudes."

THE BOSTON TEACHER RESIDENCY PROGRAM

Ms. Lutyens praised the Boston Teacher Residency Program, the city's "in-house alternative" for licensing teachers, of which she is a graduate. That program trains a diverse group of teachers to work with a diverse student population. Of some 40 people in Ms. Lutyens' residency, for example, half were non-white, and she herself trained with an African-American teacher.

Mr. Ferguson asked what she had gained from that program that she could not have obtained anywhere else. "Working in a Boston public school classroom from the first day of school until the last day of school, four full days a week," Ms. Lutyens responded. "And how did that change you?" Mr. Ferguson asked.

"I was there, it was real, I faced a lot of challenges," she said. "I had a girl who said, 'You are lucky I'm not up your butt.' I was able to respond. I said, 'I appreciate you not being up my butt.'" A veteran teacher was sitting nearby, and the two teachers talked about the incident. According to Ms. Lutyens, "I moved on, and I was there the next day."

NEARING A CLOSE IN RACIAL ACHIEVEMENT GAPS

Ms. Chenoweth asked whether Boston Latin Academy's graduation rates are rising. The school's graduation rates were close to 100 percent the last time she looked, Ms. Francis-Joyner responded. "Our black students do better than black students at Latin School," Ms. Lutyens added, despite the fact that Boston Latin Academy has a higher proportion of African-American students. "There are some impressive things about this school," Mr. Ferguson observed.

Test score data seem to suggest that Boston Latin Academy has no achievement gap, Mr. Ferguson noted: students in all racial groups score at a high level. "You're right, in terms of race," Ms. Francis-Joyner responded. "We do, however, have a gender gap, and we've looked at that."

8. RANDOLPH HIGH SCHOOL

PRESENTERS:

Bill Conard, Principal

Cheryl Wrin, Director of English Language Arts, K–12

Christine Beagan, Instructional Coach, grades 7–12

INTERVIEWERS:

Karin Chenoweth, The Education Trust

Thomas Payzant, Harvard Graduate School of Education

STUDENT DEMOGRAPHIC PROFILE

Exhibit 8.1   Student Characteristics for 2009

	Racial Composition					Poverty Rate
	White	Black	Hispanic	Asian	Other	% Free Lunch
Randolph	14.3%	57.3%	8.1%	18.2%	2.1%	52.1%
MA (all grades)	69.1%	8.2%	14.8%	5.3%	2.6%	32.9%
Number of Students at Randolph: 726						

Source: Calculations by the Achievement Gap Initiative at Harvard University, using unpublished data from the Massachusetts Department of Education. The Massachusetts Department of Education bears no responsibility for any errors or omissions.

MEETING THE ACHIEVEMENT CHALLENGE

Randolph High School serves a suburban town of some 31,000 people 16 miles south of Boston. The school's 726 students speak 28 different languages, according to Dr. Conard. Ten years ago, a majority of students at Randolph High School were white and fewer than 20 percent qualified for free or reduced price meals. Today, over 80 percent are students of color, and 52.1 percent qualify for free or reduced price meals.

Based on average scores on the Massachusetts Comprehensive Assessment System (MCAS), Exhibit 8.2 shows the percentage of Randolph's 10th-graders in 2008 who were in each quintile of the 8th-grade English Language Arts (ELA) distribution in Massachusetts two years earlier, in 2006. It shows that over 50% scored in the bottom two quintiles as 8th-graders.

Exhibit 8.2   8th-Grade ELA Distribution

Source: Calculations by the Achievement Gap Initiative at Harvard University, using unpublished data from the Massachusetts Department of Education. The Massachusetts Department of Education bears no responsibility for any errors or omissions.

Exhibit 8.3 shows that when their gains from 8th grade to 10th grade are compared to those of other high schools in the state, Randolph High ranks near the 80th percentile—performing better than 70 to 80 percent of other schools in the state. The light grey bars in Exhibit 8.3 show numbers that are unadjusted

for background characteristics; the dark grey bars show numbers that are adjusted. (Background characteristics include race, gender, free and reduced lunch status, limited English proficiency status, 8th-grade attendance, and age.)
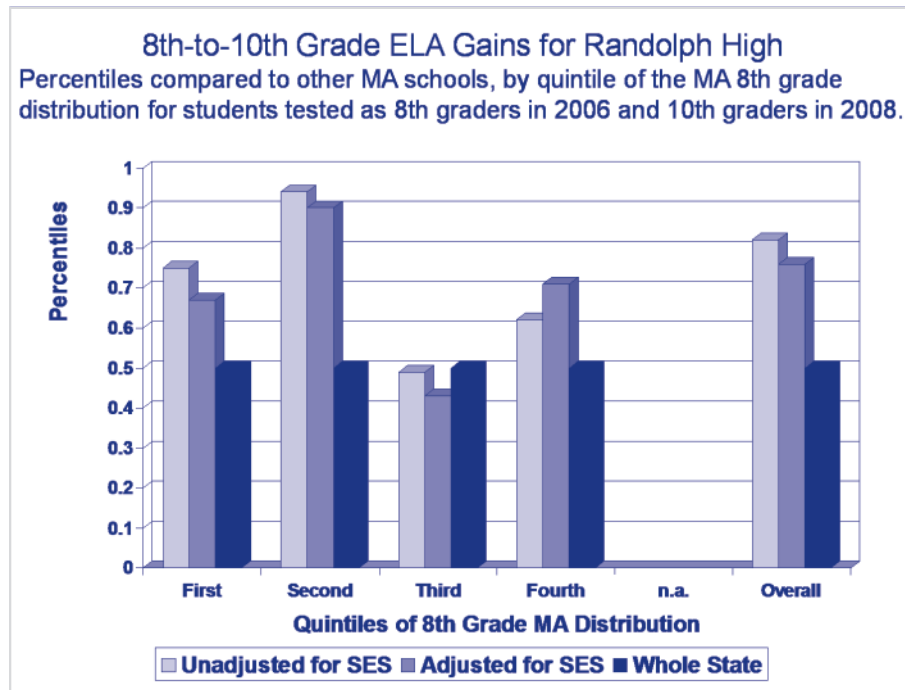
Exhibit 8.3   8th-to-10th-Grade ELA Gains
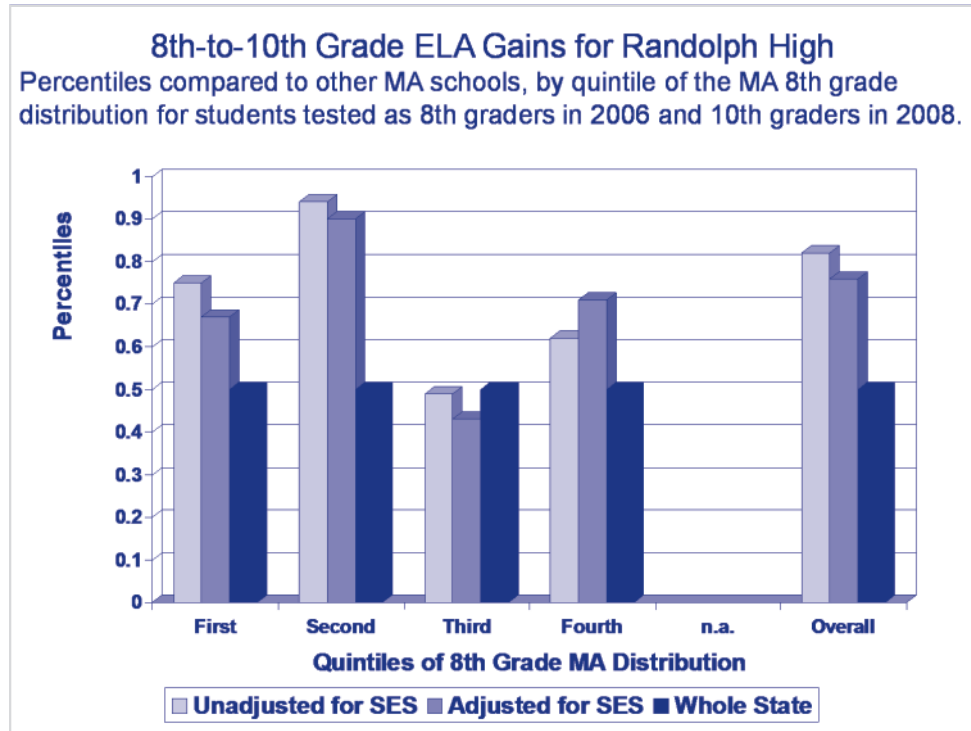
Source: Calculations by the Achievement Gap Initiative at Harvard University, using unpublished data from the Massachusetts Department of Education. The Massachusetts Department of Education bears no responsibility for any errors or omissions.

ADAPTING TO CHANGING DEMOGRAPHICS

In the past three years, "we have aimed to totally transform a high school that had been declining in performance for several years," said Dr. Conard. Randolph High is only part of the way through its change process, but improvements in student performance are already evident.

Because the town itself is 61 percent white, the community has been "trying to understand the value of diversity," said Dr. Conard. That includes "trying to understand how all students are our students, and how we value them and how we give them opportunities to further their education, even if they don't look like us or don't have the same background." Until a year and a half ago, the community had not supported the Randolph Public Schools, Dr. Conard noted.

The town had cut the school budget, forcing the school to sharply reduce its faculty.

However, through the "hard work" of the district central office, the School Committee, and lay volunteers, the town passed a $5.5 million tax override in spring 2008, specifically to support the schools. (State law limits cities and towns from raising property taxes by more than 2 1/2 percent per year, but communities can vote to override that limit.) That was then the largest override ever passed in Massachusetts, so the vote was quite an accomplishment, he remarked.

THREE SIMPLE IDEAS

Three years ago, before that vote, Randolph High School had embarked on a process of transformation that focused on improving overall student achievement as well as test scores. Administrators began with three simple ideas, according to Dr. Conard:

1. Teach students, not subjects. The school has aimed to become student centered—to recognize that teachers are teaching young men and women, not academic subjects.

2. Create school-wide change, not isolated change. The school's professional learning community focuses on creating high expectations for student achievement, and the school improvement plan centers on improving the teaching and learning process.

3. Foster smaller learning communities that give all teachers and students opportunities for rigorous academic and social learning. In the school's small learning communities, 100 students take classes together from teachers in various subjects. Those teachers collaborate during common planning time during the school day.

VISION STATEMENT

Faculty and staff need to treat every student in the building as if he or she were our own son or daughter.

To support the school's transformation, administrators developed a vision statement that calls for educating every child. Although the faculty now cognitively understands that principle, Dr. Conard said, staff members are working on the "heart" piece: the need to treat every student in the building as if he or she were our own son or daughter. Administrators and teachers are also trying to ensure that students see themselves in the school's vision statement.

Embracing Full Inclusion

As part of its school improvement plan, Randolph High School has also embraced full inclusion, according to Cheryl Wrin, director of K–12 ELA. Some 95 percent of special education students take mainstream classes, which are co-taught by regular and special ed teachers. Next year each special ed teacher will focus on a specific content area. For example, in the ELA Department, an English special ed teacher will work with 9th- and 10th-grade teams, and with 11th- and 12th-grade teams.

A number of other new initiatives make working at Randolph High School exciting and energizing right now, Ms. Wrin said. For example, the school has always made AP tests available to its students. However, the school recently received a five-year, $600,000 Massachusetts Math and Science Initiative grant, which will allow the staff to expand the number of AP classes from six to nine, and to train teachers to teach those courses. All 10th-grade students will also take the PSAT starting this coming year. So the school is "starting to build the rigor that we know all students need," she said.

Focus on Higher-Order Thinking Skills

Randolph High School has deliberately avoided the "pedagogy of the poor," said Ms. Beagan, grade 7–12 instructional coach. The school does not use drill and kill to prepare students for the MCAS exam, which they must pass to receive a high school diploma. "Our belief is that if students learn higher-order thinking skills and learn how to communicate effectively in written and oral communication, they will do well on any test," she said. So rather than creating a test-driven curriculum, school staff aim to embed higher-order thinking skills throughout the curriculum, and to prepare students to think and write every single day. Students must now pass a composition class before they graduate. Administrators have shifted that class from 10th to 9th grade to guarantee that all students take it before taking the 10th grade MCAS exam, and that move has also had a significant impact.

Administrators and teachers also believe in exposing all students to a rich variety of literature, according to Ms. Beagan. So three years ago, as the staff began to embrace the notion that all students will learn at high levels, the ELA Department eliminated the level-three track. Instructional coaches now focus on the teaching and learning that must occur under such a high-achieving system.

> If students learn higher-order thinking skills and how to communicate effectively, they will do well on any test.

> Staff aim to embed higher-order thinking skills throughout the curriculum.

COMMITMENT TO PROFESSIONAL DEVELOPMENT

The transformation of Randolph High School has required pursuing professional development in an engaging but serious way, Ms. Wrin said. For example, two years ago, administrators made a commitment to use *Studying Skillful Teaching*[40]—the Research for Better Teaching (RBT) model—to train all teachers. The school continues to offer that training to teachers on their voluntary time.

BUILDING A CULTURE OF TEACHING

Mr. Payzant asked how the school created a culture of teaching students rather than subjects. *The Skillful Teacher* course was an important initiative in that regard, Ms. Beagan responded, because it allowed teachers and staff to develop a common language around instructing students. Now they do not talk about a poetry class, for example: "we talk about our third-period class of students." The RBT model has also been a "huge impetus" in encouraging everyone to talk about higher-order thinking skills, she said. When Ms. Beagan was in the lunchroom with young teachers at the end of the year, it dawned on her that they were "talking about lesson plans and something that had happened in their classroom." She said, "The whole culture has changed: the principal has created a building where we talk about teaching and learning."

> The whole culture has changed: the principal has created a building where we talk about teaching and learning.

EVALUATION

Administrators have also strengthened supervision and evaluation, according to Ms. Wrin. For example, they took a course that complemented *Studying Skillful Teaching*, to help them mentor and monitor teachers better. This year, the administrative team—including the instructional coaches—completed the Observing and Analyzing Teaching (OAT)[41] program, which is also part of the RBT model. That approach enables all administrators to use the same criteria and terminology when evaluating teachers, she said.

Ms. Wrin also added that administrators now use numerous documents to help them evaluate teachers' proficiency. Each director of instruction meets with the building principal, superintendent, assistant superintendent, and director of

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40. RBT's Studying Skillful Teaching *is a course that supports teachers in improving student achievement. For more information, see http://www.rbteach.com.*

41. RBT's Observing and Analyzing Teaching (OAT) course is a leadership course for staff who write observations for staff evaluations. OAT also focus on the development of classroom observation and conferencing skills.

student services to talk through every evaluation before providing a mid-year report to each teacher. These powerful conversations have helped the school make a lot of instructional changes, she asserted. At the end of the year, administrators provide summative reports—including formal evaluations—to each teacher, and meet with him or her individually. These meetings allow administrators to specify areas of improvement to support student achievement—especially for teachers who have been hired "with reservation."

WALK-THROUGHS

Building administrators and district-level curriculum directors such as Ms. Wrin now do classroom walk-throughs several times a year. And at the end of the year, the entire central office team does a sweep through elementary, middle, and high schools to talk about teaching and learning.

Dr. Conard also initiated peer classroom walk-throughs last year. Under this program, teachers volunteer to observe their colleagues teach—an approach that has become a strong vehicle for improving instruction, Ms. Wrin said. When the school piloted the peer walk-throughs, instructional leaders wanted teachers to understand that the exercises were not intended to point fingers: they were directed toward building a professional, collegial staff that examines best practices, he said. However, the next step does include distributing nuggets of information from the debriefings to staff members school-wide, rather than restricting the findings to the three or four teachers who happen to be part of a walk-through.

Mr. Payzant observed that there are two different types of classroom walk-throughs being used at Randolph. He asked how staff members design those walk-throughs, and what they hope to observe in classrooms that reflects the school's success. The walk-throughs began when administrators went into classrooms to provide feedback to teachers, Dr. Conard said. The school then piloted peer walk-throughs last year, to get faculty buy-in. This year, the school instituted them school-wide: every teacher except one volunteered to have colleagues come into his or her classroom. The peer walk-throughs are interdisciplinary, he noted: a math teacher, an art teacher, and an English teacher might walk into a science teacher's classroom, for example. This team would spend 12 to 15 minutes in each of two classrooms, and then a teacher facilitator leads a 15-minute debriefing.

This year the peer walk-throughs focused on instructional best practices, because instructional leaders wanted to build a foundation of trust. Now that teachers believe that the walk-throughs are not evaluative—that they will be

At the end of the year, administrators provide summative reports—including formal evaluations—to each teacher.

Peer walk-throughs are about building a professional, collegial staff that examines best practices.

used only for professional development—the teachers are asking for more concrete focus and feedback, said Dr. Conard. This is why, this summer, staff members are reading *Classroom Instruction That Works,*[42] which provides research-based strategies for increasing student achievement. They will use peer walk-throughs to observe teaching strategies from that text.

This approach to walk-throughs means that, as an English teacher, she can observe whether a math teacher is engaging students, and whether they are actively thinking, Ms. Beagan noted. This enables her to determine whether teachers are teaching students, not just trigonometry or calculus.

"How does the school organize teachers to complete eight walk-throughs each year?" Mr. Ferguson asked. The administration creates a schedule for the walk-throughs, which occur during common planning time on Fridays, Dr. Conard said. Teachers know when observers will visit their classrooms, and they are prepared. Mr. Ferguson then asked whether teachers are trained to lead the debriefing sessions, and whether they have a format. Teachers volunteer to facilitate the debriefings, which do not have a format, Dr. Conard responded: Right now they are simply conversations among colleagues. Ms. Chenoweth wondered whether someone takes notes or writes up minutes. "Yes, there are notes," Dr. Conard said. "And how are they distributed?" Ms. Chenoweth asked. At this point the notes go only to participants in each session, Dr. Conard responded.

COACHING FOR BETTER ELA INSTRUCTION

The additional funding provided by the override allowed the school to create the new position of instructional coach in the ELA Department, according to Ms. Beagan. Last year was her 28th year as a classroom teacher, and this year was her first as an instructional coach. In that position, she could walk into teachers' classrooms and observe their lessons, and she collected and read every teacher's lesson plans every week. She then met with teachers to talk about their lessons and instructional strategies during three class periods devoted to common planning time built into the schedule every other week. Ms. Beagan asked teachers questions such as: "Are you challenging your students with this lesson? What outcome do you expect?" Instructional leaders

> Now that teachers believe that walk-throughs will be used only for professional development, the teachers are asking for more concrete focus and feedback.

> Teachers are asked questions such as: "Are you challenging your students with this lesson? What outcome do you expect?"

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42. Robert J. Marzano, Debra Pickering and Jane E. Pollock, 2001. Classroom Instruction That Works: Research-Based Strategies for Increasing Student Achievement. *Association for Supervision and Curriculum Design.*

and teachers also use the planning time to examine student work and devise new lesson plans.

The school also added instructional coaches for each content area this year, Ms. Wrin said. That has enabled staff members to talk less about course content and more about pedagogy and best practices, and to ensure that the latter are driving instruction. So a constant conversation has been evolving throughout the building about what teachers are teaching, Ms. Beagan said, and this has occurred because the school has created an instructional coaching model, a professional learning community, and common planning time during the school day. As part of this culture of conversation, the principal asked all teachers at Randolph High to read *Understanding by Design*[43]—a book that offers a framework for centering curriculum and assessments on big ideas, essential questions, and authentic performance—over the summer to provide a common language for discussions. As Ms. Beagan emphasized, "We are not talking about MCAS prep: we are talking about teaching and learning higher-order thinking."

USING COMMON PLANNING TIME EFFECTIVELY

Mr. Ferguson asked how the school ensures that teachers use common planning time effectively. Ms. Beagan noted that Randolph High's common planning time is not what teachers often call prep time (although the latter is also part of each teacher's schedule). Rather than traditional study hall, or hallway security and monitoring duty, teachers have "curricular duty" every other week, which they use to plan instruction. On Mondays, planning is self-directed. The three common planning times occur on Tuesdays, Wednesdays, and Thursdays. And administrators lead professional development sessions on Fridays.

Either the instructional coach or the curriculum director creates an agenda for common planning meetings at the beginning of the year, according to Ms. Beagan. This year, as the ELA coach, she met with the ELA director to plan those meetings. Participants sometimes focus on student work, sometimes discuss an article on an instructional strategy, and sometimes work on the curriculum. As the year progresses, a teacher might say, "I would really like to talk about this instructional strategy. Can you bring in some lessons?"

Instructional leaders and teachers use planning time to examine student work and devise new lesson plans.

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43. *Grant P. Wiggins and Jay McTighe, 2005.* Understanding by Design. *Association for Supervision and Curriculum Design.*

Common planning time was the most significant change because "it did go a long way toward creating a culture focused on teaching and learning."

According to Ms. Beagan, common planning time is the most significant change at Randolph High School, because "it did truly go a long way toward creating a culture [focused on] teaching and learning." Staff members conceived of school-wide peer walk-throughs during common planning time, for example.

Mr. Ferguson asked: If he were the proverbial fly on the wall, what would he observe during common planning time in which teachers "look at student work"? And how do teachers learn to participate? Looking at student work during common planning time literally means examining essays that one teacher assigned to a class, Ms. Beagan responded. "I know I'm kind of old school," but "I have a personal preference for looking at student work in its raw form," rather than relying on item analysis, which is "all the fashion now."

For example, teachers might examine whether students answered the key question a teacher posed in an assignment. This process requires the "grunt work of sitting in a circle, reading the essays, having a conversation, and analyzing what has to happen in the classroom to correct any deficiencies," Ms. Beagan said. Those conversations can occur in many different ways, she acknowledged, but she thinks schools need to build time into the school day to ensure that they are effective.

Common planning time can also focus on how teachers assess student work, Ms. Wrin observed. The ELA Department is now trying to come to consensus on that process. "What does an exemplary paper really look like, and what criteria are we setting to make sure that students have equal experiences, and that our grading system is based on sound knowledge and research?"

Jump-Starting the Transformation Process

Ms. Chenoweth asked who led the Randolph school improvement process. Dr. Conard responded that that process began with the superintendent, who understood that the community was not focusing on the schools, and certainly not on the high school. The superintendent worked hard to build local support. For example, in 2006 he held a strategic planning conference to examine the state of Randolph schools that drew 250 community members.

The high school is actually on probation with the National Education Assessment System, Dr. Conard acknowledged. And more than 65 percent of the school's teachers are not tenured, which means they have worked for Randolph Public Schools for fewer than four years. So although he did not begin his tenure with a brand-new faculty, many teachers are new, and they realized that they would have to wear multiple hats, he said. Teachers are passionate

about the diversity of the student body, and want to be agents of change, so the school improvement process has been very collaborative, he attested.

Ms. Chenoweth asked whether the school's graduation rates are rising. Some 78 percent of Randolph High School students graduate, Dr. Conard responded. This year, 90 percent of graduating seniors are attending a four-year or two-year college or university.

9.   LYNN ENGLISH HIGH SCHOOL

PRESENTERS:

Kathleen Bonnevie, Math Department Head

Jennifer Cole, Math Teacher

Paul Mailloux, Math Teacher

Tim Serino, Math Teacher

INTERVIEWERS:

Karin Chenoweth, The Education Trust

Thomas Payzant, Harvard Graduate School of Education

STUDENT DEMOGRAPHIC PROFILE

Exhibit 9.1   Student Characteristics for 2009

	Racial Composition					Poverty Rate
	White	Black	Hispanic	Asian	Other	% Free Lunch
Lynn English	29.2%	15.0%	43.6%	8.3%	3.9%	72.2%
MA (all grades)	69.1%	8.2%	14.8%	5.3%	2.6%	32.9%
Number of Students at Lynn English: 1,729						

Source: Calculations by the Achievement Gap Initiative at Harvard University, using unpublished data from the Massachusetts Department of Education. The Massachusetts Department of Education bears no responsibility for any errors or omissions.

MEETING THE ACHIEVEMENT CHALLENGE

Lynn English is a racially diverse high school in the city of Lynn in Northeastern Massachusetts. Two thirds of Lynn English students qualify for free or reduced-price meals.

Based on average scores on the Massachusetts Comprehensive Assessment System (MCAS), Exhibit 9.2 shows the percentage of Lynn English 10th-graders in 2008 who were in each quintile of the 8th-grade math distribution two years earlier, in 2006. The exhibit shows that the school's students were fairly evenly spread over the bottom four quintiles of the 8th-grade distribution.

Exhibit 9.2   8th-Grade Math Distribution

Source: Calculations by the Achievement Gap Initiative at Harvard University, using unpublished data from the Massachusetts Department of Education. The Massachusetts Department of Education bears no responsibility for any errors or omissions.

Exhibit 9.3 on the next page shows that when gains from 8th grade to 10th grade are compared with other high schools in the state, Lynn English ranks at the 80th percentile—performing better than 80 percent of other schools in Massachusetts. Furthermore, the school performs especially well with the lowest achievers. Indeed, considering only the bottom two quintiles of the 8th-grade distribution, Lynn English performed better than 90 percent of the other

schools in the state at raising math scores. The light grey bars in Exhibit 9.3 show numbers that are unadjusted for background characteristics; the dark grey bars show numbers that are adjusted. (Background characteristics include race, gender, free and reduced lunch status, limited English proficiency status, 8th-grade attendance, and age.)

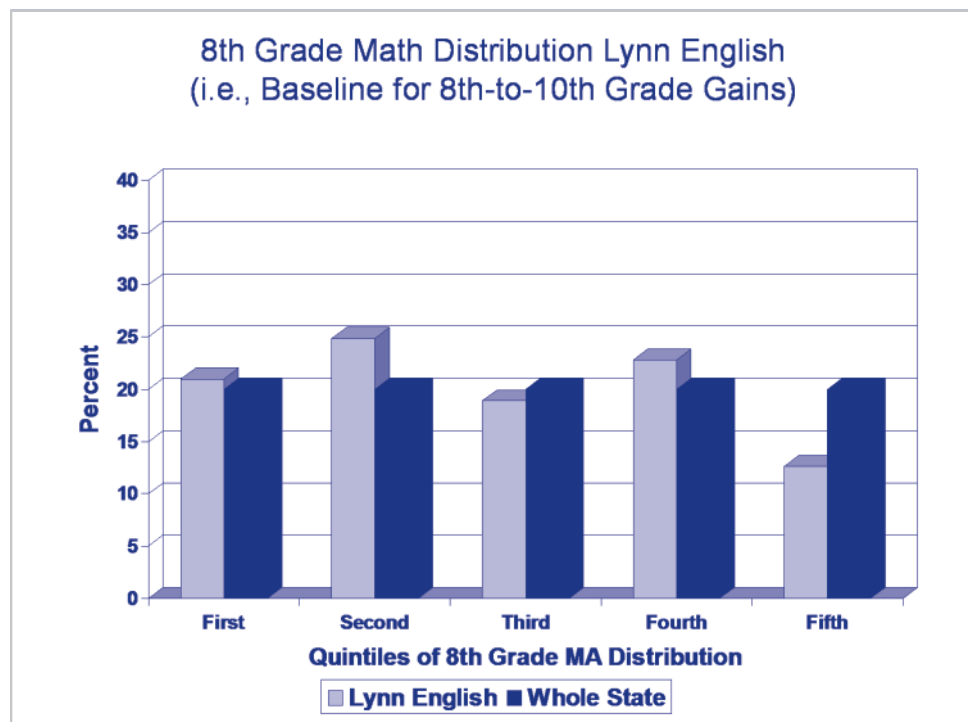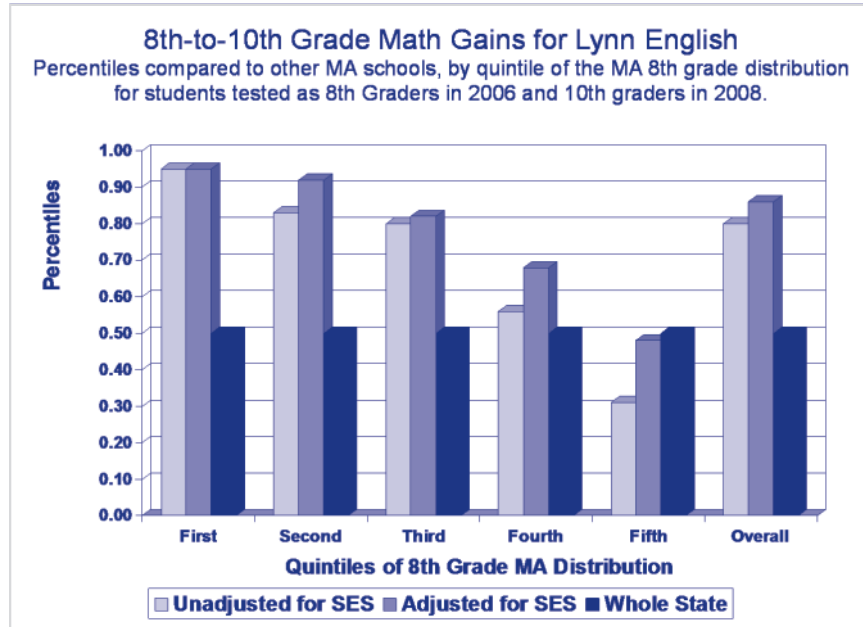**Exhibit 9.3   8th-to-10th-Grade Math Gains**

Source: Calculations by the Achievement Gap Initiative at Harvard University, using unpublished data from the Massachusetts Department of Education. The Massachusetts Department of Education bears no responsibility for any errors or omissions.

FOCUSING ON IMPROVING INSTRUCTION

Several factors have spurred Lynn English High School to improve its instruction, said Ms. Bonnevie, head of the Math Department. Those include the state Education Reform Act of 1993, the MCAS, the need to make Adequate Yearly Progress (AYP) under the federal No Child Left Behind Act, and the National Education Assessment System (NEAS) accreditation team.

"Competition with other schools in the district also keeps teachers motivated," she said. The city of Lynn has two other public high schools, "so we are always fighting for bragging rights." At the district level, a Performance Improvement Mapping (PIM) committee helped create the Lynn English school improvement plan, and the district also provides free courses that teachers must take. These

Lynn English belongs to the Salem State Collaborative, which provides free or reduced-price classes on both course content and technology.

courses include the Sheltered Instruction Observation Protocol[44]—which instructors use to teach students whose first language is not English—and Research for Better Teaching (RBT).[45.] The school also offers courses in classroom management to new teachers at the beginning of the year.

Nearby Salem State College has further helped the school to improve instruction, Ms. Bonnevie said. Lynn English belongs to the Salem State Collaborative,[46] which provides free or reduced-price classes on both course content and technology. The school also uses in-house workshops to train teachers to use technology in the classroom. "Over the past couple of years, we have gained a lot" by using SMART Boards,[47] the Senteo interactive response system, and the TI Navigator (which wirelessly networks each student's graphing calculator to the classroom computer), she said. Those tools "keep students engaged, which minimizes the need for classroom discipline."

ANALYZING LEARNING GAPS

Administrators and teachers rely on professional development days, departmental meetings, and in-house workshops to analyze MCAS data and "try to figure out the strengths and weaknesses of our students," as well as strategies for improving instruction. "We are a data-driven school," observed math teacher Mr. Serino.

Professional development days, departmental meetings, and in-house workshops are used to analyze student data.

For example, the PIM team analyzed MCAS results to identify weak strands in the curriculum and student learning. To address those gaps, the team developed two binders of warm-up problems for students in 9th- and 10th-grade Algebra I and Geometry classes. Teachers also analyze students' scores on midterms and finals to identify and address students' weaknesses before the MCAS math exam.

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44. *Sheltered Instruction Observation Protocol (SIOP) is a research-based observation instrument for measuring sheltered instruction and can be used as a model for lesson planning. For more information, please see http://www.siopinstitute.net.*

45. *Research for Better Teaching (RBT) is a school improvement organization with extensive experience in teaching and leadership. More information can be found at http://www.rbteach.com/rbteach2/index.html.*

46. *The Salem State Collaborative is an organization of professional instructors and administrators who are committed to the enhancement of education in Massachusetts. For more information, please see http://www.salemcollaborative.org.*

47. *The SMART Board is an interactive whiteboard. For more information, please see http://smarttech.com.*

EFFECTIVE TEACHER SUPERVISION

The approach to instructional leadership at Lynn English differs markedly from that at many other schools presenting at the conference, remarked Mr. Serino. Lynn English is a much more traditional school, and thus very departmental.

The school does implement writing across the curriculum, and members of different departments do sometimes meet together. However, department heads provide most instructional leadership, he said. Lynn English formerly designated some teachers as master teachers and teacher leaders, but budget cuts forced the school to eliminate those jobs. Teachers do lead workshops on new curricula and approaches to instruction—after the department head approves the topics.

The school implements writing across the curriculum.

As the Math Department head, Ms. Bonnevie conducts informal classroom visits, and models the behavior and techniques that she expects to see in the classroom. "You may see her walk through your classroom at any given time—our doors are always open," said Mr. Serino. "There is nothing that she doesn't know that goes on in her department, and pretty much in the building." colleagues may also enter classrooms at any time—"we never know if it's to ask for advice or to just say hello."

"Our classroom doors are always open."

Teachers submit their lesson plans to the department head every two weeks, he said. Teachers also submit student assessments—traditional tests as well as open response (writing to a prompt, a component of the MCAS), even in math—to the department head and the principal each quarter. The department administers common exams—particularly midterms and finals—to "hold all teachers accountable to the same standards," according to Ms. Bonnevie. The administrators use that information to give feedback to teachers.

Administrators also complete a more formal evaluation twice a year for new teachers, and every two years for tenured teachers. Before 2004, evaluators simply wrote a 1, 2, or 3 next to each "claim" on a form used to evaluate teachers, according to Ms. Bonnevie.

In 2004, the department created a new form that asks evaluators to write narratives on teachers' strengths and weaknesses in seven major areas, listed in Exhibit 9.4. To ensure effective evaluation, the district sponsors RBT's Observing and Analyzing Teaching (OAT) course[48], which new administrators must take,

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48. RBT's Observing and Analyzing Teaching (OAT) course is a leadership course for staff who write observations for staff evaluations. OAT also focuses on the development of classroom observation and conferencing skills.

Ms. Bonnevie said. OAT courses are leadership courses for staff who write observations for staff evaluations. OAT also focuses on the development of classroom observation and conferencing skills.

Exhibit 9.4   Seven Major Areas in New Teacher Evaluation

Currency in Curriculum

Planning

Management

Instruction

Promotion of High Standards

Promotion of Equity

Professional Responsibilities

Source: Based on Lynn English's presentation to the AGI conference

DEVELOPING TRUST WITHIN A DEPARTMENT

Teachers in each department, including the Math Department, design student assessments, according to Mr. Serino. However, schedules do not include common prep time, so teachers must be relentless in finding other opportunities—such as lunchtime—for professional discussions. Although teachers sometimes use such informal gatherings to vent their frustrations, they "often turn into thoughtful discussions," he said. "A teacher might say, 'Well, have you tried this with the kids, or have you presented it this way?'" Those conversations, which "happen all the time," help new and old teachers alike.

Math teachers, most of whom are in their thirties and forties, have developed a high degree of mutual respect and trust, he attested. "We do trust each other to present materials, and we do ask each other questions. We don't mind making mistakes." What's more, because math teachers "have a great relationship" and their students score well on the MCAS, few teachers leave the department, according to Mr. Serino. In fact, "people are trying to get in."

Teachers can also seek support from the department head or anyone in the school: "It's a very supportive environment," he said. This partly reflects the fact

The math teachers have developed a high degree of mutual respect and trust.

that Lynn English has a "very good administration," Ms. Bonnevie said: "They are consistent, they are immediate, and they communicate with teachers." Faculty in the Math Department also actively participate in off-site workshops on instruction, according to Mr. Serino. This participation reflects the fact that "we are all friends" and the feeling that "we are all together in one battle."

RECRUITING AND RETAINING TALENT

Mr. Payzant asked, "Where do you get the teachers for hard-to-fill fields? How do you induct them? And most importantly, how do you retain them?" Retaining new teachers is difficult in the face of budget cuts, Mr. Serino admitted. However, the loyalty of existing staff reflects the fact that they receive professional development and encouragement, and the fact that camaraderie permeates the department and the school.

The loyalty of existing staff reflects the fact that they receive professional development and encouragement.

Many Lynn English teachers are Lynn residents or attended the high school themselves, math teacher Mr. Mailloux replied. For example, three of the four presenters are graduates of the school who "found their way back." A co-worker at another workplace who is also a graduate of Lynn English would like to teach math there, as would many current students, he said: "They think enough of the building and the staff" to want to work at the school.

ENCOURAGING RECALCITRANT TEACHERS

Mr. Ferguson asked how the department deals with teachers who do not want to go along with the program, but who also do not want to leave. "Can you give us an example of how that conversation might go?" The department responds to teachers who are reluctant to improve their instruction by encouraging them and trying "to win their heart," Ms. Bonnevie noted. "We give those teachers responsibilities, get them involved, and we also provide professional development." She has found that "teachers do not feel respected when they are ordered to implement change, and they have no input. Teachers feel respected when they are involved in the process of change and they are allowed to give input."

Teachers feel respected when they are involved in the process of change and are allowed to give input.

As vice president of the Lynn Teachers Union, Mr. Mailloux said he had always thought that "if you have a bad teacher in your building, an administrator somewhere isn't doing their job." An administrator facing a recalcitrant teacher could compare the scores of his or her students on a standardized test with the scores of other teachers' students. Hard evidence would convince the teacher "that what the school is doing is working, so get on board or you are going to hurt the whole process, not just yourself."

A LITTLE BIT OF FREEDOM GOES A LONG WAY

Mr. Ferguson asked whether teachers balked at giving students the same exams year after year. Math teachers have been using different textbooks to teach the same subject, Ms. Bonnevie noted, partly because of turnover in Math Department heads, and partly because she does not have the funds to buy new textbooks for all classes. The school receives $60,000 a year to buy textbooks for all subject areas, and only $6000 is allocated to the Math Department. She might purchase a new set of books for one Algebra I and one Algebra II class each year. To ensure that all classes on a given subject cover material specified by state frameworks, and that students do well on MCAS and NEAS exams, she splits 14 attendees at department meetings into groups of three or four to examine each textbook.

Teachers do include common multiple-choice questions on midterms and finals, she said. However, given that each textbook presents each subject a little bit differently, she allows teachers to develop their own short-answer and open-response questions for their exams. This "little bit of freedom" prevents pushback from teachers, she said. To support student learning, math teachers also provide a syllabus at the beginning a course, based on a department template, so students "know what they are getting into," Ms. Bonnevie said.

HOW TECHNOLOGY HELPS

Mr. Ferguson asked the panelists to name one aspect of their job that they "would give up their firstborn" to keep. Mr. Serino pointed to cutting-edge educational technology. "I love my SMART Board, I love my Senteo. The kids love it, they like taking a test on it…they like to push buttons. It's a new age, and it helps us keep them on task." The Math Department requires teachers to incorporate such technology into the classroom, Mr. Serino said. These tools include the Geometer's Sketchpad,[49] which helps engage students, added Mr.

Mailloux. "If our toys are better than their toys, students are probably more apt to pay attention to us and to be involved in the lesson for the day." Technology produces "accidental learning," including the "side effects" of knowledge retention and correct answers on tests.

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49. The Geometer's Sketchpad is an interactive geometry software program for exploring Euclidean geometry, algebra, calculus, and other areas of mathematics. For more information, please see http://www.dynamicgeometry.com.

10. NAPERVILLE CENTRAL AND NORTH HIGH SCHOOLS (SESSION A)

PRESENTERS:

Jodi Wirt, Assoc. Superintendent for Instruction, Naperville District 203

Andy McWhirter, Science Department Chair, Naperville North

INTERVIEWERS:

Jon Saphier, Research for Better Teaching

Richard Murnane, Harvard Graduate School of Education

STUDENT DEMOGRAPHIC PROFILE

Exhibit 10.1   Student Characteristics for 2009

	Racial Composition					Poverty Rate
	White	Black	Hispanic	Asian	Other	% Free Lunch
Naperville North	73.4%	5.2%	5.0%	15.4%	1.0%	9.6%
Naperville Central	79.4%	4.2%	2.4%	13.6%	0.4%	5.4%
IL (all grades)	53.3%	19.1%	20.8%	4.1%	2.7%	42.9%
Number of Students: Naperville North 3,116, Naperville Central 3,029						

Source: Illinois State Board of Education, Interactive Illinois Report Card (http://iirc.niu.edu)

MEETING THE ACHIEVEMENT CHALLENGE

Naperville Central and North high schools—each with some 3,000 students— serve an affluent, largely white community outside Chicago. Naperville has been a consistently high-performing district, building its success on a process through which teacher-led steering committees write the entire curriculum and student assessments.

The high schools decided to pursue that approach after choosing *Understanding by Design*[50] as an instructional framework. Under that framework, schools converge on the "big ideas" that they want students to learn and the critical questions that they want students to consider. The schools then create study units and teaching materials that encourage students to engage those ideas and to develop their own answers to those questions.

Different from most schools in this report, Naperville's high schools are not very diverse. Nonetheless, they are special. They have achieved at a consistently high level for the past decade. In addition, as their story in this report shows, they have achieved an exceptionally high level of professional community among the adults.

Exhibit 10.2 on the following page shows that the proficiency trend for both Naperville high schools is flat at a very high level. In 2009, the schools ranked 21st and 27th among 653 high schools on the state math exam, as indicated by the arrow on Exhibit 10.3. Naperville ranks even higher among Illinois schools on ACT scores, at 12th and 13th.

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50. Grant P. Wiggins and Jay McTighe, 2005. Understanding by Design. *Association for Supervision and Curriculum Design.*

Exhibit 10.2   11th-Grade Trends in Illinois State Exam Performance
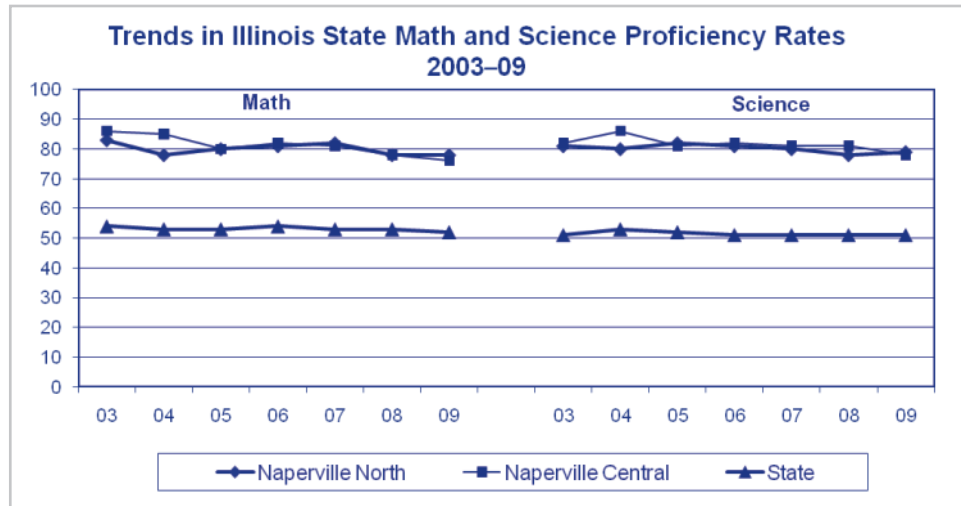
*Source: Illinois State Board of Education, Interactive Illinois Report Card
(http://isbe.net/research/htmls/report_card.htm)*

Exhibit 10.3   11th-Grade Illinois Math Exam Scores 2009
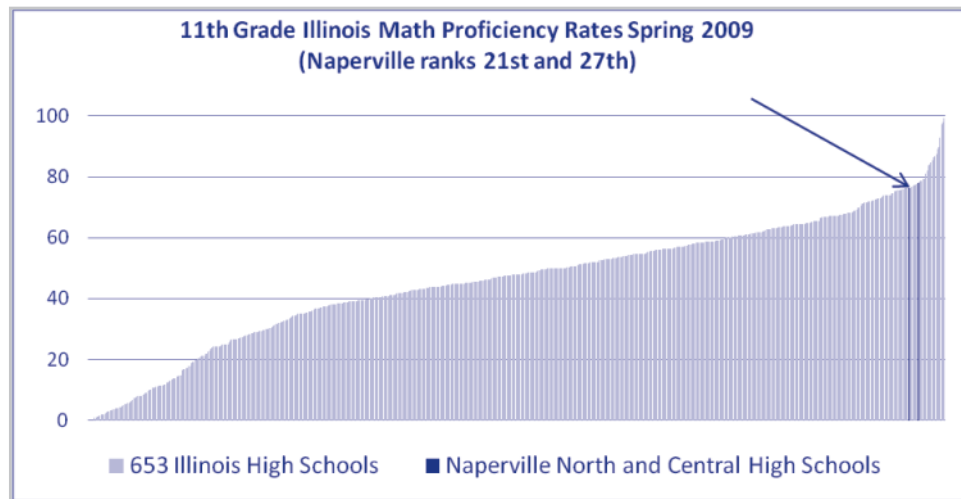
*Source: Illinois State Board of Education, Interactive Illinois Report Card
(http://isbe.net/research/htmls/report_card.htm)*

THE TURNING POINT

The defining moment at Naperville Central and North high schools, according to Mrs. Wirt, occurred in the late 1990s, when the state announced that the ACT would become the Illinois test for high school students. Although about 75 percent of Naperville high school students had already been taking the ACT, the schools had not relied on that test to be accountable to the community.

Naperville administrators responded by using the Schlechty Center School Improvement Process,[51] which asks a school to look at its capacity to focus on students, and to become a learning-centered—as opposed to a teacher-centered—organization. That process led administrators to ask: What do we want our students to be when they graduate?

Through a visioning process, the administrators decided that the schools' mission—which later became the district's mission—is to create students who are collaborative workers, self-directed learners, quality producers, and community contributors. The administrators also decided that the schools needed to protect students from adverse consequences, give them choices, and provide affiliation and affirmation.

After developing the mission statement, administrators shared it with teachers. Today, students themselves at both Naperville high schools refer to the mission statement, so the mission has moved from administrators to teachers to students. Students may not experience every aspect of the mission every day, but every unit of study must support it. That mission is a powerful vehicle in getting students to come to school.

The mission statement defines not only the kind of education Naperville is trying to provide, but also the type of instruction that has to happen in the classrooms, Mrs. Wirt said. The staff looked at the level of student engagement and asked: "Do we have a guaranteed and viable curriculum? How is the learning environment fulfilling the mission and helping students acquire the knowledge and skills we want them to have?"

THE UNDERSTANDING BY DESIGN FRAMEWORK

To answer those questions, administrators and teachers began using *Understanding by Design* as a framework for developing a new curriculum. This framework is inquiry-based: it invites students into the learning process by having them consider important questions that do not necessarily have predetermined answers. The Naperville staff wanted students to understand that every time they considered a question, the answer probably would and should change, and that their answers should deepen their understanding of the content.

The schools' mission—which has become the district's mission—is to create students who are collaborative workers, self-directed learners, quality producers, and community contributors.

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51. For more information on the Schlechty Center School Improvement Process, please see http://www.schlechtycenter.org.

Teacher-Led Curriculum Development

A steering committee for each subject area includes teacher representatives from both high schools, and those teachers write the curriculum. Each committee also includes department coordinators from both schools, who help steer teachers down the road they will eventually travel. However, the entire curriculum development process, illustrated in Exhibit 10.4, is teacher-led, and that helps ensure buy-in from the faculty, according to Mr. McWhirter, Science Department chair.

Each curriculum committee starts by examining state and national standards in its content area. For example, a science committee might look at standards from the National Science Foundation, and the Atlas on Scientific Reasoning from the American Association for the Advancement of Science. The committee decides how to apply those standards to Naperville students: it translates the standards into the school's own language. The committee then develops *Understanding by Design* units that fulfill those standards. The curriculum committees usually work two to two-and-a-half years before teachers implement the study units.

Exhibit 10.4   Curriculum Development Process
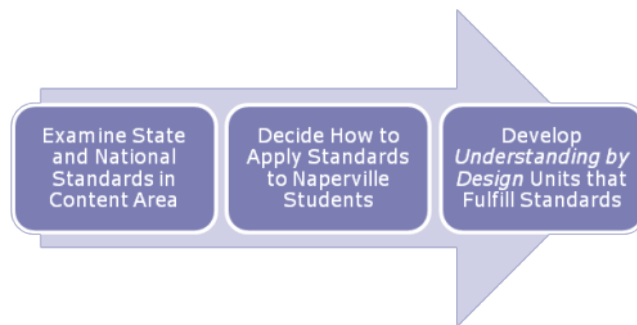
Source: Based on Naperville's presentation to the AGI conference

As leaders in each content area began revising the curriculum, some teachers protested that the *Understanding by Design* framework would not work for their subject. "It might have worked for math, but it's not going to work for world languages." In fact, during the last 10 years, committees have reworked all major courses into *Understanding by Design* units of study.

Overall, the curriculum development process has changed the staff's beliefs about the types of learning experiences students should have, and the process has helped guarantee that all students are being held to the same performance standards, Mrs. Wirt said.

The curriculum committees usually work two to two-and-a-half years before teachers implement the study units.

The curriculum development process has changed the staff's beliefs about the types of learning experiences students should have.

IMPROVING ASSESSMENT

As administrators and teachers began using *Understanding by Design*, they realized that they needed to consider the quality of student assessment, as well as whether the assessment approach protected students from adverse consequences. This meant assessing student learning rather than simply assessing the completion of assignments.

To fulfill this goal, each curriculum committee creates the assessments—which include labs and student projects as well as tests—for every unit of study. The process enables teacher representatives on each committee to have spontaneous conversations about the assessments with other teachers in their schools. For example, when those teachers ask, "Who wrote this test?" a teacher leader can respond, "Well, I did." And that helps create buy-in.

Mr. Murnane noted that having teachers develop common assessments is time consuming. It is hard to do well, and many assessments are already commercially available. He asked whether the schools find the process of creating their own assessments critical, and how long that process takes.

It takes a lot of time, Mr. McWhirter acknowledged. However, necessity forced the schools down that road. When a curriculum committee developed a combined Physics and Earth Science class for freshmen, for example, finding assessments for such a course was not easy. Convincing science teachers to move beyond multiple-choice tests was also difficult, according to Mrs. Wirt, because they thought that other types of assessments would be too time-consuming and encompass too much writing and speaking. In this case, teachers first had to agree on the actual tasks they wanted to assign students, and on what these tasks would tell teachers about the students' knowledge of science.

Mr. McWhirter admitted that members of the curriculum committees are not necessarily great test writers. However, creating the assessments not only ensures teacher buy-in—it also provides the specific data on student learning that the schools need.

Developing the schools' own assessments is also important because when the schools committed to their mission, they changed their improvement plans to emphasize effective instruction and student engagement rather than a percentage increase in test scores, Mrs. Wirt noted. This meant staff members had to figure out whether the schools were really engaging students and teaching them complex thinking. Most assessments on the market do not

> Creating the assessments not only ensures teacher buy-in—it also provides the specific data on student learning that the schools need.

measure that, so the schools decided to invest in developing their own assessments.

Nonetheless, one of the schools' accountability measures states that if the schools focus on effective instruction, they should see a certain percentage increase in students' scores on the Illinois Standards Achievement Test and the ACT, Mrs. Wirt said.

IMPLEMENTING THE NEW CURRICULUM

Once the committees have designed the units, they choose classroom resources, create the assessments, and then move to implementation. The two high schools rely on substitutes to allow teachers to leave their classrooms to work on the committees.

Professional Learning Communities (PLCs)—comprised of teachers in each department in each school—then meet once a month on late-arrival days to talk about how students are doing on the assessments. Based on that information, teachers in a PLC might decide to re-teach some material or ask a steering committee to revise the curriculum for the following year.

PLCs use professional development to help teachers understand how to give students specific feedback.

The PLCs focus on gathering data that tells teachers what to do next in their classrooms, Mrs. Wirt said. The PLCs also use professional development to help teachers understand how to give students specific feedback. For example, a teacher may write on a lab report that a student was a collaborative worker, and give examples.

The PLCs and curriculum committees also revise student assessments. However, at some point the PLCs must develop consensus among teachers that assessments will remain intact for at least two or three years, so the schools can get baseline data on student learning.

RUNNING EFFECTIVE PLC MEETINGS

The schools invest in facilitation skills: they train teacher leaders how to run PLC meetings— and emphasize that meetings matter.

Mr. Saphier asked, "So now the curriculum is out there, and the four of us who teach freshman algebra are looking at the probability problem that eight kids got wrong and eight other students got right, and we are trying to decide how much more explanation we need to give students, how do leaders ensure that the PLC meetings that do such work go well? That process doesn't happen by itself."

The schools invest in facilitation skills, Mrs. Wirt answered: they train teacher leaders how to run meetings—and emphasize that meetings matter.

Administrators also model what effective meetings look like. For example, when instructional coordinators meet once a week, they create an agenda that includes both an instructional and a business component. A carefully planned approach has become part of the culture.

Mr. Saphier asked, "Who leads those meetings?" "Principals usually lead them," Mr. McWhirter replied.

"Hundreds of schools all over the country give their teachers the task of sitting down and doing that and it doesn't work," said Mr. Saphier. "I've been to many such meetings myself, and nobody is really in charge of keeping the meeting focused, and there is no kind of logic and understanding."

The instructional coordinators meet with teacher leaders to plan the PLC meetings, according to Mr. McWhirter. The coordinators also sometimes retrieve information from the schools' data warehouse so the teacher leaders are prepared. Some teachers teach more than one subject, so creating an agenda ahead of time and taking notes enables a teacher who is attending another meeting to find out what occurred.

"I want to emphasize that PLCs do not run themselves, even if you train the leaders," Mr. Saphier said. "There has to be a shepherd: it can be the department chair or the principal. That shepherd—who attends the meetings on a rotating basis—is sometimes an admiring witness, sometimes an active participant, and sometimes delivers team therapy." "He or she usually provides team therapy," Mr. McWhirter observed.

Changing the Grading System

As the curriculum committees and PLCs revamped assessments, they also began to take a look at the schools' grading system to come to a shared understanding of what a grade means. For example, what does an A mean in one teacher's science class, compared with an A from the teacher across the hall?

Each PLC developed a "Grading Positioning Statement," or GPS. Teachers share the GPS with students, which gives teachers an opportunity to talk about what mastery means in a given subject.

To answer this question, each PLC developed a "Grading Positioning Statement," or GPS. Teachers share the GPS with students, which provides teachers with an opportunity to talk about what mastery means in a given subject. This process helped teachers realize that they should not simply tell students that they are not meeting standards, but also explain what they can do to meet those standards. For example, the schools allow students to repeat assessments if they complete certain steps. This approach helps Naperville fulfill its mission of emphasizing learning and protecting students from adverse consequences.

This year, a group of teachers realized that on a 90-80-70-60-0 grading scale, there is a big drop from 60 to zero, and that affects student motivation: if students are trying to make up a zero, they have a long way to go. A freshman science team therefore began using a 4-point grading system, in which 4 and 3 indicate mastery, 2 and 1 indicate less mastery, and zero indicates no mastery. As teachers used that grading system over the course of a year, they began to understand it better and had rich conversations with students about what each grade means. However, communicating the new system to parents proved challenging, because they grew up with the 90-80-70-60 grading scale.

TAKING THE NAPERVILLE APPROACH COUNTYWIDE

As the curriculum development process matured, Naperville high school staff began working with other school districts in DuPage County. That process has spurred department coordinators and teachers throughout the district to engage in conversations about what student knowledge should look like at every grade.

Participants in countywide curriculum teams have long conversations about what essential understanding students in each subject need, and how schools can assess that. The teams then develop a countywide test to assess how well students are doing in each content area. Department coordinators again organize and help steer this process, but teachers do the work. The teams then look at data from students' tests to determine the areas a particular school did well in and those in which it did not. The teams talk about what lab and other activities they can use to engage students and help them improve. That professional conversation has helped broaden the Naperville approach to other school districts in DuPage County.

STRENGTHENING BUSINESS PARTNERSHIPS

The curriculum development process has also helped strengthen Naperville's business partnerships, because the high schools ask business people to help develop performance standards for the students. Representatives from various businesses also help with the assessment process by evaluating the knowledge that students have acquired, for example by critiquing the marketing plans that students create, and that has helped build community buy-in.

Mr. Murnane asked whether business people come to the school or bring students to their workplaces. According to Mrs. Wirt, they do both. For example, a law firm helps run a mock trial in the schools, in which local judges

preside over cases; marketing employees help students develop marketing plans; and companies also offer student internships. So the schools maintain a number of relationships with local businesses and other professionals.

DO TEACHERS BURN OUT?

According to Mr. Murnane, some of the "lighthouse" schools (by which he meant KIPP Schools) rely on young teachers who are willing to work 24/7, until they have their own children. At that point those teachers cannot sustain such a schedule. He asked whether the teaching jobs in their schools are sustainable. "Some of my teachers are young eager beavers," said Mr. McWhirter. However, he noted, 25–30-year veterans do the same amount of work. In fact, some teachers accept major assignments at the schools after they retire from teaching. Working hard is just part of the culture of the schools.

Mr. Ferguson asked whether the Naperville high schools would be as successful if they were dealing with an aggressive teachers' union and facing the possibility of class-action lawsuits. Mrs. Wirt responded that the district does have a fairly aggressive teachers' union. However, because Naperville teachers are so involved in developing the curriculum, the decision-making and effort to implement it are not top-down. So although administrators face some union criticism, they have built strong relationships with teachers. Neither teachers nor administrators are holding the schools back, she said.

11. Naperville Central and North High Schools (Session B)

PRESENTERS:

Tim Wierenga, Assistant Principal for Curriculum Instruction, Naperville North

Scott Miller, Math Instructional Coordinator, Naperville Central

INTERVIEWERS:

Karin Chenoweth, The Education Trust

Thomas Payzant, Harvard Graduate School of Education

Two leaders of the Math Department talked about how their district, schools, and department emphasize the professional development of teachers, and rely on cutting-edge technologies to support both teacher collaboration and student engagement. This was the second of two presentations at the conference by Naperville representatives.

USING THE CHARLOTTE DANIELSON MODEL

Avoid making teachers "feel as though they have to put on a dog and pony show" each time instructional leaders observe their classes.

One of the most important shifts at the Naperville high schools occurred when they adopted a new model for evaluating teachers, according to Mr. Wierenga, assistant principal for curriculum instruction at Naperville North. That model is based on Charlotte Danielson's Framework for Teaching,[52] which focuses on four domains of teaching:

1. Planning and Preparation

2. The Classroom Environment

3. Instruction

4. Professional Responsibilities

The Danielson framework has spurred the Naperville high schools to focus on boosting student engagement in the classroom, rather than on scripting teachers' activities. As part of the Danielson approach, instructional leaders focus on staff development and growth during the formal process for evaluating teachers. The key is to avoid making teachers "feel as though they have to put on a dog and pony show" each time instructional leaders observe their classes, according to Mr. Wierenga.

Instructional leaders observe the teacher during a full 50-minute class period. Afterward the teacher completes a self-reflection.

The evaluation process shown in Exhibit 11.1 on the next page begins with a meeting between evaluators and an individual teacher, in which participants set goals designed to support that teacher's professional growth. Then, before evaluators observe that teacher in the classroom, the participants gather at a "pre-conference" to talk about how the teacher might modify his or her instructional practice to better focus on the needs of individual students. Instructional leaders then observe the teacher during a full 50-minute class period. Afterward the teacher completes a self-reflection. The leaders and teachers then gather at a "post-conference" to discuss the teacher's practice, with the teacher doing "a lot of the talking," Mr. Wierenga explained.

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52. *The Framework for Teaching is a research-based set of components of instruction, aligned to the Interstate New Teacher Assessment and Support Consortium (INTASC) standards. In this framework, the complex activity of teaching is divided into 22 components (and 76 smaller elements) clustered into four domains of teaching responsibility. For more information visit the website at http:// www.danielsongroup.org.*

Exhibit 11.1   The Teacher Evaluation Process
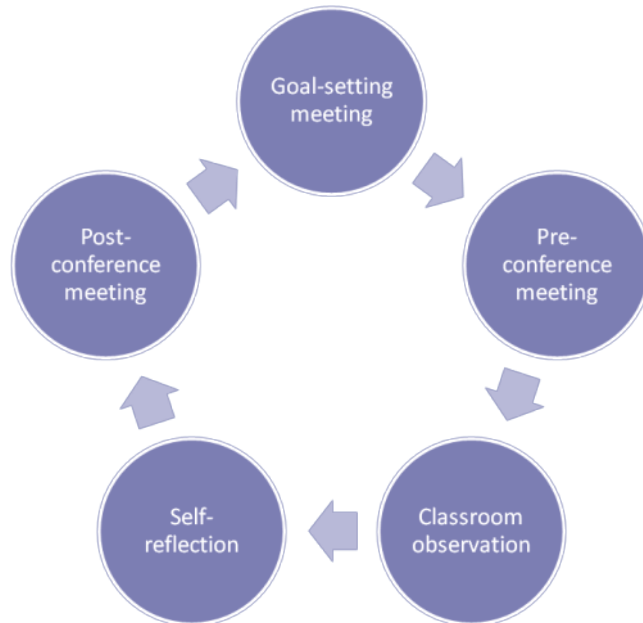
Source: Based on Naperville's presentation to the AGI conference

MEASURING STUDENT ENGAGEMENT

To help measure student engagement, instructional leaders also conduct "focus walks," which are separate from the formal teacher evaluation process. Developed by Jerry Valentine of the University of Missouri-Colombia,[53] a focus walk relies on a team of practitioners that visits every classroom for just a minute or two, according to Mr. Wierenga. The team notes what is occurring in each classroom—whether teacher-led instruction, teacher-led worksheets, student-to-student conversation, or work by student teams.

The focus walk team also observes whether and how students are using technologies such as graphing calculators and the mathematics visualization software Geometer's Sketchpad,[54] which students can use to visualize and investigate mathematical concepts, according to Mr. Miller, math instructional coordinator at Naperville Central. The observers jot down a "measurement" and move on to the next classroom. Over the course of a day, a team may conduct as many as 200 brief observations, which together provide data on student engagement throughout the school.

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53. For more information on Dr. Jerry Valentine, Middle Level Leadership Center at University of Missouri visit the website at http://www.mllc.org/.

54. For more information on the Geometer's Sketchpad visit http://www.dynamicgeometry.com/.

ADOPTING INTERACTIVE WHITE BOARDS

The Naperville high schools rely on several other technologies besides graphing calculators and the Geometer's Sketchpad to support student engagement. For example, the math faculty began using interactive white board technology six years ago, when Mr. Miller became department chair, he said. A math teacher who was also a football coach had received a grant to use the interactive SMART Board to coach his players. After finding the technology "spectacular," Mr. Miller decided to use funds designated for new furniture to mount SMART Boards on classroom walls—as that would qualify them as "pieces of furniture."

Rather than giving the first SMART Boards[55] to novice teachers—"who will do whatever you say," as they are not tenured—Mr. Miller decided to introduce the technology into the classrooms of experienced teachers. After installing a SMART Board in one teacher's classroom over the summer, he spoke to that teacher before she returned to her classroom at the start of the school year. "I said, 'Sharon, I need to give you some really good news and some other really good news,'" according to Mr. Miller. "'You've got a new piece of technology in your classroom.'

And of course I could see the frustrated look starting on her face. So I said, 'We are going to train you to use this technology, and it's going to be spectacular—you're really going to like it.' 'Then I asked, 'How do you feel about that? And she said, 'I really want to hurt you.'" However, "within two weeks, she came into my office and said, 'If you take that technology out of my classroom, I will hurt you.'"

Using the SMART Board technology is not difficult—"the learning curve is very short," Mr. Miller noted. The department has nevertheless provided as much subject-specific professional development as possible, to ensure that teachers use the technology to interact with and engage students. Mr. Miller expected to ultimately install SMART Boards in about half the classrooms in the department. However, by the end of the second month of the school year, "every teacher in the Math Department wanted one, and now almost every single classroom at Naperville Central has a SMART Board."

> Using the SMART Board technology is not difficult—"the learning curve is very short."

> Every teacher in the Math Department wanted one, and now almost every single classroom at Naperville Central has a SMART Board.

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55. For more information on SMART Board interactive white boards visit http://smarttech.com/.

THE POWER OF ELECTRONIC STUDENT-RESPONSE SYSTEMS

The department has also adopted response systems such as Senteo[56]—hand-held wireless electronic devices that allow students to transmit their answers on quizzes and tests to teachers. The system gives teachers immediate feedback on the progress of individual students, and thereby helps teachers tailor instruction to the needs of the class.

Another benefit of using Senteo is decreasing test anxiety for students. One student, for example, confided to Mr. Miller that he "sometimes passes out or throws up" before taking assessments. After using Senteo, that student's anxiety subsided: he would eagerly ask, "Mr. Miller, are we going to take a quiz today or not?"

The department also regularly wheels carts with enough laptops for every two students into classrooms. Students sign out a laptop to record short podcasts on how they are solving their math problems, he said. Now, instead of simply grading those problems, "teachers are actually hearing students' explanations and reasoning."

Students sign out a laptop to record short podcasts on how they are solving their math problems. Teachers can actually hear students' explanations and reasoning.

LINKING PHYSICAL ACTIVITY TO MENTAL ALERTNESS AND ACHIEVEMENT

The Physical Education (PE) Department, in collaboration with the Math and Communication Arts Departments, began relying on heart rate monitors several years ago as a novel approach to helping struggling students, Mr. Miller recounted. One October, the state government announced that it would begin requiring students to take more math to graduate—in particular, to pass Algebra I. Although the new requirement would take effect the following year, Naperville decided to implement it immediately. However, because many students had been failing that course, the high schools also "decided that we needed to make some dramatic changes in how we helped students, to get them ready to pass Algebra I," Mr. Miller said.

These changes actually began with students who were below grade level in reading, Mr. Miller observed. Their parents had complained because the schools were requiring those students to take a literacy course rather than an elective. After the schools found that students who were below grade level in reading were also below grade level in math, the Math, Communication Arts, and PE

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56. For more information on SMART interactive response systems visit http://www2.smarttech.com/st/en-US/Products/SMART+Response/default.htm.

Department chairs decided to develop another approach. They decided that those students would take a PE class directly before a literature or math class.

PE instructors use a cardiovascular workout to raise students' heart rates, and also integrate reading and math strategies into the workout. For example, in the gymnasium "you'll see students on scooters building sentence structures by grabbing pieces of sentences… or building equations by grabbing" at math expressions on cards, he said. PE teachers use heart rate monitors to track students' cardiovascular workout, and link their heart rate to results on standardized tests in reading and math. "The results have been tremendous," Mr. Miller attested.

The tests scores of participating students are two to four times higher than the scores of a control group of struggling students who do not take PE immediately before academic classes, he said. A group composed of PE teachers, communication arts teachers, math teachers, and instructional coordinators is now collaborating to expand the program, which has produced positive results for several years.

The approach builds on the work of Dr. John Ratey,[57] Associate Clinical Professor of Psychiatry at the Harvard Medical School, who has studied the impact of cardiovascular activity on learning and achievement. Both high schools have now embraced physical activity as a key support for learning.

For example, "we train our students and our teachers to do 'brain breaks' during a standardized test." Mr. Miller said. Those exercises "get blood flowing" back to the brain. Students are then ready to work for another 15 or 20 minutes, because "their attention span is about equivalent to their age."

The Naperville high schools have also taken other steps to ensure that students pass Algebra I, according to Mr. Miller. For example, teachers now talk with individual students about specific concepts with which they are struggling, and to other teachers about that student's needs. Together, such efforts enabled the department to "immediately cut our failure rate for Algebra I in half."

LEVERAGING TECHNOLOGY TO COLLABORATE

The district, the schools, and the Math Department also promote technologies that help teachers collaborate. For example, 11 years ago both Naperville high

Both high schools have embraced physical activity as a key support for learning.

Teachers talk to students about specific concepts they are struggling with, and to other teachers about student needs.

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57. Dr. Ratey, Associate Clinical Professor of Psychiatry at the Harvard Medical School, is the author of Spark: The Revolutionary New Science of Exercise and the Brain, Little, Brown and Company, 2008. For more information visit his website at http://www.johnratey.com.

schools gave every teacher a laptop. However, the teachers received very little training, so they mostly used the computers for e-mail, Mr. Miller said.

AN ONLINE PORTAL FOR SHARING MATERIALS

To address that problem, the district adopted Microsoft® Office SharePoint®[58] as an online portal for sharing teaching materials. Instructional leaders and teachers post resources used in every unit in every subject, including tests and quizzes, on the SharePoint server for use by other teachers. The high schools plan to add videos of model lessons for each course to the site.

Mr. Ferguson asked whether every teacher posts all his or her materials and student assignments on SharePoint. "No, they don't," said Mr. Miller. However, if a department is implementing a new curriculum, the curriculum team ensures that all the materials it has designed are online. Instructional leaders also encourage faculty members to post materials online for others to share. Instructional leaders further suggest that teachers adapt those shared materials, Mr. Miller said. They ask, "How do you own that piece of curriculum that you will use in your classroom?"

A DATA WAREHOUSE

District leaders also created a data warehouse. Teachers formerly used machine-readable tally sheets to crunch data on student achievement. However, that system did not allow teachers and other staff members to easily determine how individual students across a large district were faring, Mr. Miller said.

The warehouse does allow staff members to analyze district-wide final exams and other assessments to pinpoint the specific strands of knowledge with which each student is struggling. The warehouse also includes demographic information on each student, including how long he or she has lived in the district, and which interventions have or have not helped that student succeed. That information enables teachers to determine the best approach to supporting each student.

TEACHERS AS DEPARTMENT TECH CONSULTANTS

To further support both students and teachers, the Naperville high schools have transformed the way they staff technology positions. When Mr. Miller arrived,

> Instructional leaders and teachers post resources used in every unit in every subject, including tests and quizzes, for use by other teachers.

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58. *Microsoft, and SharePoint are either registered trademarks or trademarks of Microsoft Corporation in the United States and/or other countries.*

he noted, "We had one tech director for the entire school, and someone who sat in a lab all day long in the Foreign Language Department. It was the same way over at Naperville North."

Today one teacher in each department acts as a tech consultant for that department during a daily "release period." This means that teachers who are having trouble using a technology in the classroom can obtain immediate help. The tech consultant also coaches other teachers during departmental meetings in using technology—especially in how to "get students up and interacting with the SMART Board," Mr. Miller said.

"We have also transformed teacher institute days," according to Mr. Miller, after teachers revolted against professional development run by administrators. Today teachers design those sessions, including sessions devoted to interactive technology. In fact, the schools provide as much professional development as possible," trying to "squeeze out extra time…in any way, shape or form," and paying teachers for their time.

MENTORING AND TRUSTING TEACHERS

Mr. Payzant wanted to know about Naperville's strategies for managing human capital. "Where do you get the teachers for the hard-to-fill fields? How do you induct them? And most importantly, how do you retain them?" he asked.

When new teachers arrive at the high schools, they sense the strong focus on students, and also that teachers are supported and expected to grow, Mr. Wierenga responded. Because "that's exciting," teachers "tend to stay for their careers." The state also provides grants that enable schools to assign a mentor to new teachers. The Math Department is now developing a four-year teacher induction program that would further include having master teachers coach new teachers, according to Mr. Miller. That would ensure that teachers receive in-depth training, and that they "feel supported, and understand the vocabulary and our way of doing business."

HANDLING RESISTANCE TO CHANGE

Mr. Ferguson asked what the Naperville leaders would do if "you were dropped as a department chair into a traditional high school, where the typical teacher had 15 years of experience and their attitude was, 'I know how to teach math, leave me alone, I've got my curriculum, my students do just fine, I don't need you.' How would you describe leadership if the department was also atomized and stuck, and the school was in a suburb whose middle-class parents were

"We have transformed teacher institute days." Teachers design these sessions, including sessions devoted to interactive technology.

When new teachers arrive they sense the strong focus on students, and that teachers are supported and expected to grow.

largely satisfied with their children's education?" "Leadership means 'Let's trust the teachers…to be the experts,' if we provide guidance and training," Mr. Wierenga responded.

He noted that he was in fact dropped into Naperville as Math Department chair 10 years ago. Fortunately, administrators supported his desire to pursue a "storming" process devoted to developing a "belief system." People sometimes "wanted to just walk out of the meetings," he admitted. However, "We said, 'We need to hear those voices, we need to hear what your concerns are, we need to talk about this, and we need to work through those issues.'" Once people felt valued and heard, he said, the department had "created a trust system that allowed us to get down to the nitty-gritty of designing a curriculum that works."

Once people felt valued and heard, it "created a trust system that allowed us to design a curriculum that works."

"You just trusted that that process would come out in a good place, or did you steer it to a particular place?" Mr. Ferguson asked. "We steered it," Mr. Wierenga responded. "There were some non-negotiables." For example, departmental and district leaders decided that the schools would promote inquiry-based learning. However, participants used the storming process to determine the curriculum that would support that learning.[59]

MANAGING A TEACHER DEVELOPED CURRICULUM

Ms. Chenoweth asked how the Naperville schools develop their curriculum and assessments. Naperville has the advantage of being an aligned K–12 district, Mr. Wierenga responded. To support that alignment and the inquiry-based approach to learning, the district has created a seven-year curriculum cycle. During the first three years of that cycle, staff members from a core subject convene to research and develop instructional standards. Each team then designs a curriculum for that subject, and selects the required resources. Teachers and other staff members implement the curriculum during the ensuing four years.

Although teachers develop the curriculum and choose the resources, district curriculum leaders and the instructional coordinator for math "stack the deck beforehand," Mr. Miller noted. That is, these leaders limit the range of materials from which a team can choose to ensure that participants do not go in "a direction that we don't want them to go."

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59. For more information on Naperville's approach to learning and its curriculum, see Chapter 2.

12. TECHBOSTON ACADEMY

PRESENTERS:

Mary Skipper, Headmaster

Lisa Martinez, Chief Academic Officer

Justin Desai, Math Liaison

Nora Vernazza, Math Liaison

INTERVIEWERS:

Karin Chenoweth, The Education Trust

Thomas Payzant, Harvard Graduate School of Education

STUDENT DEMOGRAPHIC PROFILE

Exhibit 12.1   Student Characteristics for 2009

	Racial Composition					Poverty Rate
	White	Black	Hispanic	Asian	Other	% Free Lunch
Tech Boston	4.6%	58.1%	29.2%	4.6%	3.5%	79.9%
MA (all grades)	69.1%	8.2%	14.8%	5.3%	2.6%	32.9%
Number of Students at TechBoston: 378						

Source: Calculations by the Achievement Gap Initiative at Harvard University, using unpublished data from the Massachusetts Department of Education. The Massachusetts Department of Education bears no responsibility for any errors or omissions.

MEETING THE ACHIEVEMENT CHALLENGE

TechBoston Academy opened its doors in 2002, as part of the Gates Foundation –funded small schools movement. The school initially had just 75 9th-grade students and eight staff members, and added one grade a year. Although the high school now serves grades nine through twelve, it still has fewer than 400 students. Unlike Boston's three exam high schools, which require prospective students to take a test, TechBoston Academy relies on a lottery to admit its students. The school's racial and ethnic composition therefore mirrors that of the district.

TechBoston is a pilot school. That means that it is funded like other Boston public schools, but that it has the control over staffing, scheduling, curriculum, and governance typical of a charter school. The school offers an interdisciplinary approach to teaching and learning while incorporating technology throughout the curriculum. Administrators and teachers also rally students to meet the challenge of the state's high-stakes exam, which they must pass to receive a high school degree. However, the school also fosters a larger vision that includes belief in hard work as a ticket to higher education.

Students at TechBoston Academy have a similar profile to those at another featured school, Brighton High School. At both schools, almost all are African Americans and Hispanics who qualify for free and reduced price meals.

Based on average scores on the Massachusetts Comprehensive Assessment System (MCAS), Exhibit 12.2 on the next page shows the percentage of 10th-graders in 2008 who were in each quintile of the 8th-grade math distribution two years earlier, in 2006. The exhibit shows that over 80 percent of TechBoston students had scored in the bottom three quintiles on the math MCAS when they were 8th graders in 2006.

Exhibit 12.3 on the next page shows that when their gains from 8th grade to 10th grade are compared to those of other high schools in the state, TechBoston students gained more than students with similar 8th-grade scores did at 99 percent of other high schools in the state. The light grey bars in Exhibit 12.3 show numbers that are unadjusted for background characteristics; the dark grey bars show numbers that are adjusted. (Background characteristics include race, gender, free and reduced lunch status, limited English proficiency status, 8th-grade attendance, and age.)

Exhibit 12.2   8th-Grade Math Distribution
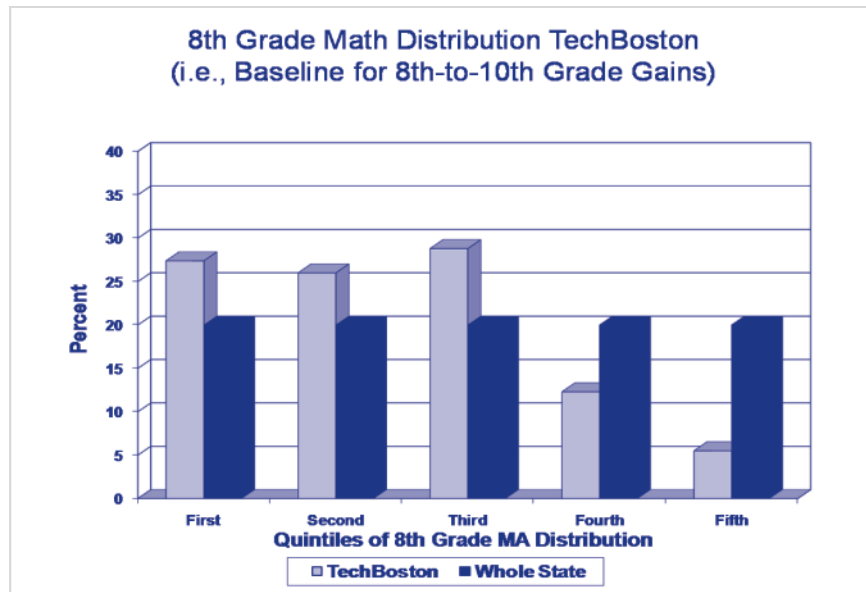
Source: Calculations by the Achievement Gap Initiative at Harvard University, using unpublished data from the Massachusetts Department of Education. The Massachusetts Department of Education bears no responsibility for any errors or omissions.

Exhibit 12.3   8th-to- 10th-Grade Math Gains
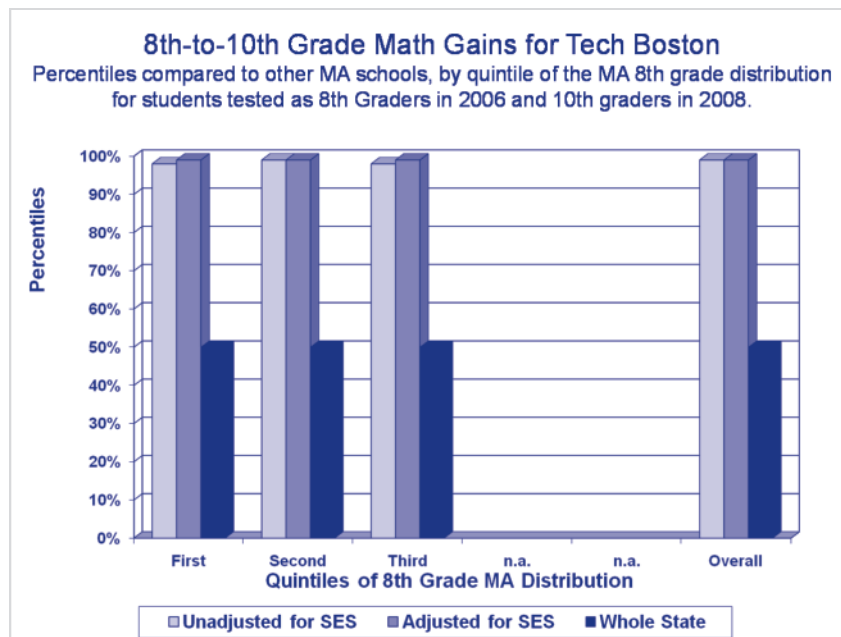
Source: Calculations by the Achievement Gap Initiative at Harvard University, using unpublished data from the Massachusetts Department of Education. The Massachusetts Department of Education bears no responsibility for any errors or omissions. The label "n.a." indicates that there were not enough students in the sample to ensure a reliable calculation.

TECHNOLOGY AS BOTH TOOL AND CONTENT

Some 72 percent of TechBoston Academy students are boys, because boys are overrepresented in the lottery from which students are selected. Headmaster Ms. Skipper said boys apply to the school hoping to play video games all day. However, once admitted, they soon figure out that games are not the focus of the school. Instead, TechBoston Academy offers a college preparatory curriculum, using technology to motivate and engage both students and faculty, according to chief academic officer Ms. Martinez. "It's the core of our mission, but it's also the bridge to deeper student learning."

The school integrates technology throughout its interdisciplinary curriculum. "The mantra we adhere to has technology at the center as both tool and content," Ms. Skipper explained. Every student has a laptop, and teachers must be certified in technology as well as in their content area. The school also emphasizes literacy and writing across the curriculum, Ms. Skipper said. This is critical, because if students cannot read math questions and compose their answers, then they cannot do math.

> The school emphasizes literacy and writing across the curriculum.

DISTRIBUTED LEADERSHIP AND TEACHER SUPPORT

"The kids come in thinking they can't do math, thinking they can't learn," Ms. Skipper said. Indeed, some 50 percent of 9th-grade students did not pass the 7th-grade MCAS exam. TechBoston Academy's mission statement maintains that all students can learn if the school provides a nurturing and challenging environment. Ms. Skipper and Ms. Martinez described several core attributes the school relies on to fulfill that mission:

1. *Strong adult-student relationships*. Adults concentrate on "convincing students that they are smart and they can do it."

2. *A distributed leadership model that includes teacher leaders*. "That's a key part."

3. *Horizontal alignment across the school*. "It's everyone's job to be reading teachers and math instructors."

4. *Vertical alignment within departments*. When a department operates as a unified team, that adds academic rigor to all its classes.

5. *An interdisciplinary curriculum.* That creates a team approach to teaching as well as deep learning for TechBoston students, as they see content through multiple lenses.

6. *An adult development model*. The school provides more than 100 hours of professional development for teachers each year. Topics include course content, differentiated instruction, sensitivity training, student work, and sharing of best practices. Venues include grade-level meetings, departmental meetings, and meetings that focus on how best to support individual students. Although most of this professional development occurs in-house, many TechBoston teachers are district leaders, enabling them to share best practices with other schools.

7. *A dynamic learning organization*. "We make mid-course corrections, we do what we need to do to evolve, so that we are smarter the following year." This approach includes an open-door policy that encourages teachers to walk into any class to observe another instructor teaching. All TechBoston teachers participate in such peer observation.

The school provides more than 100 hours of professional development for teachers each year.

The open-door policy encourages teachers to walk into any class to observe another instructor teaching.

"Our teachers are multitalented," Ms. Skipper said. "They are cross-certified, many in teaching English language learners, many in special ed. And they work as a team on both defense and offense, to make sure the kids get what they need." According to Ms. Skipper, fulfilling the school's mission requires hard work on the part of teachers. "None of us would be here if we didn't have teachers who are on the floor, ready to do the work. It's about quality instruction and their being willing to put in the hours to have that happen."

DATA-DRIVEN INTERVENTIONS

TechBoston Academy performs a risk analysis of the academic, social, and emotional needs of each incoming 9th-grade student. Ninth-and 10th-grade teachers then meet to ensure that 10th-graders receive every support they need to handle that year's curriculum and pass the 10th-grade MCAS tests, which they must to receive a high school diploma. "We are immediately identifying their strengths and weaknesses," Ms. Vernazza, math liaison, noted.

This enables staff members to "put supports in place and target interventions before we ever see a student," Ms. Skipper said. Staff members are now developing a web-based tool to facilitate that analysis, which the school will share with other schools. Supports for students include learning centers, small-group instruction, and one-on-one tutoring embedded in their 9th-grade schedule. For the latter, the school relies on TechBoston juniors as well as outside tutors to tutor younger students. In fact, peer culture has been critical

to the school's success, according to Ms. Skipper, as older students teach younger students that "it's cool to be smart."

PREPARING STUDENTS FOR HIGH-STAKES TESTS

Tenth-grade teachers integrate MCAS preparation into the math curriculum throughout the year, according to Ms. Vernazza. Learning centers and one-on-one tutoring also focus on MCAS prep, and the school administers two practice MCAS math tests mid-year. Teachers analyze students' scores on the first practice test question by question, and use that information to "identify where students are strong and where they need extra support," Ms. Vernazza said. The school has also created a database of all MCAS-related questions, which it has aligned by state standard and knowledge "strand."

Students are very involved in understanding the types of MCAS questions and the strands of knowledge they represent, according to Mr. Desai, math liaison. "They are invested in the process." Students discuss how a particular strand fits into the knowledge frameworks of both the state and the Boston Public Schools. TechBoston students "start talking about the strands they need help with as we get closer and closer to the MCAS," according to Ms. Vernazza. And the school offers "boot camps" and other enrichments that focus on specific strands. "As you are walking through the tutoring center, you often hear students say, 'Oh, do you need help on number sense?' 'Oh, no, I need geometry.'"

The second practice test simulates the environment of the actual MCAS test: "Everything is exactly the same as it would be on test day…we use the same rooms, the same proctors, the same security features," she said. That "has helped with test anxiety," as students no longer face the unknown on test day.

MOTIVATING STUDENTS TO SUCCEED

Students understand the MCAS structure—"they know what they are going to see when the test rolls around," Mr. Desai concurred. Transparency is key to the MCAS drive. "We love data, and two years ago we decided to start showing some of the students some of the MCAS data," he said. For example, at the junior assembly at the beginning of the year, the staff announces the previous year's MCAS scores. Juniors therefore "know the numbers to beat"—how many 10th-grade students scored "advanced" and "proficient" the previous year. Sophomores also attend the event. Meanwhile, plaques hanging in school

Peer culture has been critical to the school's success as older students teach younger students that "it's cool to be smart."

Teachers analyze students' practice test scores question by question and identify where students are strong and where they need extra support.

The second practice test simulates the environment of the actual MCAS test: that "has helped with test anxiety."

hallways identify students who have received a perfect score. All the hype spurs students to "get genuinely excited," according to Mr. Desai.

Teachers accelerate the curriculum to allow four to five weeks of MCAS prep directly before the exam. Teachers and students also take advantage of "discretionary days"—not to rehearse test strategies such as process of elimination, but to do content-driven MCAS prep, he said. That work focuses on frameworks for each subject from both the state and Boston Public Schools.

Headmaster assemblies, contests, and raffles further tout the MCAS challenge. The school announces an MCAS-related question of the day, offers a "premium pizza lunch" to students who work on MCAS questions during lunchtime, and holds after-school boot camps, as well as weekend prep sessions at the Boston Public Library. Although the boot camps are voluntary, "attendance rates are great," Mr. Desai attested. Students complete at least 20 math problems during each session.

Students use their laptops to record each question they answer in class, boot camps, lunch sessions, and other prep sessions—as well as the MCAS question of the day—in their own Excel database. They record their percentage of correct answers by category of question and strand, and also track their daily progress. "They are looking at their weaknesses versus their strengths, and that helps them fully understand the process," Mr. Desai said.

The idea that some students are innately good at math and other subjects has given way to the recognition that "it is really about hard work."

All these activities have created a cultural shift among both students and teachers, according to Ms. Skipper: the idea that some students are innately good at math and other subjects has given way to the recognition that "it is really about hard work." Students know that if they trust teachers to help them, they will pass the MCAS.

Students also understand how working hard and doing well can translate into longer-term success. For example, the school highlights the fact that high-scoring students on the MCAS qualify for the Adams Scholarship, and receive free tuition at in-state public institutions of higher learning.

Mr. Ferguson asked how TechBoston Academy avoids burning out students, given that they prep for MCAS for four to five weeks before the exam, including during lunchtime and boot camp. "We try to include fun activities, so it's not drill and kill," Mr. Desai responded. And although students may do 400 or 500 MCAS math problems before the test, the school offers that training through many different avenues.

Students also see results as they participate, and when they are working hard, "that can snowball: they feel good that they are working hard, and they want to do more of it," he observed. The school also ties MCAS prep to the curriculum, to build students' overall ability in English and math as well as their belief in themselves.

Cultivating Human Capital

Mr. Payzant asked about human capital strategies. "Where do you get the teachers for hard-to-fill fields? How do you induct them? And most importantly, how do you retain them?" "Human capital is critical," Ms. Skipper agreed. Many teachers have arrived at the school through word of mouth. "The best recruiters for our positions are our own teachers: they know what it takes to be at TechBoston Academy." When interviewing prospective teachers, existing staff members alert applicants to prepare to "sign over their life," she said. "They want colleagues who are going to work hard."

Professional development is also critical to retaining teachers, she noted. As part of its focus on adult development, TechBoston does not force every teacher to sit through the same professional development sessions. Instead, administrators look at each staff member and ask, "How can we develop that adult so that he or she can really maximize their gifts?" TechBoston has therefore had little problem retaining teachers, according to Ms. Skipper. "If teachers feel respected and supported, and as though they can go in every day and teach, it makes a difference, and they stay."

How an Interdisciplinary Curriculum Gets Developed

Ms. Chenoweth asked how TechBoston had developed its interdisciplinary curriculum, including its assessments. An interdisciplinary approach to learning was part of the school's original plan, Ms. Martinez responded. However, that approach began informally, because the school started with so few students.

Teachers simply "spent an exorbitant amount of time together that first year." However, as the school grew, "we noticed that we needed to put a policy in place, and look at hiring like-minded teachers," she said. Staff members ensured that new teachers supported "collaboration and an interdisciplinary approach to learning." The school also set aside staff time for interdisciplinary collaboration, and created a system of teacher mentoring and coaching.

TEACHER AUTONOMY VERSUS ACCOUNTABILITY

Mr. Payzant asked what the school's philosophy regarding teacher autonomy is. As a pilot school, TechBoston does enjoy some control over its curriculum, Ms. Martinez said. Administrators also give teachers some independence in deciding how to teach material in class. However, they need "to stay within a structure so that we can collaborate." Trusting instructors to decide how to teach material specified by state and district frameworks while remaining within the school's mission is important, she said.

"I see autonomy and accountability as two legs" supporting student achievement, Ms. Skipper observed. "As a school leader, I have to make sure we achieve a balance." If achievement "starts to slide, we have to adjust, and… talk about what's not being done, things falling through the cracks, how people are not being self-accountable to the work."

She told the faculty from day one, "Whether you like the MCAS or you don't, whether you philosophically agree with it or you don't, it doesn't really matter. If the kids do well on the benchmarks laid out by the district and the state, you will have more autonomy to do your work." That philosophy has allowed "a tremendous amount of innovation," she said.

"Our teachers are constantly evolving. They help define us as a leadership and a learning organization."

"Our teachers are constantly evolving. They help define TechBoston Academy as a leadership organization and a learning organization." Every year is different: teachers "can come to the table and say, 'We would like to teach this class,'" having never taught it before. They also help design the curriculum and make sure that it meets the standards. "To me that's critical, because when teachers become stagnant, learning becomes stagnant…Leadership is about innovation: it's about seeing both the beach and the horizon. The beach is the landscape I have to deal with; the horizon is where I want everybody looking and to go…. It's the leader's job to help focus everyone on that horizon," Ms. Skipper added.

DEALING WITH RELUCTANT TEACHERS

Mr. Ferguson asked how the school works with teachers "who just do not want to go along with the program, but who also do not want to leave. Can you give us an example of how the conversation might go?" That scenario requires "a whole-school effort," Ms. Skipper responded. On the "rare occasion that a teacher's personal life or whatever causes him or her to move in a different direction, we first put every possible support in place." Given the school's philosophy of adult development, staff members "try to figure out what's going on and help. I always use the word *pastoral* to describe that approach, which tells the community of teachers that we are here to help.

"I make sure that my best teachers are in front of my neediest kids."

"That said, we are the guardians of the children," she noted, so when a faculty member does not come on board, "other teachers actually start to isolate that teacher," and soon that person no longer wants to come to work. "On those rare occasions, it's communicated to that teacher long before I ever have to have a hard conversation" that he or she needs to leave the school.

Ms. Skipper also ensures that such an instructor does not teach students who need the most help. "I make sure that my best teachers are in front of my neediest kids," she said. Instead, she assigns recalcitrant teachers to students who have access to other resources.

Beyond Teaching to the Test

A focus on MCAS could actually support students' larger goals, Mr. Payzant noted. Although critics bemoan teaching to a test, especially if it is weak, MCAS is a better test than many, he said. For example, open response (writing to a prompt) accounts for 40 percent of students' scores in English Language Arts (ELA), and students must show how they solved some MCAS math problems. As evidence of the rigor of that exam, one study showed that Massachusetts students have the smallest gap between scores on state and national achievement tests.

Mr. Ferguson asked whether the school fosters a larger vision of where students are going with their lives, with the MCAS just one stop along the way. Some evidence that TechBoston's approach is not just about MCAS is that the 11th-grade students "are truly excited about math," Mr. Desai responded. "The MCAS is in the rear window, it's done, they have earned their grade on it, they passed it, but they are still excited about what's upcoming in math."

Because advisors and students discuss their journey from day one, "students come to understand that they are in charge," and that is a big turning point.

Staff members also talk up college from the time 9th-grade students arrive, Ms. Skipper said: the question is not whether they will attend college, but where. Students must figure out how to deal with the MCAS, SAT, and AP tests and grade point average as part of that journey. Because advisors and students discuss the journey from day one, "students come to understand that they are in charge," and that is a big turning point, Ms. Skipper said. "The message that 'because of your gender or the color of your skin or your socioeconomic status, you are relegated to a certain level of achievement'—that's not language we use at TechBoston."

"But you do lose a fair number of kids, right?" Mr. Ferguson asked. The school's dropout rate was only about 2.8 percent last year, Ms. Skipper responded.

Students may also transfer to another school in the district. However, TechBoston's mobility rate is only about 10 percent—which is low for the district.

ENTICING GIRLS TO TECHNOLOGY

Mr. Ferguson asked whether the staff has tried to make the school more appealing to girls. All small public schools in Boston are theme-based, Ms. Skipper responded. Some focus on art or health careers, and girls tend to gravitate to those schools. To help address such self-selection, TechBoston students promote the school to middle school students, she said.

TechBoston Academy is also adding 6th, 7th, and 8th grades this year, doubling its size to 800 students. To attract girls to those new grades, Ms. Skipper intends to "go to elementary schools and show girls the powerful impact of technology on learning," so they do not simply associate it "with a career they must pursue."

13. Paint Branch High School

PRESENTERS:

John Haas, Assistant Principal

Jamie Paoloni, Social Studies Resource Teacher, and AP World History Teacher

Jackie Fludd, AP World History Teacher

INTERVIEWERS:

Jim Connell, Institute for Research and Reform in Education

Richard Murnane, Harvard Graduate School of Education

STUDENT DEMOGRAPHIC PROFILE

Exhibit 13.1   Student Characteristics for 2009

	Racial Composition					Poverty Rate
	White	Black	Hispanic	Asian	Other	% Free Lunch
Paint Branch	20.4%	47.0%	12.0%	20.3%	3.0%	23.3%
MD (all grades)	45.8%	38.5%	9.5%	5.9%	3.0%	28.1%
Number of Students at Paint Branch: 1,805						

Source: 2008 Maryland State Report Card (http://msp.msde.state.md.us/)

MEETING THE ACHIEVEMENT CHALLENGE

The state of Maryland has among the highest percentages of students in the nation taking and passing at least one Advanced Placement (AP) exam. For taking and passing AP exams, Montgomery County is a leading district in Maryland, and Paint Branch High School is a leading school in Montgomery County. This is not because the students are advantaged. As shown on Exhibit 13.1, a majority of the students at Paint Branch are students of color and the poverty rate is only slightly below the state average.

Paint Branch High School was nominated for participation in the AGI conference because of a national distinction that it achieved in AP World History. Specifically, compared to all high schools in the United States, Paint Branch was the school in 2008 where the highest percentage of all graduates—and the highest percentage of black graduates—earned a 3 or higher on the AP World History Exam. Exhibit 13.2 shows the percentage of all Maryland graduates taking at least one AP exam and the percentage of each racial group at Paint Branch doing the same. Each racial group at Paint Branch exceeds the state average. This achievement reflects a decade of progress. The percentage of Paint Branch students taking at least one AP exam rose from 30 percent in 2000 to almost 60 percent a decade later.

Exhibit 13.2   Graduates Taking at Least One AP Exam
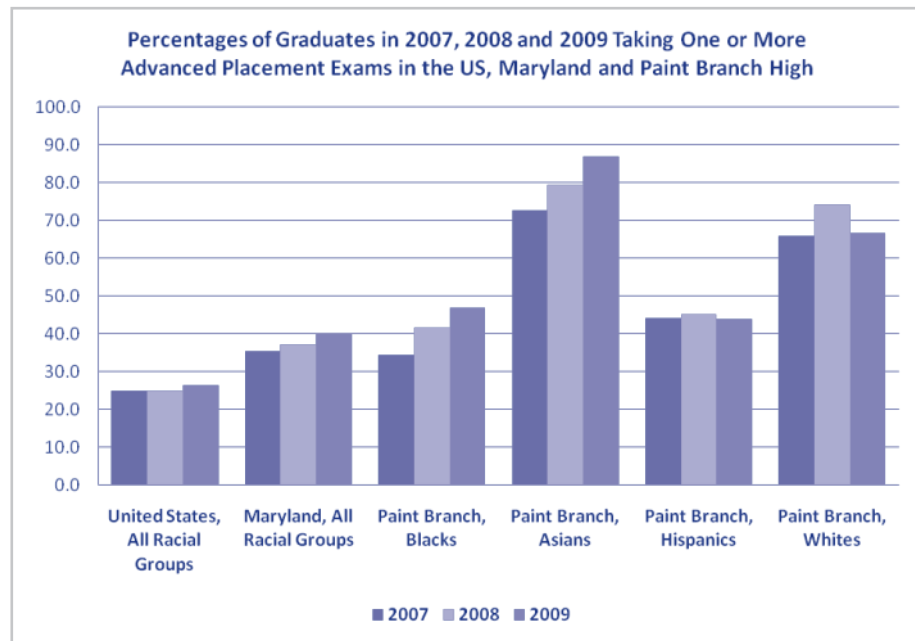
Sources: College Board, Sixth Annual AP Report to the Nation and Office of Shared Accountability Reports, Montgomery County Public Schools (http://sharedaccountability.mcpsprimetime.org/reports/list.php)

LEADERSHIP THAT FOCUSES ON OPPORTUNITY PLUS RIGOR

In 2009, the NAACP chose Paint Branch Principal Jeannette Dixon as its first Outstanding Principal of the Year. And indeed, she has been the "biggest factor in the success of Paint Branch High School," according to Mr. Haas, the assistant principal. When Ms. Dixon arrived in 2001 after having served as a middle school principal, Paint Branch was already successful, he said. However, she saw "that more could be done."

"We really have developed an 'AP culture.'"

Ms. Dixon has played a critical role in ensuring both opportunity and rigor for all Paint Branch students, concurred Ms. Paoloni, social studies resource teacher and AP world history teacher. "Because of her efforts, we really have developed an 'AP culture' within our school." This means that although the school's AP courses are rigorous, "students know they can do it, they are willing to take those risks, and we continue to be successful because of that emphasis."

The principal played a critical role in ensuring opportunity and rigor for all students.

Ms. Dixon "lives and breathes her school-wide vision of providing the best rigorous education for all students," Mr. Haas observed. She also creates a personal bond between students and the school. "In the mornings, you will hear her on the loudspeaker, welcoming students, providing the announcements. You will hear her say 'Go Panthers' whenever we have a big basketball game or other athletic event. Her vision and conviction in standing by it is enabling Paint Branch to move forward."

IDENTIFYING AND ACTIVELY RECRUITING AP STUDENTS

As part of its vision of providing both opportunity and rigor, the school actively encourages students to enroll in AP courses. According to Mr. Haas, Paint Branch is a "no-gates" school, which means: "we do not prevent any student" from taking an AP-level course. School leaders begin with a list of students with AP potential provided by the College Board, based on their PSAT scores. Ms. Dixon, other administrators, and the school's instructional council personally encourage each of those students to enroll in at least one AP course.

To further recruit students for AP courses, the school invites minority parents and students to an AP breakfast, where they hear from AP teachers and minority students about the AP program—why it is valuable to take such courses or a particular AP test. This helps to convince minority parents that the AP program is for their children, Mr. Haas said, and that they must be part of the AP culture: they cannot simply "send their child to Paint Branch and expect that that child will have everything. We need some help from the parents."

For their part, school staff members offer "continuous encouragement and personal outreach" to AP students. For example, administrators and guidance counselors meet with AP parents and students at the beginning of the school year. The school also conveys three key messages to AP students, based on the approach of Jon Saphier and Research for Better Teaching (RBT):[60] "You can do it, this is important, and we won't give up on you," Mr. Haas said. Then, on the day of the last AP exam in May, the school hosts a picnic to celebrate the accomplishments of AP students.

KEY TO SUCCESS: PROFESSIONAL DEVELOPMENT

Ms. Paoloni has taught AP world history since the course's inception across the nation in 2001, she noted. The district created the course as part of its initiative to expand its AP offerings, which now number 20 at Paint Branch alone. World history is now the largest AP program at Paint Branch, according to Ms. Paoloni. More than 200 Paint Branch students took AP world history in 2008–09, and some 239 are taking the course in 2009–10.

The growth of world history and other AP courses occurred as the school was experiencing an influx of minority students, she noted. That means that although teachers often expect AP students to have a high skill level, some do not. Teachers must therefore figure out how to teach in a "nontraditional AP classroom." Fortunately, both the district and the school understand that "if we are going to offer all those courses and put a diverse group of students in them," teachers need a "tremendous amount of professional development," according to Ms. Paoloni. Administrators have provided numerous professional activities designed to enhance teachers' professional growth—that is "part of the reason why we are so successful," she said.

PROMOTING BEST PRACTICES

To support teachers' professional development, the school "tried to identify best practices teachers could share," according to Ms. Fludd, the other member of the Paint Branch AP world history team. One such practice is differentiated instruction, or tailoring teaching to the needs of each student. That approach requires assessing the skill level and interests of each student, and then using

The school conveys three key messages to AP students: "You can do it, this is important, and we won't give up on you."

Administrators have provided numerous professional activities designed to enhance teachers' professional growth.

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60. Research for Better Teaching (RBT) is a school improvement organization with extensive experience in teaching and leadership. More information can be found at http://www.rbteach.com.

various methods—such as Socratic seminars, lectures, cooperative learning, or group projects—to teach course material.

DIFFERENTIATED INSTRUCTION

Mr. Murnane asked what relying on differentiated instruction to teach AP courses actually means, short of providing rigor for some students and not others. Ms. Fludd responded that AP world history teachers ask students to write three different types of essays, because those types will appear on the AP exam. She asks her students to practice writing each essay during a 45-minute class period, because that is the amount of time they will have during the actual AP exam.

Of course, "some students are really strong writers and some are not," she observed. So differentiated instruction entails providing various kinds of scaffolding to help students at different levels learn. For example, at times she groups students homogeneously, according to skill level, and sometimes she teaches them in heterogeneous groups. That means a student might be the only member of a group who always writes a perfect essay, or might be in a group of students who are all struggling with the same task. If some students need help crafting a thesis statement, for example, she provides extra help and support to those students as a group.

The AP world history team evaluates each student's reading level.

The AP world history team also evaluates each student's reading level. That effort began when the teachers asked, "Who read the book last night, because your quizzes didn't look so great today?" and some students admitted that they were struggling with the college-level textbook, according to Ms. Fludd. The teachers responded by providing alternative readings, such as by directing students to web pages with the same content as the textbook. Students often "spend so much time on the computer that they are more apt to read a website about Genghis Kahn than a five-page section in their book about Genghis Kahn," she noted.

Mr. Ferguson asked the presenters for other examples of how the school supports students who are struggling in AP courses. Teachers are available during lunch period and after school, so students can drop by their offices to ask questions, Ms. Fludd said. Students "also help each other… It's not uncommon during lunch to see kids hanging out in teachers' classrooms doing homework, and talking about the previous night's homework."

Supportive Environment for Students

Mr. Murnane asked how the school deals with students who arrive mid-year, given that teachers already "struggle to differentiate instruction and appeal to all their kids." Teaching AP courses is "hard enough when you've got the same kids all year," he noted.

Welcoming new students and ensuring that they become part of the school culture and each program is also important, Ms. Paoloni responded. Teachers, administrators, and guidance counselors try to place each new student in the appropriate courses. Teachers then spend a lot of time "one on one to catch that student up to where they need to be."

Teachers also ask the former teachers of their students, "What did they struggle with? What seemed to work for them? What do I need to be made aware of?" Ms. Fludd said. "That definitely helps teachers provide our students with support coming in, as opposed to waiting a semester to discover that a course is not going well for them."

Teachers also continually tweak their lesson plans, rather than simply relying on the same canned lessons for several years, she noted. "We are constantly looking at what works and what doesn't, getting input and feedback from students, doing item analysis, and talking with one another… Our lessons and approach are based on the current year's students, not necessarily the previous year's."

> Teachers continually tweak their lesson plans, rather than simply relying on the same canned lessons for several years.

Teachers frequently update grades on Edline, an online system maintained by the district, so students can keep abreast of how they are doing in each course, Ms. Fludd noted. Teachers also post assignments, PowerPoints, and links to websites on Edline, and use the system to send e-mail to both students and parents.

Engaging Students

The AP world history team also maintains personal connections with each student through interactive projects, after-school activities, and trips abroad, to "get kids excited about and turned on to world history," according to Ms. Fludd. The result is that the department—like most departments at Paint Branch—adds new sections every year to accommodate all the students who want to enroll in an AP course.

"How comfortable are you with the level of active student engagement in your classes?" Mr. Ferguson asked, on a scale of one to ten, with ten being the

highest. "Probably seven to eight," Mr. Haas responded. The district provides interactive technology such as SMART Boards, Ms. Paoloni noted, and that has "helped teachers create more engaging lessons." Teachers received the SMART Boards only recently, so they are "still a work in progress, but everybody loves them."

AN ACTIVE PROFESSIONAL LEARNING COMMUNITY

School leaders encourage teachers to rely on their peers as a resource for teaching in a nontraditional AP classroom. "Jamie [Paoloni] and I have a highly effective professional learning community—or you could say PLP, or 'professional learning pair,'" Ms. Fludd observed. "We are constantly talking with one another to figure out what's going well in her class, what's not going so well in my class, or one thing that I did that was really cool…that she could try with her students."

Ms. Fludd began teaching AP world history during her first year as a teacher, "which was sort of scary," she admitted. "Having someone who could serve as a mentor, someone to bounce ideas off of, someone to collaborate with in a nonthreatening [way] made a huge difference."

The AP world history team also taps other departments for advice, according to Ms. Fludd. For example, "we are constantly talking to our AP government colleagues, asking, 'What are you doing with the kids in terms of note-taking strategies? Is it working well for them? Are you using the Cornell note system?' So when my students are struggling, I can say to them, 'Remember last year when you had Mr. Miller and you were using Cornell notes? Have you been doing that?'"

IMPROVING TEACHERS' SKILLS

"What is your strategy for reducing variation in an aspect of instruction that you think is very important?" Mr. Connell asked. That is, "What are you doing to close the gap—to ensure that more teachers are operating at the highest level, and that teachers in the middle and at the bottom are moving up?"

The two AP world history teachers "meet frequently to talk about what's working and what's not."

The two AP world history teachers "meet frequently to talk about what's working and what's not," Ms. Fludd responded. "Our lessons are often very similar." However, "if we do teach something differently—if I do something in my class that works really well, and she does something that some of her kids don't get—we can share information about that" and try different approaches. Although the College Board provides a fairly structured curriculum for AP world

history, she noted, teachers still have room to determine what they will focus on and when, and how to teach each topic.

"Who is driving that effort"? Mr. Connell asked. Do AP teachers simply decide to collaborate, or is an administrator noting that a percentage of students did not score well on an AP exam last year, and asking teachers to work together to address that deficiency? "It's a combination of both," Ms. Paoloni responded. "There is an expectation within our school that we are going to do what's necessary for the students, and there's also an internal drive among the teachers that we want students to do well. So you could be teaching government, you could be teaching U.S. history, but we are all feeding off one another, we are all collaborating to share our best practices."

DEALING WITH RESISTANCE

Despite that support, some teachers have resisted the effort to broaden enrollment in AP courses, Ms. Paoloni acknowledged. At first, some did not buy into the concept of the nontraditional classroom, and the need to rethink their approach. Administrators had to have "courageous conversations" with those teachers, and sometimes recruit other teachers for AP courses, she said.

"If you had a colleague who wasn't participating, then what?" asked Mr. Ferguson. "That has happened," Ms. Paoloni responded. Although the majority of teachers buy into the Paint Branch approach, "you will have your rogue teachers... You have to have some difficult conversations."

"Can you give us an example of a difficult conversation?" Mr. Ferguson asked. When the world history program rolled out a new curriculum this past year, Ms. Paoloni noted, "some teachers were struggling." As the department chair, she sat down with those teachers and said, "Look, you are not a rogue agent here, you need to work with the team." She also asked Mr. Haas for support, she said.

HOW AP TEACHERS TARGET INSTRUCTION

Mr. Connell asked how often Paint Branch staff members look at data on student learning in a "formal, expected, accountable way," within or across content areas, rather than simply relying on "idiosyncratic teachers who are just intensively interested."

The school's instructional team meets over the summer to examine students' AP scores, Mr. Haas responded. That meeting "becomes the start of the school year... We celebrate the successes and cry and commiserate over our failures." Departmental teams then meet about once a month during the actual school

year to examine data on student achievement. District leaders also compare students' test scores in math and English to student achievement in districts across the country, he said, and look at how teachers in other districts support students who do not score well in a particular area.

KEEPING THE RIGOR IN AP COURSES

Mr. Ferguson noted that "one parent writes to me personally about every six weeks from Montgomery County complaining that the district has watered down the challenge." That parent holds that the district should not celebrate a score of 3 [out of 5] on an AP exam, and worries that "gifted and talented students aren't getting their due." What strategies does the school use to challenge higher-level AP students?

Although teachers use differentiated instruction to raise the skill levels of lagging students, AP world history is "still a tough course," Ms. Fludd responded. "I can honestly say I've never had a parent complain that it wasn't hard enough." Ms. Paoloni concurred, noting that "our continued success rate shows that the course has not been watered down."

"We are not naïve," Mr. Haas added: the school does not expect every student who takes an AP exam to score a 3 or better. However, Principal Dixon's vision includes giving students the opportunity to take AP-level courses because that will help them "succeed at the next level," he said. Hopefully, "the exposure and the opportunity to have phenomenal teachers" will encourage students to continue their education.

Mr. Ferguson asked whether students who do not take AP courses are marginalized, given that the school makes those courses such a high priority. "No," Ms. Paoloni responded. One reason is that the district models all its courses on AP programs, to ensure rigor throughout the curriculum.

> "I can honestly say I've never had a parent complain that it wasn't hard enough."

14. THURGOOD MARSHALL ACADEMY

PRESENTERS:

Alexandra Pardo, Academic Director

Rebecca Jones, English Teacher

Tara Allen, Math Department Chair

INTERVIEWERS:

Jim Connell, Institute for Research and Reform in Education

Richard Murnane, Harvard Graduate School of Education

STUDENT DEMOGRAPHIC PROFILE

Exhibit 14.1   Student Characteristics for 2009

	Racial Composition					Poverty Rate
	White	Black	Hispanic	Asian	Other	% Free Lunch
Thurgood Marshall	0.0%	100.0%	0.0%	0.0%	0.0%	73.0%
DC (all grades)	3.9%	86.5%	8.2%	1.2%	0.2%	67.2%
Number of Students at Thurgood Marshall: 390						

Source: DC Office of the State Superintendent of Education, No Child Left Behind Data Reports (http://www.nclb.osse.dc.gov/) compiled for the June 2009 annual conference of the Achievement Gap Initiative at Harvard University.

MEETING THE ACHIEVEMENT CHALLENGE

Thurgood Marshall is a high poverty school where all of the students are African American and students are selected by lottery.

In 2005, students at the school scored slightly below the average for Washington, DC. However, since 2005, the proficiency rate has tripled in reading and doubled in math.

Exhibits 14.2 below and 14.3 on the following page tell the story. They show for both reading and math, that proficiency rates rose rapidly after 2005 to reach more than twenty percentage points higher than rates for the district as a whole.

Exhibit 14.2   10th-Graders Proficient on DC CAS Reading Exam
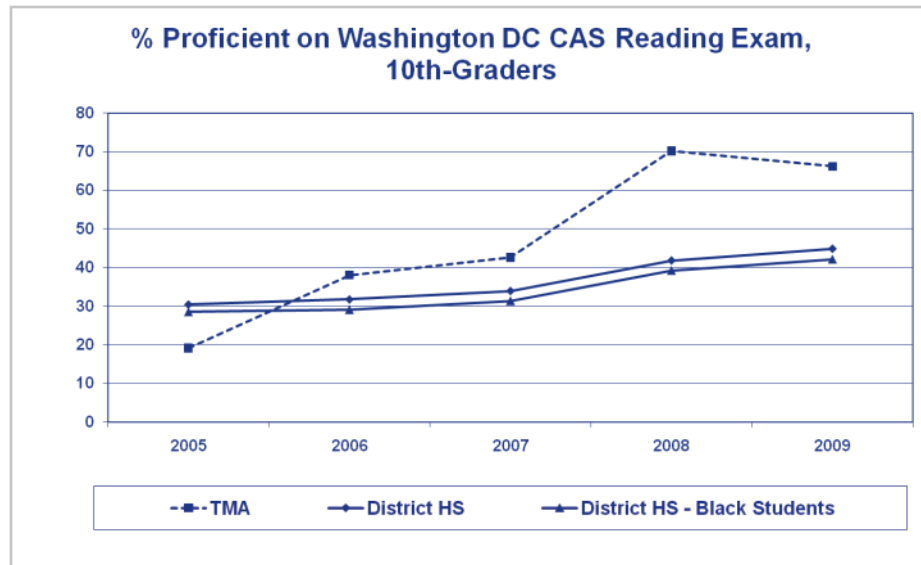
Sources: DC Office of the State Superintendent of Education, No Child Left Behind Data Reports (http://www.nclb.osse.dc.gov/) and Thurgood Marshall Academy Public Charter High School (http://www.thurgoodmarshallacademy.org/)

Exhibit 14.3   10th-Graders Proficient on DC CAS Math Exam
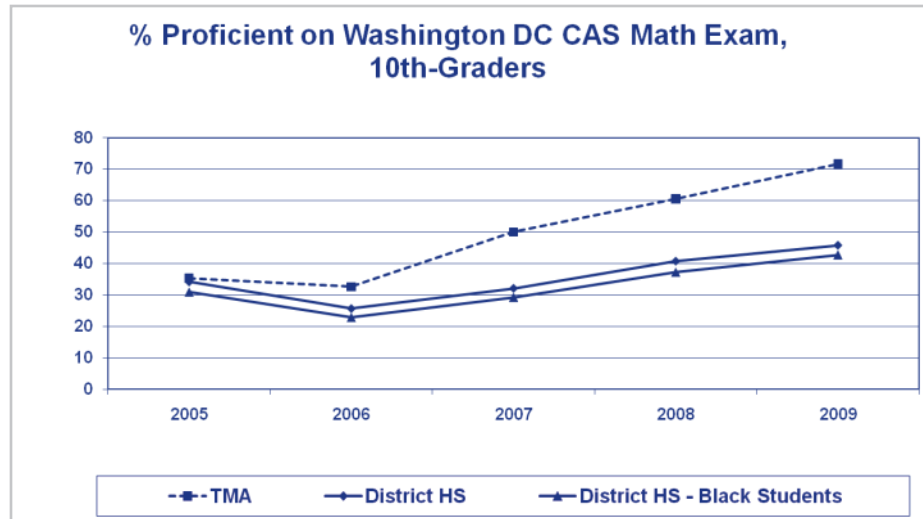
% Proficient on Washington DC CAS Math Exam, 10th-Graders

Legend: TMA · District HS · District HS - Black Students

Sources: DC Office of the State Superintendent of Education, No Child Left Behind Data Reports (http://www.nclb.osse.dc.gov/) and Thurgood Marshall Academy Public Charter High School (http://www.thurgoodmarshallacademy.org/)

AN AMBITIOUS MISSION

"We are going to take a little quiz," Ms. Pardo, academic director at Thurgood Marshall Academy, told conference participants. "Do you know the format of your state test, if you are a school administrator? Does your principal know which strands are tested? What percentage is open response? What percentage is multiple choice? Do they know what novels your English teachers read? Do they know what math projects your math students do? If the answer is no, then your school is missing some instructional leadership."

Washington, DC first adopted its Comprehensive Assessment System (CAS) achievement test in 2005, she noted. Students do not have to pass the test to graduate, and the district does not release test items or provide test banks for schools to use to prepare their students. However, Thurgood Marshall Academy relies on that test and numerous other benchmarks to carefully track the progress of its students and fulfill its ambitious mission: "to prepare students to succeed in college and to actively engage in our democratic society." That mission drives everything the school does, according to Ms. Pardo: "we don't deviate from it." School staff continually ask, "How does this engage students in a democratic society, and how does this get them to college? When we look at the CAS, we ask: what does this mean for the PSAT, the SAT, the AP?

we look at the CAS, we ask: what does this mean for the PSAT, the SAT, the AP? "We know we cannot change the context for the kids that we serve, but we can change their behaviors, and what we are going to do every day is to change those behaviors. I can't change the free and reduced lunch, I can't change the neighborhood, but I can change what I expect from students, because of what we are going to provide for them." That approach requires a team effort by teachers, students, and parents, she said.

ALIGNED STRATEGIC PLANS AND GOALS

One of the school's most important efforts in supporting its mission is coordinating its "driving documents," according to Ms. Pardo. All schools have myriad strategic plans created by administrators and departments over time, she noted. However, the district's plans, "our school improvement plan, our [teacher] accountability plan cannot have different goals, because that would mean we are not working together." Thus Thurgood Marshall Academy has systematically tried to align its plans and goals.

The school also tries to ensure that its goals are both tangible and measurable. That process is difficult and time-consuming, as anyone "who has ever been through it" knows, according to Ms. Pardo. For example, "Teachers may say, 'My students read so many novels in English class,' but so what? That's not a goal. What's the purpose of reading those novels? What are students getting out of that is the question. And then how do you measure that?" she asked.

A key goal of the school is not only that its students attend college, but that they succeed when they do. To measure that goal, the school tracks the number of remedial classes that Thurgood Marshall graduates must take in college. To implement programs to support that goal, the school must raise about a million dollars a year beyond its regular district allocation. That requires applying for grants from community partners, and then allocating those resources to reflect the needs of staff, students, and the school's physical plant.

THE POWER OF DATA

To measure students' progress, school leaders developed their own benchmark system, assessing students quarterly.

Given its focus on measurable goals, the school has concentrated on using data effectively during the last three years, according to Ms. Pardo. To measure students' progress, school leaders have developed their own benchmark system that entails assessing students quarterly. School leaders have also developed grade-level diagnostics in partnership with Scantron,[61] which helps schools create assessment systems.

61. For more information on Scantron Corporation, visit http://www.scantron.com/.

The school devotes a half-day of professional development each quarter to examining the results of those assessments and monitoring progress on school improvement. If staff members look at test results three months later, "nobody cares," Ms. Pardo observed, so she schedules those sessions less than a week after students take the tests. The "assessments are the first thing on the school calendar," she notes: she chooses those dates before the school schedules football games and student performances.

During those sessions, she sits down with teachers and does item analysis, asking why each student got some questions right and others wrong. Teachers and staff then use the results to inform instruction, asking, "What does this mean for Algebra I? What does this mean for English 9? For English 10?" That reflection entails bringing people to the table by grade level or department, and even school-wide, to pool their observations and experience, and to make needed changes at those three levels, explained English teacher Ms. Jones.

However, "fostering a community that is responsive to data" posed an initial challenge, according to Ms. Pardo. Philosophically, everyone was not on board. She also had to ensure that "some of our more veteran teachers…feel comfortable using technology" such as Scantron and Excel spreadsheets.

> Fostering a community that is responsive to data posed an initial challenge. Philosophically, everyone was not on board.

Administrators use the data to "make some tough and touchy" decisions on allocating resources, Ms. Pardo shared. If a program is not working, a leader "must be willing to do something about it," even though "everyone will not always like you, and you will not always be everyone's best friend." Administrators rely on the school's mission statement to perform that allocation—"we are very reflective," she said.

As part of that process, if teachers are not performing well, administrators ask why, and try to place them in classes where they can contribute the most because of who they are as teachers, not necessarily in the classes they may prefer to teach. The result is a continuous dialogue in which administrators and faculty talk about what is working well and what is not; as Ms. Pardo explains, "We are not afraid of saying something didn't work. We just ask, 'What's next?'"

> Administrators use data to make tough decisions on allocating resources.

Daily classroom procedures focus on the skills students need to pass high-stakes exams, according to Ms. Allen, Math Department chair. Because they routinely practice those skills, students are familiar with the content when they take those exams. "Students might say, 'I have an open response for my warm-up, for my homework, for my class assignment, so open response—I can do that,'" she noted.

Students take the PSAT and the DC CAS in the 9th grade, as practice, Ms. Jones said. "We don't wait until the end to give students high-stakes tests." Tenth-graders then take the PSAT and CAS again, and the SAT. Students track and analyze their own test results, creating bar graphs to show whether their scores are rising or falling. "It doesn't work if adults keep all the data: kids have to be a big part of it," Ms. Pardo said.

CREATING A STRUCTURED ENVIRONMENT FOR STUDENTS

To support student achievement, the school provides a structured environment. Students often claim they want freedom, but they actually prefer a more structured approach, according to Ms. Allen. For example, school leaders have developed a set of expectations and rules that it expects every student to follow. Teachers and other staff members post those expectations in all classrooms and throughout the building, and enforce them, to provide consistency. For example, if a policy says "no chewing gun…it's the same" in every classroom, Ms. Allen said.

The school also wants students to "know that there are consequences" if they fail to fulfill the school's requirements. For example, if students do not complete their homework, "Teachers call them on that," according to Ms. Allen. If students get into trouble and receive detention, they attend "discipline class," which helps them realize that "Oh, I made a mistake, but this is what I need to do." Students understand that the school's requirements are "put in place so they can achieve and succeed," she noted. Teachers do not "hold their hand and do it for them…. We are going to guide you, but we expect you to do your part." Students also "know that their name is attached to whatever they do," and that "anything they do in life they should do well," Ms. Allen said.

A COMMITTED FACULTY

Committed teachers are a key pillar supporting student achievement. Teachers "have ownership over our own performance, as well as ownership over students' performance, and we take that very seriously and personally," according to Ms. Jones. "It's not just our job: we know that this might be our students' last opportunity because of the environment that they live in, and how they are segregated from the rest of the city."

Teachers designate formal office hours, when students can walk in and talk. Students know they can also talk with teachers and other staff members

outside those hours. The school provides after-school tutorials and homework help in the library, as well as "a tremendous number of other programs."

Staff members are "so committed that they are [at the school] from early in the morning until late in the evening," she added. Some teachers even come in on Saturdays to address students' needs. "Students are so appreciative of the fact that we are accessible."

The school also maintains an open-door policy: teachers "go in and out of each other's classrooms all the time, and no one is offended and feels as though they are being violated"—that is "just the culture of the school," according to Ms. Jones.

Unlike many other schools, Thurgood Marshall conducts two formal observations per year to assess teachers, including a pre- and post-observation meeting. Numerous informal observations of teachers are also conducted throughout the year, which are more from a coaching perspective and do not require formal pre- and post-observation meetings; they are usually focused on one or two adjustments that are needed. Evaluators do use a basic rubric to evaluate teachers to ensure that all are relying on the same criteria and terminology.

Teachers are "always talking about students" according to Ms. Allen. Once teachers vent about a problem, they ask, "What can we do to assist students?" she said. "One thing we talk about is solutions. We can talk about the problem all day, but the solution is what gets us where we need to go."

ANALYZING RESULTS TO IMPROVE INSTRUCTION

Mr. Murnane asked the presenters to comment on what using data to inform instruction actually means. For example, if assessments show that algebra students have not learned how to do multi-step word problems involving two equations, even though teachers have taught that skill, how do they use that information? Teachers "go back and look at exactly what part of that word problem students do not understand," Ms. Allen responded. That careful step is important because students may actually know how to solve multi-step equations. They may have been confused by the wording of a question, or they may not know how to convert a fraction to a decimal, because they lack basic skills. Teachers "then go back to the drawing board" to address those gaps, Ms. Allen said.

Staff members are at school from early in the morning until late in the evening. Some teachers even come in on Saturdays.

The school maintains an open-door policy: teachers "go in and out of each other's classrooms all the time and no one is offended."

Teachers look at what part of a word problem students don't understand and address those gaps.

Mr. Connell asked how often the school looks at data on student learning in a "formal expected, accountable way," within or across content areas, rather than simply relying on "idiosyncratic teachers who are just intensively interested." That analysis occurs every six weeks, based on teacher-made exams as well as the school's assessments, Ms. Jones replied.

We go through every wrong exam item, asking students why they answered the way they did.

Teachers examine both strands of content and the wording of questions, but ultimately "the students have to tell us what they need," Ms. Jones noted. "So we literally give them back the exam and go through every single item," asking students why they answered the way they did. Only students can shed light on why they got something wrong, or what question they did not understand, she said. They might even report that "they just had a bad day." "Every single teacher in your school does that?" Mr. Connell asked. Every single English and math teacher, Ms. Jones replied.

Ninth- and 10th-grade social studies teachers have joined English teachers in analyzing test results, Ms. Pardo noted. The social studies teachers may then include a literacy component such as open response in their assignments and assessments. That does not mean that those teachers are "not teaching history," according to Ms. Jones. However, they may use an open-response question to ask about Machiavelli. Teachers also discuss how to grade open responses, to ensure that "what is exemplary in English 10 is also exemplary in World History 10," and that they are all using the same language to give feedback to students, Ms. Jones added.

Students must present portfolios every year; that builds peer pressure to excel.

"What is your strategy for reducing variation in an aspect of instruction that you think is very important?" Mr. Connell asked. "What are you doing to close the gap—to ensure that more teachers are operating at the highest level, and that teachers in the middle and at the bottom are moving up?" All students must present portfolios every year to a panel of staff and faculty, Ms. Pardo responded, standing up for almost an hour and defending all the academic work they did that year. When teachers see what their colleagues and their students are doing, "that does build peer pressure to excel," she noted. No teacher wants "to be the one who is giving the easy English 9 project."

NO DUMBING DOWN

Mr. Connell asked what differentiated instruction means in this context. Do teachers use the same pedagogy with students working at different levels? Half of all students enter the school working at a 5th-grade level or below, Ms.

Pardo said, "so we are talking about very low-functioning students." The school has "gotten creative with scheduling" for those students.

For example, the school allows some students to take honors English or math while other students take a remedial math class in addition to Algebra I, or a reading resource class in addition to English 9. Those students "may need to work on decoding and phonics, and we know that teachers cannot teach students to decode in a regular 9th-grade English class—that is too challenging when other students can read," Ms. Pardo said.

The school avoids lowering its expectations or making its courses less rigorous. "We know that if we offer algebra 'lite,' that means students are not prepared for geometry, they are not prepared for Algebra II, and they're failing when they go to college," having to take remedial math or English. "Our policy tends to be, 'If you want to do AP, you are going to do AP, but be prepared for what that is, because we are not going to say, 'Oh, I'm sorry, you can't do the essay, so you are not going to have to read these 13 novels.'"

Yet the school does not give up on lagging students: "We pull those kids out for extra support," Ms. Pardo noted. Ms. Jones and Ms. Allen also work with those students intensively after school, she said. Both teachers and students must be willing to put in extra time, "because it can't all happen in 45, 60, 90 minutes, especially with our lowest-functioning students, while we also challenge our most academically gifted students."

Mr. Ferguson asked whether the school relies on daily formative assessments to monitor student learning. Teachers may give students daily "exit" assessments, Ms. Allen acknowledged, because they often want to know whether students have understood a lesson, to decide whether to move on. Although students may complain, teachers underscore that they are using those exercises to build students' ability to do the work, she said. For example, "A teacher might say, 'I'm going to walk you through the problem first, and then you are going to do it with a partner. We are going to discuss it, and then you are going to do it by yourself, and I'm going to look at it.'"

ENGAGING STUDENTS AND TEACHERS

"How comfortable are you with the level of active student engagement in your classes?" Mr. Ferguson asked, on a scale of one to ten, if ten is the highest. "For us, it's a seven," Ms. Allen said, "because our kids know that the teachers are there for them and want them to learn, and that they have high expectations. So when students enter the building, they are ready, and when they are in the

Teachers and students must be willing to put in extra time, because it can't all happen in 45, 60, 90 minutes.

class they know what they have to do: they have to learn, they have to be involved, they have to participate." They cannot put their heads on the desk and sleep.

If Ms. Pardo accepted a leadership position at a more typical urban school, Mr. Ferguson asked, "What are the most important things you would do? How would you enter as a new principal?" "I would come in saying [to teachers], 'We are all in this together, and these are my standards, these are my expectations, and I'm not lowering them to fit you. We are all either going to be on board or not. So if you feel as though you are not going to be with me, then we need to make a decision together that you go somewhere else.'"

15. MANOR NEW TECHNOLOGY HIGH SCHOOL

PRESENTERS:

Steven Zipkes, Founding Principal

Mary Mobley, English Project-Based Instructor

Chrysta Carlin, Master Teacher, Teacher Advancement Program

INTERVIEWERS:

Jon Saphier, Research for Better Teaching

Richard Murnane, Harvard Graduate School of Education

STUDENT DEMOGRAPHIC PROFILE

Exhibit 15.1   Student Characteristics for 2009

	Racial Composition					Poverty Rate
	White	Black	Hispanic	Asian	Other	% Free Lunch
Manor	32.9%	21.7%	43.8%	1.7%	0.0%	56.3%
TX (all grades)	34.0%	14.2%	47.9%	3.6%	3.0%	56.7%
Number of Students at Manor New Technology: 240						

*Source: Texas Education Agency Academic Excellence Indicator System.
(http://ritter.tea.state.tx.us/perfreport/aeis/index.html). Compiled for the June 2009
annual conference of the Achievement Gap Initiative at Harvard University.*

Meeting the Achievement Challenge

Manor New Technology High School, in a town near Austin with a high proportion of Latino families, re-opened its doors in 2007 after being closed for restructuring. Any student who lives in the district can apply to the school, which relies on a lottery to admit its roughly 400 students. Manor is a member of the New Tech Network.[62] Manor New Technology High School is only a few years old. It is one of a new crop of project-based schools that may eventually change the way that America does high school. Achievement gains in its third year of operation were quite impressive compared to 39 demographically comparable schools.

Exhibit 15.2 on the next page shows gains in English Language Arts (ELA) for 2007–2008. Each bar in the diagram represents a school. The rankings are based on the average Texas Growth Index (TGI) score for all students in a given school in School Year 2007–2008. The TGI is a measure used to estimate growth in individual student achievement in two consecutive years over two consecutive grades; it is calculated separately for math and ELA.

Exhibit 15.2 is based on published reports from the Texas Education Agency (TEA) website. It shows that Manor New Technology's ELA score gains from 2007 to 2008 were very impressive compared to similar schools. However, not shown, is that gains reported the following year were not so impressive. The reasons are unclear. Indeed, recent comparisons reported on the TEA website appear unstable for many high schools. This is difficult to understand if the gain calculations have been done correctly.

Ultimately, our decision to retain Manor New Technology in this report on high performing schools is based upon the quality of the conference presentation and the innovative nature of the instructional program that the school delivers. It will be important to follow the progress of this young project-based school and others like it as they endeavor to reinvent how the United States does high school.

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62. *Founded in Napa, California, in 1996, the New Tech Network is made up of 41 schools in nine states. For more information visit http://www.newtechfoundation.org/.*

Exhibit 15.2   ELA Growth at Manor vs. Similar Texas Schools 2007–2008
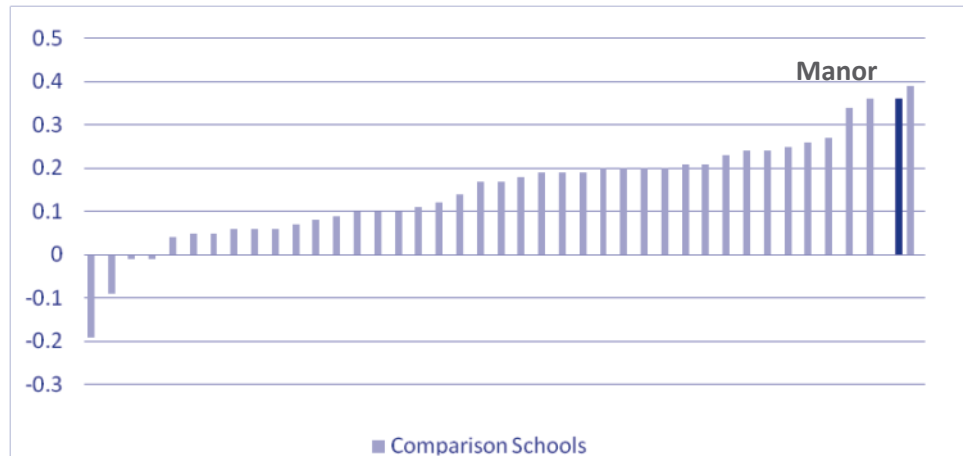
Source: Texas Education Agency. http://ritter.tea.state.tx.us/perfreport/aeis/index.html [Texas Education Agency, Academic Excellence Indicator System]. Compiled for the June 2009 annual conference of the Achievement Gap Initiative at Harvard University.

A TEACHER-DEVELOPED PROJECT CURRICULUM

Teachers develop student projects, each of which has a real-world context.

At Manor, students use computer-based projects—rather than textbooks and canned curricula—to learn, practice, and apply skills required by state standards. Teachers develop the projects, each of which has a real-world context, according to English project-based instructor Ms. Mobley.

An "instructional rubric" for each project specifies the standards students must meet to become "proficient" and "advanced" in the skills and knowledge the project is designed to convey. The rubric also details the attributes of an "unsatisfactory" project, she explained. Exhibit 15.3 on the next page illustrates how a project assignment to build a planet is linked to a state English standard.

NINE LEARNING OUTCOMES EQUAL 21ST-CENTURY SKILLS

The projects focus on nine learning outcomes designed to provide 21st-century skills, the principal Mr. Zipkes explained. These nine learning outcomes, described in Exhibit 15.4, include hard skills such as content mastery and critical thinking as well as soft skills like work ethic, collaboration, and community engagement.

A key skill is oral communication: students must present every project to a panel, which includes people from business and other professions from outside the school about 80 percent of the time. Mr. Zipkes noted that he has been a high school principal a long time, and that in his experience students at most

Exhibit 15.3   Example: Instructional Rubric for a Project

The State Standard: English

- Reading/Comprehension. The student comprehends selections using a variety of strategies. The student is expected to:
- Analyze text structures such as compare and contrast, cause and effect, and chronological ordering
- Identify main ideas and their supporting details
- Draw inferences such as conclusions, generalizations, and predictions and support them from text

Unsatisfactory

- Student (individual) journal contains few, if any, of the following:
- A detailed map of the journey he/she took while re-building Odysseus' planet.
- A minimum of 5 journal entries which include: the date of the imaginary travels; exact map location including latitude and longitude; interesting facts about the location; a brief story about the adventure; reflection about his/her time spent there; links to the characters, places, events.
- Include at least 10 Geography and English vocabulary terms

Proficient

- Student (individual) writes a journal that details his/her own fictional Odyssey. Each of the following will be included in the Writing Portfolio:
- A detailed map of the journey he/she took while re-building Odysseus' planet.
- A minimum of 5 journal entries which include: the date of the imaginary travels; exact map location including latitude and longitude; interesting facts about the location; a brief story about the adventure (be creative); Climate, natural resources, and city creation must be topics of the entries; reflection about his/her time spent there; links to characters, places, events.
- Include at least 10 Geography and English vocabulary terms

Advanced

- In addition to meeting the PROFICENT criteria:
- Student map is interactive in some way
- Student writes from a unique perspective
- Student incorporates illustrations of the habitat, environment, flora, and/or fauna of that region

Source: From Manor's presentation to the AGI conference

Exhibit 15.4   Nine School-wide Learning Outcomes

Work Ethic	Student demonstrates commitment to his/her team, personal responsibilities and tasks.
Written Communication	Student effectively expresses and constructs ideas in writing clearly, concisely, and correctly to a variety of audiences.
Oral Communication	Student speaks correctly, eloquently, and effectively before a variety of audiences for multiple purposes.
Critical Thinking	Student gathers, analyzes, and synthesizes information in a variety of contexts.
Collaboration	Student actively and respectfully contributes to a team to solve problems while working toward a common goal.
Numeracy	Student applies computation, measurement, estimation, and data evaluation in various settings.
Global and Community Engagement	Student explores different perspectives on global, cultural, and local issues and values, leading to action in his/her community.
Technology Literacy	Student selects and utilizes appropriate technology to effectively perform a variety of tasks.
Content	Student grade reflects the student expectations, Texas Essential Knowledge and Skills (TEKS), acquired in content area.

Source: From Manor's presentation to the AGI conference

schools give three or four speeches their entire high school career, unless they take a speech class or join a debate team. Manor students, in contrast, averaged 61 public presentations last year, so they are learning speaking skills as well as course content.

PROJECTS ARE CROSS-CURRICULAR

Since many of Manor's classes integrate more than one subject, the projects are cross-curricular, according to Mr. Zipkes. For example, the school integrates

Humanities with ELA, Algebra I with Physics and Chemistry, and Algebra II with Physics. And because students take five classes, they work on five projects simultaneously. On any given day, they may launch one project, do research on another, and present a third. Although students may do some individual work on each project, they use a SMART Board (an interactive whiteboard)[63] and a map editor tool to work largely in groups of two to four. The projects allow students to take charge of their own learning, and collaboration is the most important piece, said Mr. Zipkes.

LAUNCHING A PROJECT

To grab students' attention and highlight the content and skills they will learn by completing a project, teachers provide an "entry document," said Ms. Mobley. Teachers lead the students through a process of identifying the project "knows" and "need to knows" from the entry document for the planet project, as Exhibit 15.5 below illustrates.

For example, the entry document for a project specifies its main focus and the content it will cover, as well as the date on which students must present the project. The entry document also poses the questions students must answer and asks about the format they will use to log their data.

The teacher captures all this information for the project on a SMART Board, and posts it online in a "project briefcase," which students can access at school or at home.

Exhibit 15.5   Project Entry Document: "Knows" and "Need to Knows"

KNOW		NEED TO KNOW	
Logistics	Content	Logistics	Content
• Present on Oct. 15, 2007 • Need to re-create a planet	• Landforms are natural structures on the surface of the Earth	• In what format will the data log be? • Who will be on the planet?	• What is The Odyssey? • What makes up climate? • What makes up habitat?

Source: From Manor's presentation to the AGI conference

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63. For more information on SMART Board interactive white boards, visit http://smarttech.com.

HOW TEACHERS GUIDE STUDENTS

SMART Boards give immediate feedback and allow teachers to differentiate the help they give to students.

SMART Boards, which are interactive white boards, give teachers immediate feedback on what's working and what's not working in the classroom, said master teacher Ms. Carlin. Although students move at their own pace on the projects, they sometimes get stuck and need direction. At that point, teachers may hold mini-workshops to help those students, while others continue working on their projects. So this technology allows teachers to differentiate the help they give to students in the classroom, she noted.

The technology also allows teachers to give students immediate feedback on both project content and work ethic—which accounts for 20 percent of a student's grade in all classes, she said. For example, teachers may use the SMART Board to see which groups are completing their work and which are not. Teachers may then set clear expectations regarding the work students should complete by the end of a class period and a week.

Teachers also use quizzes and tests to determine whether students have learned the skills and concepts a project was designed to teach. They then analyze the resulting data to see how they can improve their projects. Overall, teachers shift among teaching, facilitating, and coaching, according to Ms. Carlin.

THE TEACHER ADVANCEMENT PROGRAM

Manor's Teacher Advancement Program is based on four pillars designed to work with its project-based instruction.

Ms. Carlin explained that Manor's Teacher Advancement Program (TAP)[64] is based on four pillars designed to work with its project-based instruction shown in Exhibit 15.6. The first pillar is professional development, which occurs during "cluster meetings" enabled by a late start on Monday mornings. At those meetings, teachers from different content areas talk about what's working and what's not working in the classroom and how to improve instruction, based on data from the projects and other assessments.

Master and mentor teachers know which strategy a meeting will focus on, and they bring in student work to help analyze that strategy. This enables everyone to decide whether to continue with the approach or to consider a new one.

The second pillar is multiple career paths, said Ms. Carlin. In this system, mentor teachers have their own classrooms but also serve as mentors to other

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64. *"TAP is a comprehensive school reform that restructures and revitalizes the teaching profession with a goal to achieve measurable gains in student performance."*

Exhibit 15.6   The Four Pillars of TAP

Four Pillars of TAP			
Professional Development	Multiple Career Paths	Instructionally Focused Accountability	Performance Pay
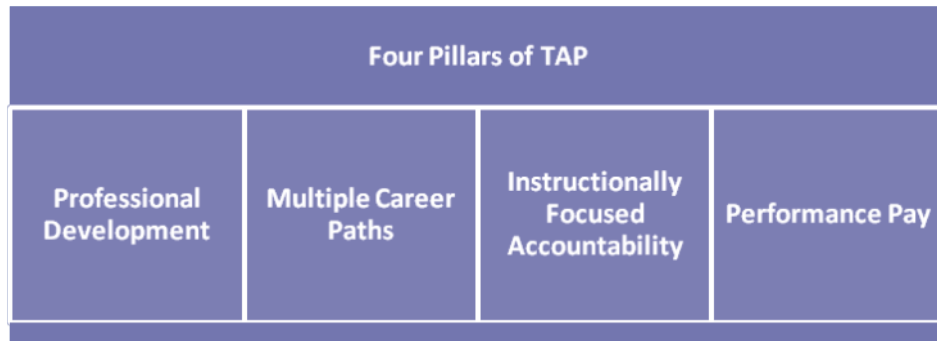
Source: Based on Manor's presentation to the AGI conference

teachers, who are known as career teachers. Master teachers, in turn, do not have their own classes—they teach a maximum of 20 percent of the time. Instead, they are available to work with all teachers regularly in their classrooms on instruction.

Master teachers also lead the cluster meetings on Monday mornings. As a master teacher, Ms. Carlin said that she tries to build relationships with teachers so they see her as one of them, which she is: she taught secondary science for seven years. As she works with teachers in their classrooms, she lets them know that she also faced challenges and difficulties. When she finds a strategy that is research-based, teachers trust that she will not set them up for failure and that everyone is working toward the same goal.

The third pillar is instructionally focused accountability. Teachers are evaluated three times a year by the principal, a mentor, and a master teacher, based on instructional rubrics spelling out best practices.

The fourth pillar is performance pay, based on value-added as measured by three goals each year, according to Ms. Carlin.

Goal 1: State Test Scores

This goal is based on student proficiencies on the Texas Assessment of Knowledge and Skills (TAKS). All teachers are aware of the improvements in scores instructional leaders would like to see students achieve on TAKS by the end of the year.

Goal 2: District Benchmarks

The school also sets an annual goal for student progress in meeting district educational benchmarks.

Goal 3: Cluster Cycle Goals

Cluster cycle goals apply to student results on teacher-made assessments and drive professional development during the cluster meetings. The creators of the TAP approach suggest designating a master teacher for every 15 career teachers, so a cluster meeting never includes more than that number.

Instructional leaders at Manor are still trying to figure out how best to mesh project-based learning with TAP, Ms. Mobley said. Doing so is difficult because the latter is designed for a more traditional high school. However, leaders do give teachers feedback on their implementation of project-based learning at the end of each year.

Mr. Ferguson asked whether TAP works at larger schools. According to Ms. Carlin, elementary, middle, and high schools throughout the United States are adopting Teacher Advancement Programs that include cluster meetings and instructionally focused accountability, so that approach is not unique to smaller schools.

DATA-DRIVEN DECISION-MAKING

Manor trains all its teachers to use a data-analysis tool to examine students' results on state tests and teacher-made assessments, Ms. Carlin explained. This tool reveals the specific concepts and skills teachers need to address with all their students as well as particular students. For example, the data-analysis tool may show that students did not do well on a certain question, and that most students who got the answer wrong chose B. During cluster meetings, master teachers can ask, "What state standard was that question designed to measure, and what can you do in your classroom to help your students meet that standard?"

Many teachers found this process difficult at first, because they regarded tests as simply pass/fail, said Ms. Carlin. Instructional leaders had to clarify that it's okay if kids don't do well on tests—it's more important to figure out how teachers and staff can help them improve.

USING RESEARCH-BASED STRATEGIES

Once the staff determines the specific skills students need to acquire, master teachers find research-based strategies that teachers can use to teach those skills, according to Ms. Carlin. Master teachers then field-test the new strategy:

they may model-teach it in a classroom, use it to co-teach a lesson with career teachers, observe career teachers while they use the strategy, or pull students out of a classroom and teach a group lesson.

The master teachers assess students before and after the intervention, to see if the strategy helped them improve. If it did, the master teachers use cluster meetings to train all teachers to use the new strategy and expect them to implement it with the help of the master teachers, Ms. Carlin explained.

Master teachers expect all teachers to use each strategy because it advances Manor's school-wide learning outcomes. For example, if the school is focusing on numeracy, students do math in every classroom, including during English and social studies. Similarly, if the school is focusing on literacy, students work on written communication in math, physical education, and health classes.

Building a Skillful and Committed Faculty

Mr. Ferguson asked whether teachers take formal courses to learn how to create projects. Mr. Zipkes responded that the entire faculty attends a project-based learning institute each summer. The school does not simply send department heads because it does not have department heads, he said: the faculty attends as a team. The institute trains teachers to teach engineering across the curriculum, for example.

Mr. Ferguson asked how Manor's instructional leaders motivate and empower teachers to be creative in developing projects. Mr. Zipkes observed that most schools simply hand teachers a textbook and tell them to follow along. When teachers write their own curriculum, they can be creative in linking their ideas to real-world situations and state standards. Although that is a lot of work, teachers love it, he said. The proof: during Mr. Zipkes's two years as principal, Manor has seen 100 percent teacher retention.

Teachers also know that the school is striving for the state's "excellent" rating—Mr. Zipkes says he has instilled that goal from the beginning. During the first two years, teachers did not believe they could reach it. But because the school has had some success, teachers have now embraced that goal as a collegial group, he added.

Mr. Ferguson asked how the school gauges whether teachers have digested and embraced the approach to project design. Participants peer-review projects at the cluster meetings on Monday mornings, Mr. Zipkes replied. Teachers present their projects, and the rest of the staff uses a "critical-friends"

Master teachers expect all teachers to use each new strategy.

When teachers write their own curriculum, they can be creative in linking their ideas to real-world situations and state standards.

Teachers present their projects, and the rest of the staff uses a "critical-friends" approach to critique.

approach to critique them and determine whether they fulfill the school's standards.

HANDLING RESISTANCE

Mr. Saphier observed that the school also trains all teachers to analyze data to figure out whether kids are having a problem. "Your job then is to be, as I hear it, the head inquirer, right?" he asked Ms. Carlin. "You've got to figure out something to solve the problem, but you are going to go in and test it first, not knowing if it's going to succeed, is that right?"

"Correct," replied Ms. Carlin.

Because master teachers adopt a strategy only after field-testing it, teachers know it works with Manor students.

"Then, when you finally come up with something that everybody is expected to do, that's disseminated through cluster meetings," Mr. Saphier confirmed. "If I am a teacher, how can it work if Ms. Carlin discovers the strategy that I have to implement? " he asked.

Mr. Zipkes replied that he had the good fortune to hire all the teachers in the school, so they are passionate about school reform and committed to project-based learning. And the school's leadership is very flat: everyone plays an active role. When a school gives teachers that kind of responsibility, buy-in goes through the roof, he said.

Even though Mr. Zipkes handpicked the staff, some teachers must have found that project-based learning was not what they expected, Mr. Saphier responded. He asked Mr. Zipkes how he handles a teacher who says, "Look, I know Chrysta is a good teacher, and she came up with a good strategy, but I'm going to do it my way"—or some other form of resistance?

Because master teachers adopt a strategy only after field-testing it, Mr. Zipkes said, teachers know it works with Manor students, not just with students somewhere in the state. So teachers push themselves not only to understand student data but also to learn specific approaches to teaching.

Also, Mr. Zipkes noted, he is the principal coach for all the high schools in the district, so he knows what they are like. He makes it clear to teachers that they can move to another school, but they may not like it, and he will not invite them back.

Also, all the walls in the school are made of glass, so he can observe what's going on in every room—teachers cannot shut the door and hide behind it, Mr. Zipkes said. If he sees a class in which students are not moving or talking, he knows there is an issue.

A WILLINGNESS TO DO THE EXTRA WORK

Mr. Murnane observed that the "lighthouse" schools (by which he meant KIPP Schools) he referred to earlier in the conference rely on young teachers who are willing to work 24/7 for a few years, until their own kids come. Then they just cannot sustain that commitment. He asked whether the teaching jobs at Manor are sustainable over an extended period of time.

Manor stresses the amount of work that is required when interviewing prospective new teachers, Ms. Carlin said. However, she does find that when teachers see the results of Manor's approach, they are reluctant to return to a traditional setting. This is true for Ms. Carlin herself: even if she did return to such a setting, she would never teach the same way again, she attested.

She is a single mother who puts in long hours, but she believes in the Manor approach so much that her son now attends the school. She has observed the same passion among the school's other teachers. Although the school has seen five new babies born to a staff of 22, the teachers are still committed to the work because they see the results, she said.

Ms. Mobley agreed: although the Manor approach is a lot of work, she cannot imagine teaching in a traditional classroom again. "Whenever someone comes and tours our school, I always tell them when I was teaching in a traditional school, my husband would say that if I'm in bed after 9:00 p.m., something is wrong. Now he says that if I'm in bed before midnight, something is wrong, because I am constantly working, finding new resources, new materials, learning myself, trying to find things for the students.

"But it is exciting to me because I get to learn a lot of new things about the material. I am learning a new subject at the same time, since I teach an integrated English and history class. So, yes, it's a lot of work, but it's not work."

Manor stresses the amount of work that's required when interviewing prospective new teachers.

When teachers see the results of Manor's approach, they are reluctant to return to a traditional setting.

16. Lee High School

Presenters:

Steve Amstutz, Principal[65]

Lindsay Niedergeses, Literacy Coach

Nikki Kelley, Assistant Principal

Interviewers:

Jim Connell, Institute for Research and Reform in Education

Richard Murnane, Harvard Graduate School of Education

Student Demographic Profile

Exhibit 16.1   Student Characteristics for 2009

	Racial Composition					Poverty Rate
	White	Black	Hispanic	Asian	Other	% Free Lunch
Lee High	3.9%	14.3%	77.4%	4.4%	0.0%	90.9%
TX (all grades)	34.0%	14.2%	47.9%	3.6%	3.0%	56.7%
Number of Students at Lee High: 1,928						

Source: Based on data from the Texas Assessment of Knowledge and Skills (TAKS)
http://ritter.tea.state.tx.us/perfreport/aeis/index.html [Texas Education Agency,
Academic Excellence Indicator System] Compiled for the June 2009 annual conference
of the Achievement Gap Initiative at Harvard University.

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65. Steven Amstutz is now the Director of Academic Services for the Houston
Independent School District in Texas.

MEETING THE ACHIEVEMENT CHALLENGE

Lee High School in Houston educates some 1,900 students who come from 70 countries and speak 40 different languages. "English is a third or fourth language for many of our students, and 42 percent are identified as English language learners," according to Mr. Amstutz, principal. "Our most recent group of students, now immigrating to us from very rural areas of Africa, speak a language that is not yet written."

Just as challenging, the high school sees a 38 percent student turnover every year—"it's a constant churn of young people," Mr. Amstutz said. "Needless to say, that's hard on teachers, but it's so much more difficult for the young people themselves."

Over 90 percent of Lee High School's students are black and Hispanic. It is also among the highest poverty schools not only in Texas but in the nation, with over ninety percent qualifying for free and reduced price meals. Nonetheless, in just a few years, the school reduced by almost 50 percent their English Language Arts (ELA) and math proficiency gaps relative to the state as a whole. (See Exhibit 16.2).

Exhibit 16.2   Spring Proficiency Gaps between Lee High and State of Texas
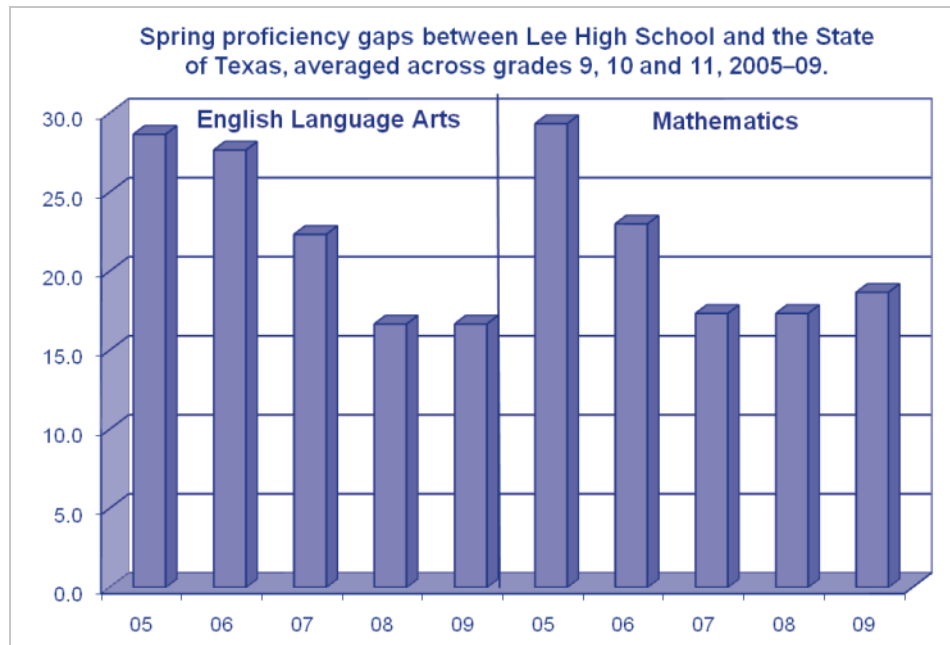

Source: Based on data from the Texas Assessment of Knowledge and Skills (TAKS) http://ritter.tea.state.tx.us/perfreport/aeis/index.html [Texas Education Agency, Academic Excellence Indicator System] Compiled for the June 2009 annual conference of the Achievement Gap Initiative at Harvard University.

While Exhibit 16.2 shows that Lee has made progress over the past five years, the school still falls short of meeting Texas mandatory performance standards for graduation rates. With 38 percent annual student turnover and low skill levels among incoming students, it is difficult to know what graduation rate is reasonable to expect.

THREE CORE STRATEGIES

For nearly nine years, Lee High School has focused on three core strategies, illustrated in Exhibit 16.3, to improve instruction and raise student achievement. The school has created eight small learning communities, each based on a theme such as health and medicine, the performing arts, or business and finance.

Exhibit 16.3   Three Core Strategies
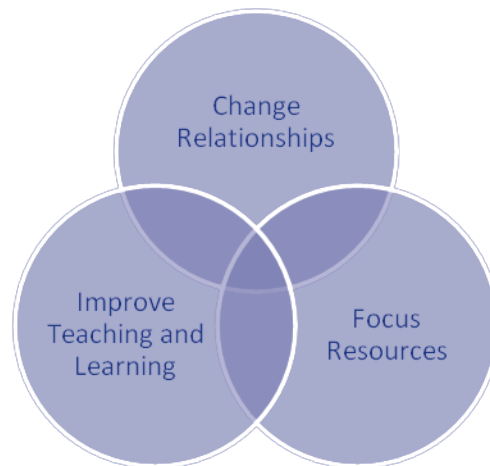
Source: First Things First: Theory, Research, and Practice. *Connell, J.P., Klem, A.M., Lacher, T., Leiderman, S., & Moore, W., with Deci, E. (2009). Institute for Research and Reform in Education.*

1. ***Change Relationships.*** The first strategy focuses on strengthening relationships between teachers and students, teachers and teachers, and teachers and parents. Every student is assigned an advocate—a "caring adult who knows them well and pays attention to them throughout their entire time at Lee High School, whether four weeks or seven years." The school has also developed a strong family advocacy system.

2. ***Improve Teaching and Learning.*** The second strategy was the adoption of a framework through which instruction could be viewed and useful classroom data could be collected and analyzed.

3. ***Focus Resources.*** The third strategy—which may be just as difficult, Mr. Amstutz said—is to "focus all our resources on the first two strategies." That means "saying no to a lot of [efforts] that would distract" us from work around those first two.

Engagement, Alignment, and Rigor

After staff members found that they were "gathering lots of information, but did not have any good way to aggregate that to make any sense of what was happening across the school," leaders also developed an instructional framework composed of three core constructs, Mr. Amstutz said. Exhibit 16.4 illustrates those constructs—engagement, alignment, and rigor—which "have become part of the school's language."

Exhibit 16.4   Engagement, Alignment, and Rigor (EAR)
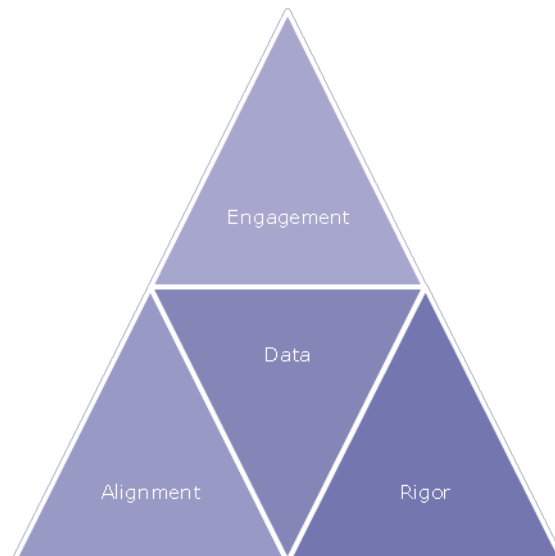
Source: The Toughest Nut to Crack: First Things First. *Connell, J. P. & Broom, J. (2004). Institute for Research and Reform in Education*

For example, the constructs provide a standard for planning and evaluating lessons, he said. Teachers, teaching coaches, and administrators ask: Does this lesson plan spur student engagement? Is it aligned with other lessons in its timing and difficulty? Does it have appropriate levels of rigor?

Teachers, teaching coaches, and administrators ask: Does this lesson plan spur student engagement? Is it aligned with other lessons in its timing and difficulty? Does it have appropriate levels of rigor?

MEASURING ENGAGEMENT

The school also uses those concepts to measure classroom practice and drive professional development. For example, when assistant principals, instructional coordinators, teaching coaches, and teacher peers visit classrooms, they collect data on several subindicators for each construct, according to Mr. Amstutz. For example, observers define engagement as more than just participation, asking: "Are students cognitively, emotionally, and physically engaged in a lesson, and liking it?"

After conducting some 448 classroom visits across the school, observers aggregate the resulting information and evaluate it from different vantage points. For example, as shown in Exhibit 16.5, they may determine the percentage of classrooms that meet the threshold for engagement, and ask whether students are more engaged in math classes than in welding classes. If they find that students are engaged in 68 percent of classrooms, "that means a third of our classrooms are not particularly engaging," and "that's a bit troubling," Mr. Amstutz said.

Exhibit 16.5   Sample on Engagement from a Report

Subindicator Question	% Meeting Threshold	# of Visits
1. (%) of students were on task.	62.05%	448
2. (%) of students were actively engaged in the work requested.	67.34%	447

Source: From the Lee High presentation to the AGI Conference

The observers may also consider how newer teachers are faring on the three constructs compared with experienced teachers. School leaders then determine how to "be smarter about the way we teach," and address any deficiencies through coaching and professional development, based on the needs of both students and teachers.

ASSESSING RIGOR

The school defines rigor as 100 percent of students in a classroom showing mastery of material at or above grade level. For a sample on rigor from a report, see Exhibit 16.6 on the next page. Because that standard is so difficult

to meet, Mr. Amstutz explained, observers "share raw data—the good, the bad, and sometimes the very, very ugly"—with teachers.

Observers have found that teachers do a good job of choosing classroom materials that meet the standard for rigor, he said. However, "if we assess whether teachers actually require students to perform at that level, the percentage drops dramatically."

To support greater rigor, the school focuses teacher development on one or two instructional techniques that "we will work on for an entire year, so we can ensure that they are clearly incorporated into our practice," Mr. Amstutz said. Such professional development includes a clear instructional plan for individual teachers plus coaching.

Exhibit 16.6   Sample on Rigor from a Report

Subindicator Question	% Meeting Threshold	# of Visits
1. The learning materials [did]/[did not] present content at an appropriate difficulty level.	82.83	396
2. The student work expected [did]/[did not] allow students to demonstrate proficient or higher levels of learning according to state grade level performance standards.	73.06	386
3. Evaluations/grading of student work [did]/[did not] reflect state grade level performance standards.	59.49	390
4. (%) of students were required to demonstrate whether or not they had mastered content being taught.	44.74	447
5. (%) of students demonstrated threshold levels of mastery before new content was introduced.	32.96%	443

Source: From the Lee High presentation to the AGI Conference

Staff members also meet often in small learning communities to talk about both pedagogy and students, and meet in content teams to talk about specific subjects. "There is constant but healthy tension between those two" types of meetings, according to Mr. Amstutz. "Content lovers want to have more time with other math or science teachers, while other staff members want more time" in their small learning community. The school also "brings in consultants,

partners, and organizations to help us strategically address" the areas targeted for improvement, he said.

ENSURING RIGOR

"What is your strategy for reducing variation in an aspect of instruction that you think is very important?" Mr. Connell asked. That is, "What are you doing to close the gap—to ensure that more teachers are operating at the highest level, and that teachers in the middle and at the bottom are moving up?" The engagement, alignment, and rigor instructional framework "has helped make teaching more consistent," Ms. Kelley said. Student engagement, in particular, has become more uniform across the school, because the staff "has been working hard on that for a long time." However, "there is still great variation" in rigor across the campus.

Ensuring that 100 percent of students in a classroom master work at their grade level "is a very high threshold," she noted. That standard means that each small learning community and the entire school "always have something to improve on." Participants in instructional meetings spend a lot of time looking at student work and asking: "Is this truly rigorous work?" Or is a particular lesson plan "really pushing the kids?" "If the answer is no, then what?" Mr. Ferguson asked. Coaches may work with teachers, Ms. Kelley responded, or she herself may talk with them. She might also solicit feedback on sample lesson plans during meetings of her small learning community. The result is that much feedback to teachers comes from their peers. "We are finding that the more we have these open conversations, the more honest and the more accepted the feedback is," she said.

Mr. Ferguson asked whether anyone follows up and monitors the progress of a teacher whose teaching is not rigorous, and who peers are trying to help. "Sure," Ms. Kelley responded. If the teaching deficiency continues, "eventually it becomes more of a supervisory issue." If coaches, peer observations, and peer feedback have not produced results, "it's the role of the supervising administrator to take some action, as hard as that frequently is to do," she said.

KEY MEASURES THAT ANSWER KEY QUESTIONS

Beyond the classroom observations, the school relies on concrete data to evaluate how students are doing. "We try to keep our data analysis simple, asking a few key questions," Mr. Amstutz said. One key measure is attendance. However, "we don't look at the average daily attendance at Lee High School, because it really doesn't matter," he said. "If you have 90 percent attendance,

Participants in instructional meetings spend a lot of time looking at student work and asking: "Is this rigorous work?" Is a particular lesson plan "really pushing the kids?"

If feedback has not produced results, "it's the role of the supervising administrator to take some action, as hard as that is to do."

that does not tell you who is coming every day and who is almost never coming.

"The question at Lee is, what percentage of students have 90 percent attendance or better, and what percentage of students have 70 percent attendance or less? Our approach to those two groups of students is radically different." The school tries to keep the format of such information consistent so teachers, parents, and students can readily understand it, he said.

USING DATA TO IMPROVE INSTRUCTION

Mr. Ferguson asked how often staff members use data to assess instruction. Several times a semester, Ms. Niedergeses responded. The district provides benchmark data on student achievement every six weeks, and some teachers have their own benchmarking system. However, the frequency with which staff members examine the information varies by department. For example, math teachers might analyze data and develop action plans virtually every time they meet as a content group—twice a month, or five or six times a semester— while other departments might do so less often. Teachers also analyze data on specific students each month during common planning time, she said.

"What does using data to inform instruction actually mean?" Mr. Murnane asked. For example, if assessments show that algebra students have not learned how to do multi-step word problems involving two equations, even though teachers have taught that skill, how do they use those data? Information on student achievement "often raises far more questions than it answers," Mr. Amstutz acknowledged. Staff members first try "to understand what the data are telling us," such as whether a problem concerns a couple of students, a particular classroom, or an entire subject area.

The second step is determining how best to respond to that problem. Teachers might reteach a topic or provide an after-school tutorial, for example. Asking teachers to reteach is "incredibly challenging," he observed, because teachers already work full-time teaching an overloaded curriculum. Then, if the chosen solution does not solve the problem, "you go back to the drawing board and you try again."

A SMALL LEARNING COMMUNITY

As an assistant principal responsible for one of Lee's small learning communities, Ms. Kelley concurred that looking at the framework of engagement, alignment, and rigor "gives us all a common language with which

Math teachers might analyze data and develop action plans virtually every time they meet as a content group—twice a month, or five or six times a semester.

to speak about what quality instruction really looks like. "That's important for me in a supervisory and supportive role, because when I'm talking to teachers about instruction, I know from the beginning that we are all on the same page." Those constructs also allow her to collaborate with instructional coaches in helping teachers develop their practice, she said.

Professional development occurs once a week for all teachers during 90-minute meetings of small learning communities. Ms. Kelley co-facilitates those meetings with Ms. Niedergeses, or supports a teacher as he or she steps into "a leadership role in presenting a particular piece of professional development." The second weekly meeting—the one led by Ms. Niedergeses—"is sacred and devoted to the professional development of a small group of teachers."

Data on academic outcomes enable Ms. Kelley to consider her small learning community, which includes 300 students, from a variety of angles, she said. For example, "I can look at data for 9th-graders, I can look at data in Ms. Baer's world geography class, I can look at the list of students who are not coming to school regularly, or who may be failing one or more classes and require some kind of group intervention." She uses that information to provide immediate feedback to teachers and students, allowing staff members to intervene when needed.

A DAY IN THE LIFE OF AN INSTRUCTIONAL COACH

As a literacy coach at Lee, Ms. Niedergeses develops teachers' skills to support engagement, alignment, and rigor. That framework "gives me a vocabulary for talking with teachers around developing instruction," and also provides a lens through which to observe teachers in their classrooms, she said. However, she does not use those concepts as an evaluation tool, because she wants teachers to regard her as a peer collaborator.

"One of my favorite ways to collaborate with teachers is to co-plan with them," she noted. She meets with a group of eight teachers weekly, during their personal planning time, to examine their lesson plans for the coming week. Instructional leaders have referred most of the teachers to her because they are struggling, but some join the group voluntarily, saying, "I want to work with you to improve my lesson plans."

Ms. Niedergeses asks participants in the meetings to consider "How do we grow?" based on what happened the previous week, and helps them build engagement, alignment, and rigor into their lesson plans, she said. She works

with some teachers for a few weeks or months, but has also worked with several teachers for three years. "Their instruction has improved and changed because of that collaboration and the relationship we have built."

Ms. Niedergeses also spends a significant part of her day creating instructional agendas and scripts, and facilitating meetings of small learning communities. She observes teachers in their classrooms, often accompanied by a teacher on his or her planning period. After observing a class together, the two step into the hallway to talk. Ms. Niedergeses may ask the teacher, "What did you see? What did you find engaging? What could you try in your own classroom? How would you categorize this teacher's level of rigor?"

Ms. Niedergeses also works with individual teachers—including those who teach math, science, or social studies as well as those who teach English Language Arts—based on data on the core framework and academic outcomes. She helps teachers "look at their class rosters, look at their outcomes, and focus on what they were doing in their classroom that ultimately led to those data."

HOW COACHES CAN TRANSFORM TEACHING

Mr. Ferguson asked the presenters to expand on the roles and compensation of instructional coaches at Lee, and to comment on how they support veteran teachers. The school assigns one coach to every two small learning communities, and that means each coach works with 25 to 30 teachers, Ms. Niedergeses responded. Administrators refer teachers to coaching based on their weekly lesson plans and patterns and behaviors they observe during common planning time. New teachers and veteran teachers alike can also ask coaches for assistance. Coaches work with veteran teachers much as they work with new teachers, relying on their own observations as well as those of other staff members, Ms. Niedergeses said.

The school has expanded the number of instructional coaches during the last five years. Administrators formerly assigned coaches to individual departments. However, coaches now promote good instructional practices across the curriculum, while focusing especially on effective teaching for English language learners. Coaches are paid according to teachers' salary levels, with incentives based on experience, according to Ms. Niedergeses.

Mr. Ferguson asked about the importance of a teacher's attitude versus a coach's skills in improving instruction. "There is always a tension between teachers who have been assigned to work with a coach…and teachers who

want to work with a coach and improve their practice," Ms. Niedergeses acknowledged. "A lot of it comes down to relationship building."

For example, even if she knows "there is something specific that I need to work on with a teacher that is written into their instructional plan, we may not focus on that" during the first few coaching sessions. Instead, Ms. Niedergeses might look at her notes from a classroom observation and ask the teacher, "How did you think things went today? What are the things that you want to work on?" The goal is to focus on what a teacher thinks she needs and to get buy-in—"to move the teacher in the direction they need to go, but also in the direction they want to go," she said.

The goal is "to move the teacher in the direction they need to go, but also in the direction they want to go."

"Could the word transformation be used to describe the progress you have made with any particular teacher?" Mr. Ferguson asked. "Yes," Ms. Niedergeses responded. The process of improving instruction occurs differently with different teachers, she noted. She has been working with one teacher to improve her clarity of instruction for three years. "The lesson plans at this point are good, she is thinking through what she needs to do during a lesson to make it clear for students." However, "when she is standing in the front of the classroom, is she doing it?" Ms. Niedergeses is now helping that teacher practice presenting a lesson before she faces her students.

Mr. Ferguson asked Ms. Niedergeses to fill in the blank: "There has been a transformation of [what] with this particular teacher." "The amount of teacher talk," she responded. She has seen "a great reduction in the amount of time the teacher spends talking about things that ultimately distract students from a clear lesson."

DIFFERENTIATING INSTRUCTION

Mr. Connell asked the presenters to comment on differentiated instruction at the school. Differentiated instruction is essential at Lee because of its overwhelming English language learner population, Ms. Kelley responded. "It's something that must happen in every single class all day long, every day."

It's important to recognize how difficult differentiated instruction is to provide day in and day out, Mr. Amstutz observed. It's also important to avoid inadvertently harming students through differentiated instruction, he added. That could occur if teachers develop different expectations for different students. For example, teachers might teach some students algebra and other students algebra "lite," or teach some students geography and others geography "lite."

"At our school that typically happens with students who are learning English," he said. Teachers water down a subject "in an attempt to make the language accessible, and suddenly we have lost the substance of the course itself. That is a constant challenge, and something we have to continually" guard against. For example, in world geography students learn about urbanization and its impact. Different textbooks and other materials are available for teaching that concept—some with less complex vocabulary and content. Instructional leaders have devoted significant efforts to figuring out how to effectively and appropriately expand students' vocabulary—which ends up benefiting all learners, not just English language learners, Mr. Amstutz noted.

Mr. Murnane asked how the school deals with students who arrive mid-year, given that teachers already struggle to differentiate instruction. "One thing Lee does, and that we can all do, is to make sure those kids are welcomed," Ms. Niedergeses said, because if students arrive at a certain point during the year "they are going to be lost." "If we can empower our teachers with a sturdy set of skills that they can use to provide quality instruction for everyone on a day-to-day basis, that helps them deal with students as they arrive," Ms. Kelley noted. Teaching new students itself requires differentiated instruction—that is, "teachers who are well equipped and willing to take those kids on and to treat them as if they have been in their class for the entire year. We can't do anything about the mobility. What we can do is improve instruction when they get here."

> "We can't do anything about the mobility. What we can do is improve instruction when they get here."

The process of assigning an advocate to each student is another Lee response to student mobility. As such an advocate, Ms. Niedergeses has been working with "a group of 13 young women who have been with me since they enrolled at Lee High School halfway through the year. I am still the one who helps them keep track of their data. I help them manage the things that they need to do to be successful students." However, the advocacy system is "less about instruction and more about making sure we are connecting with kids and caring," she said.

Ms. Niedergeses is also the first point of contact for the teachers of those students. That means she "can go into a small learning community meeting and ask, 'What's going on with Tara? She is new, is she fitting in? Do you have questions? Do you have concerns?' And I can go back to the student and help him or her address the reasons why they are struggling."

Every staff member—including literacy coaches and administrators—serves as a student advocate, pointed out Mr. Connell, who works with the school as a

consultant. That policy reduces the ratio of staff to students "to something that's manageable."

HOW TO SUSTAIN PROGRESS

"We have made a lot of progress and we are very pleased, but we have a long way to go," Mr. Amstutz acknowledged. "We have probably made just as many missteps as we have made good steps." A particular challenge is to pursue a program or initiative with "the fidelity it deserves over a long period of time, so that you can get it right and get it better and give it the opportunity to succeed."

"Nothing stays fixed," he observed. "Every time we think we've got something in place and going well, it tends to want to fall apart. We have to provide constant maintenance to keep things moving." Specific challenges include "constant tensions" between academic departments and small learning communities, between autonomy for small learning communities and school-wide consensus, between teacher autonomy and directed instruction, and "too much data, which we believe can be a real problem, versus too little data or the wrong data." "We try to balance [all] those and get them right," he said.