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Leveling the Playing Field:

Strategies for Schools Serving At-Risk Students in Elementary Schools in Massachusetts

by

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Policy Analysis Exercise

Leveling the Playing Field:

Strategies for Schools Serving At-Risk Students in Elementary Schools in Massachusetts

Analysis provided for the Massachusetts Department of Elementary and Secondary Education

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Candidates for the degree of Master in Public Policy, May 2016.

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I. Executive Summary

District and school leaders struggle to overcome the educational challenges associated with the demographic factors of race and poverty. While these demographic characteristics have become common predictors of student achievement, this need not be the case. Some Massachusetts public schools achieve high educational outcomes with the same types of high-risk students – how?

This report therefore asks:

> ***What strategies can be implemented in low-performing elementary schools in Massachusetts serving high-risk students to improve student and school-wide outcomes?***

By focusing in on high-performing Level 1 and 2 (Level 1/2) schools in Massachusetts that serve student bodies with a demographic make-up similar to lower performing Level 4 and 5 (Level 4/5) schools, we have identified common practices that improve student performance. This report outlines and analyzes these best practices as utilized by elementary schools with large populations of minority and socio-economically disadvantaged students. While many low-performing schools may already be aware of some of these practices, our recommendations focus on their implementation and operationalization. Based on this study and analysis, we propose adoption of three major recommendations:

1. **Embed comprehensive and cohesive systems into daily school operations that focus on student performance.**
2. **Create strategies to cultivate a positive school culture.**
3. **Add data points for these best practices to Monitoring Site Visit Rubrics for school evaluations.**

The first two recommendations are broken down into seven total action steps with detailed descriptions of school-level implementation and examples. These recommendations seek to go beyond existing literature by describing how to operationalize these best practices as exemplified by high-performing schools.

The third recommendation details specific improvements that can be made to the Department of Elementary and Secondary Education (DESE)'s Monitoring Site Visit (MSV) Rubric that is used for evaluating Level 4 and 5 schools. The improvements align the rubric with the best practices described in the first two recommendations.

Through these recommendations, this report is intended to assist DESE to better support and assist low-performing schools that are struggling to meet ambitious yearly targets of achieving 100% proficiency in Math and English tests by 2016-2017.

Overview of the Recommendations:

In analyzing implementation of these best practices, two aspects of school operations emerged as core to the effectiveness of the educational environment: *systems* and *culture*. High-performing schools consistently implement *systems* around data driven instruction, behavior management, wraparound services, and academic interventions and enrichment opportunities. Secondly, these

schools work deliberately to create a positive school *culture*, particularly in terms of teacher training and collaboration, parental engagement, and student attendance, leading to teacher empowerment and higher teacher retention. A summary overview of these specific recommendations for schools is provided in Figure 1 below.

Furthermore, the last recommendation aims to improve DESE's ability to evaluate and support low performing schools when implementing these recommendations. We recommend DESE improve the Monitoring Site Visit rubric by: 1) adding additional continuum points to the MSV rubric that reflect specific best practices and 2) adding an additional rubric row around student absences.

Figure 1: Recommendations to Schools

Recommendation 1: Embed comprehensive and cohesive systems into daily school operations that focus on student performance.	
Data-Driven Instruction	1.1.1: Administer formative assessments multiple times per year and conduct weekly (at minimum) analysis of student data.
Behavior Management	1.2.1: Implement consistent, school-wide behavior management structures that include clear procedures for escalation and points of contact.
	1.2.2: Conduct reviews of discipline data consistently to evaluate management structure.
Wraparound Services	1.3.1: Create a cohesive system for consistent referral, monitoring and evaluation of wraparound services.
Academic Interventions & Enrichment	1.4.1: Develop consistent opportunities for tutoring all students with diverse needs.
	1.4.2: Develop partnerships with external providers to create opportunities for enrichment and learning.
Recommendation 2: Create strategies to cultivate a positive school culture.	
Teacher Culture, Training & Empowerment	2.1.1: Implement a gradual release training model.
	2.1.2: Structure and evaluate collaboration time to increase productivity and effectiveness.
	2.1.3: Empower teachers with autonomy and flexibility and create frequent opportunities for communication with school leaders.
	2.1.4: Dedicate specific planning time to "vertical" meetings; encourage systematic and consistent opportunities for teachers and mentors.
Parent Engagement	2.2.1: Dedicate specific resources and planning efforts to foster consistent opportunities for parental engagement
	2.2.2: Focus engagement opportunities with parents on academic, as well as social or recognition-based events.
Culture of Attendance	2.3.1: Create a family-centered system for addressing chronic absenteeism.
	2.3.2: Develop a system to support daily phone calls in cases of student absence.

II. Context

This report investigates Level 1 and 2 schools serving students from minority and economically disadvantaged backgrounds to develop an understanding of the strategies schools can use to overcome demographic challenges associated with student success. It is provided to the Massachusetts Department of Elementary and Secondary Education (DESE), which has responsibility for reviewing levels and addressing issues that emerge in under-performing schools. More specifically, it seeks to support the work of the DESE Office of Planning and Research, which provides analysis, research, and tools to inform decision-making and support school improvement.

We used DESE's Leveling System to identify high and low performing schools. The Level System, reviewed annually, takes into account absolute test scores, fluctuations and growth in these test scores, and evidence of whether gaps between low and high performing students within a school have increased or decreased. A school is classified as Level 1 if it is meeting gap-narrowing goals either in absolute performance (weighted at 75%) and growth (weighted at 25%) for all sub-groups of students. The top 80% of schools are categorized as Level 1 or Level 2, while the remaining 20% are categorized as Level 3, 4, or 5 schools. The lowest performing Level 3 schools are designated as Level 4 schools if they remain in the lowest performing group for a period of four or more years. Designation as a Level 5 school is rare, and reserved for the consistently low performing schools that show no signs of improvement, as determined by the Board of Elementary and Secondary Education.

To answer our research question, we looked at schools categorized as Level 4 or 5 and found Level 1 and 2 schools with similar student demographics (see Figure 2). We prioritized the proportion of students from economically disadvantaged and minority backgrounds for this comparison because of the strong associations between poverty, race, and low student achievement.

Figure 2: Demographic Data of Sampled Level 1/2 Schools

School Name	% of Students	
	Econ. Disadv.	Minority
Charles Sumner School, Boston	57.7%	85.9%
Carlton M. Viveiros School, Fall River	68.9%	32.6%
Hyannis West School, Barnstable	59.4%	38.4%
Newton School, Greenfield	63.6%	21.9%
Kensington School, Springfield	76.4%	82.7%
Mary M. Lynch School, Springfield	77.5%	88%
Warner School, Springfield	67%	78.4%
Belmont Street School, Worcester	71.5%	67%

To assess the current practices in place at Level 4 schools, we used existing data from the Monitoring Site Visits (MSV), which are state ordered observations at Level 4 schools as they implement a turnaround plan. This rubric includes the following four turnaround focus areas: 1) Leadership, shared responsibility, and professional collaboration 2) Intentional practices for improving instruction 3) Student-specific supports and instruction to all students and 4) School culture and climate. Based on trends in the MSV rubric data, we identified gaps in strategies used between Level 4 and Level 1 and 2 schools. This allowed us to focus our analysis and recommendations on strategies Level 4 schools are *not already using.*

III. Existing Evidence on Supporting At-Risk Students

There is a large body of quantitative and qualitative academic literature regarding best practices to support student development during elementary school. However, since much of the literature focuses on general student populations and not our specific sub-population of at-risk students, it is of limited value in determining particular strategies for the schools in focus in this report. In order to address this research gap, this study combines existing academic literature with original analysis of school-level data in Massachusetts.

Overall, existing literature (see Appendix II) on supporting at-risk students suggests that school-level, student-centered systems are essential to improving student achievement. Systems that increase instructional time, increase use of student-level data, and enhance human capital development all contribute to improved student outcomes. Within the area of human capital, the literature also illustrates that increased accountability and training, coupled with intrinsic incentives (such as empowerment) and extrinsic incentives (such as increased pay), improves teacher retention and quality.

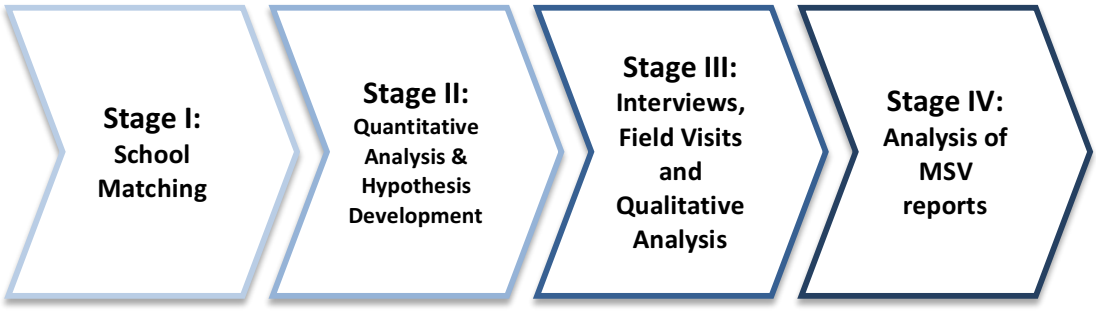
Studies have also shown that provision of extensive social-emotional and non-academic interventions are associated with student achievement. Students in wraparound zones, for example, see significant improvements in test scores, and teaching students leadership skills and providing them leadership opportunities could yield long-term benefits. Furthermore, school culture has also been shown to be highly influential. For example, consistent reinforcement of positive behavior is associated with student growth. Lastly, even external factors of culture (outside the direct school environment) can contribute to student learning. For instance, networking events or activities in the community that improve social capital of parents could have positive effects on student outcomes.

Existing literature further points to several factors that are outside of the scope of our research and will therefore not be addressed in this report. For example, there is extensive research on the role of leadership development and career preparation on students' college and career success, but since this report focuses on school performance only, the impact on college and workplace performance will not be addressed. Lastly, existing studies also highlight the importance of financial incentives and resources such as pay structures or resource allocation. However, since these are district-level decisions, they are outside of the scope of this report, which focuses on school-level systems.

A full summary of the academic literature considered for this study is included in Appendix II. This summary is focused on studies concerned with best practices at the school-level rather than the community-level or district-level, as this was most relevant to our research question.

IV. Methodology

Our research involved four stages described below. A full description of our methodology is included in Appendix III.



Stage I: School Matching: To effectively compare high-performing and low-performing schools with similar demographic make-up (proportion of students considered economically disadvantaged or from a minority background), we identified thresholds across these indicators. Using these thresholds, we identified Level 1 and 2 schools with similar demographics to Level 4 and 5 schools. The thresholds established meant that at least 53% of a school's student body was economically disadvantaged or 55% came from minority backgrounds.

Stage II: Quantitative Analysis & Hypothesis Development: Using school data captured by DESE in School and District Profiles, we ran regressions to determine what indicators were relevant to school performance. We tested variables such as principal retention, teacher retention, number of students disciplined, percentage of staff evaluated, and various others, to establish which school-level characteristics significantly and meaningfully correlated with greater success among Massachusetts Elementary Schools. Controlling for those variables, including student demographics, the two school-level characteristics that stood out were *student attendance rate* and *teacher retention rate*. Using this analysis and existing academic literature, we formulated hypotheses regarding the contribution of these two characteristics to higher school performance to test in Stage III.

Stage III: Interviews, Field Visits, and Qualitative Analysis: We invited Level 1 and 2 schools above our two demographic thresholds to participate in our study. We conducted interviews and/or visits with principals, teaching staff, administrative staff and specialty teachers in eight Level 1 and 2 schools, and in certain schools were able to view classroom operations. This allowed us to identify and investigate specific best practices common across these high-performing elementary schools.

Stage IV: Analysis of Monitoring Site Visit Reports: Once these best practices were compiled, we analyzed Monitoring Site Visit (MSV) reports to identify gaps in the implementation of these practices in Level 4 schools as compared with Level 1 and 2 schools. In comparing our findings with detailed analysis of MSV reports we refined our understanding of key differences between high and low performing schools serving high-risk populations and tailored our recommendations to address these gaps.

V. Findings from Analysis

This section presents a summary of the findings from across our case studies, MSV analysis and literature review. These findings formed the basis for formulation of specific recommendations.

This analysis found that while low-performing schools generally have a sense of what works well for high-risk students, high-performing schools are much more intentional and strategic. Our findings are organized below by first explaining MSV report expectations for the listed best practice followed by a description of the gap with Level 1 and 2 schools.

1. Data Driven Instruction

Data usage in instruction falls within *Turnaround Practice 2: Intentional Practices Improving Instruction* in the MSV rubric. In order to achieve the highest "Sustaining" rating in indicator *2.5: Student Assessment Data Use*, DESE requires teachers and leaders to consistently use benchmarks and state assessments to make school-wide decisions regarding school-wide practices. Relatedly, in order to achieve the highest "Sustaining" rating in indicator *2.6: Teacher Progress Assessment Practices*, DESE requires teachers and leaders to work collaboratively using a variety of assessments to determine student progress towards intended outcomes.

At Viveiros in Fall River, teachers analyze data of their Tier 3 students weekly, and the rest of the students twice per month.

In Level 1/2 school interviews, teachers described using data in all collaborative meetings, usually held once or twice per week. At Viveiros in Fall River, teachers analyze the data of the students struggling most (Tier 3) weekly and twice a month in literacy and math. At Kensington Elementary, teachers use unit tests and a re-teaching cycle based on trends in student performance on specific questions. At Warner Elementary, teachers look at data collaboratively twice a week and administer unit tests followed by a re-teaching cycle. At Mary Lynch Elementary, the school relies on A-net, an educational non-profit, to provide assessments aligned with state standards. At all other schools interviewed, similar patterns of consistent, frequent and responsive use of data built into the teaching cycle were evident. In several interviews, teachers also referenced using informal data, such as graded homework or exit tickets, on a daily basis to assess if students are progressing towards teaching objectives.

MSV reports indicate that Level 4 schools often provide collaborative time for teachers to plan using data. In addition, they suggest leaders use state assessments to make school-wide decisions at the beginning of the year. Level 4 schools are typically rated as "providing" evidence of data driven instruction, but not necessarily consistently. One report noted, "Coaches were looking at data to make decisions on school-wide practices. However, not all staff examined data to inform school practices." This suggests inconsistent school-wide use of data. Another report highlighted, "…School leaders used data to identify vocabulary as a key area for improvement this year. However, it is not clear from the data that school leaders consistently use student results on benchmark and common assessments—in addition to state assessment data…" Several other MSVs report that the school was "providing" evidence of using state assessments but not other benchmarks throughout the year, much less on a weekly basis like Level 1 and 2 schools interviewed.

2. Wraparound services

In many Level 1/2 schools, these systems are coordinated through a single point of contact, who is responsible for the referral and monitoring of students receiving external services.

Provision of coordinated wraparound services falls within *Turnaround Practice 4: School Climate and Culture*. In order to achieve the highest rating of "Sustaining", DESE requires that school leaders and staff share "individual and mutual responsibility" for providing students with comprehensive social-emotional services. This includes using a systemic approach, involving the assessment of student and family needs throughout the year. In Level 1 and 2 schools, these systems are often coordinated through a single point of contact, responsible for the referral and monitoring of students receiving external services. In Springfield, this is the responsibility of the district-wide *Student-Teacher Assistance Program*. In other schools, Wrap Around Zone (WAZ) services are often coordinated through one school counselor or dean.

In 2012, DESE conducted a study on the effect of WAZs on student performance. These are state-funded non-academic supports that address the climate and culture of the school, as well as students' social and emotional capacity. It found significant improvements in standardized test scores, especially for third and fourth graders, but no improvement in suspension rates, attendance, or retention (DESE, 2012). Therefore, it concluded that WAZs improve immediate academic performance for students facing social or emotional challenges, but their long-term effects on behavior are less clear. Our own research shows that schools with coordinated and effective WAZ systems have higher student attendance rates, lower suspension rates, and higher retention rates. These findings suggest WAZ services can have strong effects, particularly when implemented alongside other student support systems.

Academic literature reviews also suggest that WAZ services could make a significant difference to the educational achievement of at-risk students. For example, a study conducted in Chicago Public Schools demonstrated an association between outside factors, such as stronger social networks for parents or decreased crime rates, and improved student achievement and attendance. This and other studies provide evidence that student outcomes are not only the result of internal school organization, but external community factors as well. Wraparound Services that provide coordinated and effective service provision to address the social, emotional, and behavioral repercussions of negative external factors could therefore impact student achievement and school culture.

MSV reports indicate that while low-performing schools often provide a menu of comprehensive services for students and families, there is no cohesive system that refers students, tracks their progress, and evaluates the effectiveness of these services. One report indicates that "there was no evidence that school leaders and staff took part in identifying family needs or services"; another notes that "such services seem to be limited to some counseling services, but these services are neither widespread nor systemic." Indeed, while many Level 4/5 schools provide access to these services, they are often not coordinated or limited to one-off individual referrals.

3. Behavior & Discipline Management

Implementation of a school-wide behavior plan falls within *Turnaround Practice 4: School Climate and Culture*. DESE requires four key elements be included in a school-wide behavior plan: 1) a set of high behavioral expectations are defined; 2) a system of positive behavior supports is developed; 3) procedures are implemented by a majority of the staff; and 4) data is consistently used to monitor behavior. Our case studies reveal that high-performing schools fulfill these criteria by demonstrating a coherent system of high expectations while still providing teachers with autonomy.

While our quantitative analysis indicates the relationship between student discipline rate and school Level was not statistically significant, the magnitude of correlation was still large. A mere 1 percent increase in the rate of students receiving disciplinary action correlated with a decrease in the probability that a school is high-performing by 0.80 percentage points (see Appendix III for empirical details). This suggests that higher performing schools tend to take less drastic punitive measures such as suspensions, and based on our interviews, likely focus more on in-school discipline systems that build a positive culture. This is further substantiated by existing research and consistent qualitative findings on behavior management from interviews that indicate behavioral systems to be an important factor.

A 2014 study examining the impact of instilling a culture of high behavioral expectations into failing public schools tested whether these high expectations produced harder working and more focused students. The schools that implemented these practices increased math achievement by 0.15 to 0.18 standard deviations per year. This suggests that implementation of a culture of high expectations could close the black-white achievement gap in math within three years. However, the effects on reading were only marginal and statistically insignificant (Fryer, 2014). Other studies have also shown that developing consistent school-wide structures for positive behavior supports contribute to improved student behavior.

Interviews with high-performing schools also indicated the importance of positive reinforcement and providing students with a clear set of expectations.

Our interviews with high-performing schools also indicate the importance of positive reinforcement and providing students with a clear set of expectations. Many of the schools use tiered behavior models to provide this clarity and systematic approach. Some schools run a 'responsive classroom' model to positively communicate expectations. In addition, all the schools evidence positive feedback systems to reward or recognize good or kind behavior.

Analysis of the MSV reports indicate that Level 4 schools generally understand best practices in behavior management and often outline high expectations for students. Moreover, many Level 4/5 schools attempt to implement positive behavior supports. While these schools can often articulate what behavioral interventions are needed, implementation is generally inconsistent and lacks structure. For example, one MSV report notes, "Stakeholders stated that the school used PBIS for its behavior plan… However, there is no evidence of how consistently the plan is being implemented or monitored." Indeed, a constant theme across MSV reports is that schools know what to do, but fail to implement a school-wide structure to reinforce behavioral expectations for students.

4. Academic Interventions and Enrichment

Another aspect of where high and low performing schools differ is the provision of tutoring and enrichment opportunities for students. These include Extended Learning Time, such as tutoring before and after school, as well as activities in non-core academic areas. Extended Learning Time is addressed in *Turnaround Practice 4:* where a "Sustaining" rating requires, "All students have access to expanded learning opportunities that are well defined and well supported, and high-needs students are targeted for participation in these programs." The availability of tutoring is also alluded to in *Turnaround Practice 3* under the indicator of a *Multi-tiered System of Support*: where a "Sustaining" rating requires, "Leaders and teachers actively use established systems with criteria and protocols for identifying students for interventions and enrichment…" which includes the processes of identification, making decisions about, and monitoring interventions.

Examination of the MSVs reveal that academic tutoring opportunities are not available or of limited availability in most Level 4 schools. For instance, at one school extended learning opportunities and mentoring programs are not available to all students because of staffing restrictions and lack of funding. Some MSV reports highlight the intention to provide before or after-school tutoring, but these programs have not yet begun. Other reports indicate tutoring has been discontinued or no mention of its existence is made.

Moreover, the types of tutoring offered also limits availability and/or take up. Some MSVs only mention the existence of intensive tutoring as an academic intervention for students struggling the most. In one school where City Year and Starfish run tutoring before and after school, interviews with educators reflect a desire for more resources and programs so that tutoring can become "formalized operationally, [and] well-disciplined." There are exceptions. A small number of low performing schools provide tutoring, but attendance and alignment with curriculum is not clear in the MSVs.

[In Level 1/2 schools] enrichment opportunities are often led by teachers with particular interests in subjects outside of the traditional curriculum.

Similarly, evidence of implementation of enrichment opportunities is sparse. Some MSV reports highlight the fact that schools are focused on academics and intend to provide enrichment opportunities later down the road. Other schools show evidence of limited enrichment opportunities, for instance, for students who "might be ready to work on higher level things". The small number of Level 4 schools that have implemented enrichment opportunities do not always monitor these for effectiveness. Many reports make no mention of enrichment opportunities or explicitly note these were lacking.

By contrast, enrichment and tutoring opportunities are consistently available in the Level 1/2 schools. These include a range of programs such as clubs or elective subjects or providing additional tutoring hours before major testing. Enrichment opportunities are often led by teachers with particular interests in subjects outside the traditional curriculum. In most of these schools, programs are made available through grants or partnerships with organizations in the community. For instance, Reebok sponsors a morning exercise program at one school visited.

5. Teacher Culture, Training and Empowerment

Teacher culture falls under *Turnaround Practice 4: School Climate and Culture*, and is specifically dealt with in indicator *4.5: Trusting Relationships*. Achieving a rating of "Sustaining" requires teachers to act in a "solutions-oriented" manner and collaborate on planning, analysis, assessment, and decision-making. Teacher training falls within *Turnaround Practice 2: Intentional Practices for Improving Instruction*, and is specifically noted in indicator *2.4: Classroom Observation Data Use*. Achieving a rating of "Sustaining" requires teachers are observed and receive actionable feedback that is consistently reviewed.

Teacher Retention:

Our quantitative analysis indicates that a 1% increase in the teacher retention rate is associated with a 0.86 percentage point increase in the probability of a school being rated as a Level 1/2 school. Higher teacher retention rates are therefore meaningfully associated with the likelihood that a school will be ranked Level 1 or 2. While the causal direction of this relationship isn't clear from quantitative analysis alone, there is consistent and strong evidence from interviews conducted that teacher retention is a *cause* of high student achievement - often expressed in statements about the importance of veteran teachers.

The existing academic literature regarding teacher retention is heavily focused on teacher incentives and teacher development. For example, a review of Washington D.C.'s city-wide IMPACT system, a robust teacher evaluation system with performance pay, found the system improved outcomes for both low and high performing teachers and encouraged strong teachers to remain in schools (Dee, 2015). Certain aspects of this teacher evaluation system, such as frequent observation and feedback on classroom best practices and additional professional development for struggling teachers, could be implemented within individual schools.

Another study demonstrated associations between teacher retention and four elements of staff culture (Shen, 1997). These included: 1) hiring more experienced teachers; 2) increasing teacher salaries; 3) emphasizing the intrinsic merits of teaching; and 4) empowering teachers to influence school decisions and policies. Many Level 1/2 schools confirmed these findings when discussing the importance of flexible hiring decisions, veteran teachers, and frequent check-ins with teachers. However, more research is required to better understand what factors improve the likelihood of retaining teachers.

Teacher Training:

Level 1/2 schools emphasized the importance of a gradual release model for developing struggling or new teachers.

The MSV reports also indicate that Level 4/5 schools often have a teacher training system in place that includes observation and feedback, but is inconsistent. Additionally, there appear to be gaps in accountability, as instructional leaders do not always review observation data with teachers consistently. One MSV notes, "in some cases, staff reported not being completely aware of the school wide expectations for observations or how these data are used to drive improvement at the school-level." Another suggests, "There was evidence that classroom observation data are being used by the individual teachers being observed, but data are not reviewed by the Instructional

Leadership Team or any other school-wide mechanism." In general, most teachers are observed in their classrooms. The gaps in performance therefore may result from the differences in the data review and feedback piece of the instructional model. Lastly, MSV reports do not report on the existence of a gradual release model for teacher training. Gradual release models train teachers through model teaching by an instructional leader, co-teaching, and finally, observation and feedback that tapers off as the trainee takes control of the classroom. However, various Level 1/2 schools emphasized the importance of a gradual release model as a strategy for assisting and developing struggling or new teachers.

Teacher Culture:

MSV reports indicate that Level 4/5 schools are often described as having a "positive" staff culture with teacher-leader communication, but collaboration is often inconsistent and/or not strategic. One MSV report notes, "Although the professional development schedule was assessed and planned over the summer, there was no evidence that this time or Common Planning Time was consistently reevaluated…" Another MSV reports, "Although teachers have blocks of time specifically for planning, no time was allotted for collaboration." This indicates that while low-performing schools build collaborative time into their schedules, they are not consistently using this time in a productive way.

Level 1/2 schools host weekly meetings and regular individual check-ins with teachers, conduct teacher climate surveys, and include teachers in the schedule-making process.

In analyzing the MSV reports, two trends in teacher empowerment and culture emerge in low-performing school: 1) teachers lack voice in school-wide decisions; and 2) communication is poor between administration and staff. As noted in various reports, at many Level 4 schools, teacher input is not sought for strategic decisions such as teaching schedules, the structure for interventions, and what initiatives the school should pursue. Some note that teacher buy-in to the school leaders' vision is inconsistent. Furthermore, many schools struggle with establishing consistent communication between school leaders and staff; for example, one report quotes a teacher saying, "there's a lot of changes we're not made aware of." By contrast, Level 1/2 schools commonly host weekly meetings and regular individual check-ins with teachers, conduct teacher climate surveys, and include teachers in the schedule-making process.

Vertical Integration:

While not explicitly addressed in the MSV reports, a consistent theme across high performing schools is the importance of a vertically integrated teacher culture that enables expertise sharing across grade-levels. Indeed, the camaraderie and willingness of teachers to support one another was observed through their interactions during the interview process. An important aspect of this strong collegiate and 'team' approach is the possibility and

In Level 1/2 schools, vertical integration provides teachers with a better understanding of how rigorously a particular area of the curriculum has been covered and insight into what teaching strategies prove effective for particular students.

execution of 'vertical integration' across the teaching teams of different grades. While all schools (regardless of Level) have mandatory Common Planning Time, high performing schools often dedicate specific time to integrate staff vertically and share knowledge across grade-levels.

In schools with high-risk populations, this approach is particularly valuable for two reasons. First, the issues faced by high-risk students are oftentimes not specific to grade-level and stay with them through adolescence. Therefore, knowledge sharing about particular student needs across grade-levels may be of even more value in these contexts. Second, where students struggle academically (as a result of external issues, for example), vertical integration allows for greater long-term monitoring of student progress. For example, in Level 1/2 schools, vertical integration provides teachers with a better understanding of how rigorously a particular area of the curriculum has been covered and insight into what teaching strategies prove effective for particular students.

6. Parental Engagement

Parental engagement falls within *Turnaround Practice 4: School Climate and Culture*, and is specifically addressed in the sub-indicator *4.6: Community Engagement*, which lays out five specific aspects of parental engagement. The importance of strategic, systematic and focused engagement with parents emerged as a key differentiator of success between high and low performing schools serving students at risk, when comparing the MSV reports with data collected during school visits,

Parent involvement is mixed across Level 4 schools. Some schools promote regular engagement through weekly or monthly opportunities while other Level 4 schools only engage parents sporadically or are just beginning to initiate more deliberate engagement opportunities. For example, one MSV notes, "According to one of the school leaders, parents who had never been in the school before were starting to come in for events, such as the Shining Stars assemblies."

Many of the MSV reports cite the focus on engaging parents socially rather than through academic opportunities.

In addition, the type of parental engagement is important. As one report noted, "Family engagement is primarily focused on building social relationships and minimally on academic supports… most efforts appear to have been social in nature and less focused on information for parents to support students' academic progress." Many of the MSV reports cite the social, rather than academic, focus of parental engagement. There are exceptions to this which includes a number of schools that exited Level 4 to Level 3 or higher in the 2015-16 year. Another engagement strategy that is either not evidenced in the MSVs, or noted as only beginning to be implemented by some Level 4 schools, is visits to parents at their home.

By contrast, qualitative data on Level 1/2 schools suggests more strategic and consistent engagement with parents. For example, one school holds "shadow days" twice a year (in addition to a number of other events), in which parents are invited to come and sit in on classes and follow their child through the day. Another school is in the process of hosting meetings (at the principal and

'Shadow Days' allow parents to witness their child's learning environment and academic experience.

vice-principal level) with every parent of a student who recently took the PARCC assessment to explain the results and review the child's academic progress. All Level 1/2 schools interviewed have a designated parent liaison or staff member who coordinates parent engagement.

Parental engagement emerges as particularly important in the context of high-risk students for a number of reasons. First, anecdotal evidence suggests that engaging parents in conversations about their child's academic performance is reflected, at least in the short term, in improvements in student behavior. Developing the concept of a 'partnership' of responsibility between teachers and parents increases the likelihood that parents engage their child about their schooling in a substantive way at home. Second, existing literature shows that there is an association between student performance and parents' social capital. Social gatherings for parents to expand their network and exposure to additional resources could have an effect on student performance. Third, parental engagement can improve student attendance (discussed below). Finally, academic research indicates that for high-risk students, the gains from educational interventions are strongly tied to the academic abilities of the parents. Therefore, activities that engage parents academically could improve student performance.

7. Culture of Attendance

Attendance is not directly addressed in MSV reports, but both our quantitative and qualitative analysis indicates that it is an important component of a successful school. Our statistical analysis shows that a 1% increase in student attendance is associated with a 7.4 percentage point increase in the probability of a school being rated as a Level 1/2 school. This suggests that a strong culture of attendance is strongly associated with being a Level 1/2 school. Existing literature indicates the causal relationship of this finding: an increase in instructional time provided (Dobbie & Fryer 2011) and a decrease in student absences (Goodman 2014) are associated with significant increases in student achievement. The reason is that when individual students are absent, teachers must catch them up during class time individually, which takes away from whole group learning and hinders school-level performance (Goodman, 2014).

A mere 1% increase in student attendance is associated with a

7.4 point

increase in the probability of a school being high-performing.

Additionally, every Level 1/2 school interviewed tracks attendance and holds students and families accountable in some way. Daily phone calls are made to absent student homes, either by a staff member or through an automated system, at every school. Staff also indicated that they believed this is key to ensuring better student attendance. Many schools have additional incentive programs such as a rewards system for collective or individual attendance goals. In addition, Level 1/2 schools use family-centric attendance strategies to address chronic absenteeism, such as visits to the home and meetings with parents. Finally, many of the schools have one staff member in charge of tracking absenteeism data.

8. Monitoring Site Visit Rubrics

Observing and collating the findings above highlighted gaps in the MSV rubric. While the MSV rubric is not meant to provide operational support and instead only collect data on school turnaround progress, there are gaps in the types of data the rubric collects. When we analyzed the MSV reports with the collated set of best practices across high-performing schools, we identified gaps in the data collection process. Additional continuum points and rubric rows aligned to our recommendations will enable collection of more precise and helpful information about a school's progress.

VI. Recommendations

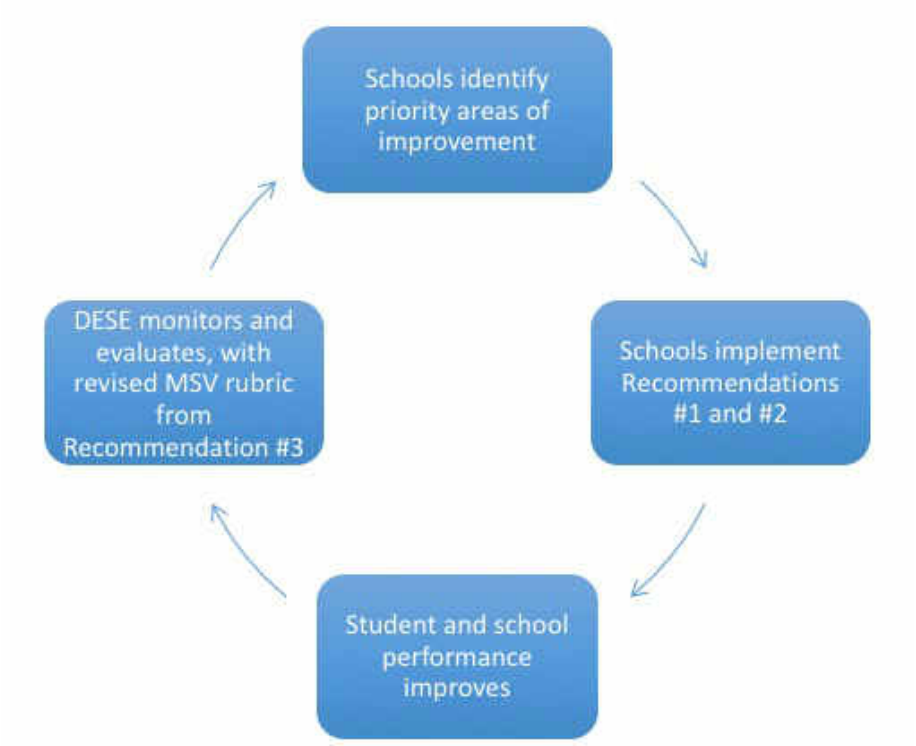
Based on our quantitative and qualitative analysis of school performance, we recommend schools serving at-risk student populations:

1. **Embed comprehensive and cohesive systems into daily school operations that focus on student performance; and,**
2. **Create strategies to cultivate a positive school culture.**

These recommendations and their sub-recommendations emerged from analysis of the findings described above and encapsulate the implementation of best practices by high-performing schools as compared with the practices of low-performing schools. As analysis of the MSV reports emphasize the difficulty low-performing schools have in operationalizing best practices, these recommendations are crafted as highly specific actions steps. Furthermore, while existing literature also identifies some of these best practices, this section aims to illustrate them with practical examples of how these have and can be implemented in elementary schools. All of our recommendations are summarized in Figure 1 on page four.

The third recommendation is aimed at enabling DESE to better support low-performing schools through their monitoring and evaluation process. This final recommendation to improve the Monitoring Site Visit rubrics will allow for better collection of data and improved support for the lowest performing schools on a statewide level. Together, the recommendations support schools in implementing best practices and allow DESE to monitor schools' progress in doing so. This alignment is described in Figure 3 below:

Figure 3: Alignment of School-Level and DESE Recommendations



Recommendation 1: Embed Comprehensive and Cohesive Systems

We recommend that schools develop and embed comprehensive and cohesive systems for data driven instruction, behavior management, and the provision of interventions and services. Our analysis shows that Level 1/2 and Level 4/5 schools do not differ greatly in the types of services or initiatives available, but Level 1/2 schools articulate and instigate coherent strategies in operationalizing these initiatives, and so provide consistent and comprehensive support. This recommendation therefore proposes that initiatives should not be implemented in silos or ad-hoc ways; rather, they should exist as part of a cohesive school-wide system.

1.1. Data Driven Instruction

1.1.1. Administer formative assessments multiple times per year and conduct weekly analysis of student data (at minimum). The notion of data driven instruction should not be limited to state assessments or summative assessments. Whether schools create their own formative assessments to use throughout the year, or rely on an outside source, collecting and analyzing student progress data frequently is a consistent characteristic of Level 1/2 schools. Weekly analysis can be focused on student work or involve using tools such as Wilson Literacy Training. In weekly collaboration meetings, which occur in most schools regardless of Level, teachers should look at student data during every meeting ideally with an instructional leader At some schools, teachers brought actual student work to each of these meetings. This increases the accountability of using data and the rigor with which it is evaluated. By using data on a more frequent and consistent basis, teachers are better equipped to manipulate lesson plans to student needs and bucket students into learning groups as their needs shift. Frequent and consistent use of data is especially important for at-risk populations that have specific and acute academic needs that can be targeted by teachers.

Implementation Example: VISUAL CUES AND MONITORING

At Warner Elementary in the teacher common room, there is a visual representation of every student's most recent test scores on a card with their photo. These photo cards are placed within proficiency categories on the walls of the staff room with the goal being that students will gradually improve throughout the year with each new formative assessment. This visual cue for teachers is a constant reminder of which students need assistance in which areas; and provides a concrete action aligned with their progress against data measures.

Testing data is also reviewed systematically after tests are completed. When a number of students get something incorrect, teachers reteach (or have another teacher reteach) these problematic areas in the following weeks.

At Viveiros in Fall River, teachers bring informal data (graded homework, short responses, exit tickets, etc.) to every collaboration meeting and instructional leadership meeting. They use this data to identify trends in student learning across classrooms and restructure their lessons accordingly.

1.2. Behavior Management

1.2.1. Implement consistent, positive school-wide behavior management structures that include clear points of contact and procedures for escalation. Many low-performing schools articulate a vision for behavior management but leave it up to teachers to design their own behavior standards for their own classrooms. Wide disparities between classroom strategies lead to inconsistent implementation of school-wide expectations, which can be confusing for students and lead to misbehavior. Thus, we recommend that schools design core behavior structures, uniform across all classrooms, while allowing teachers autonomy to supplement the school-wide structure with classroom-specific incentives. Examples of these core structures used by various Level 1/2 schools include buddy rooms, where students are sent to a partner teacher's classroom for a time-out, specific physical spaces for students to regroup even before behavioral issues arise, and visual representations of behavioral monitoring. For example, some schools have a color-coded system for students to monitor their own behavior as they progress throughout the day. These behavioral interventions follow a distinct escalation path from the classroom to the principal.

Implementation Example: ESCALATION LADDER

At one school, certain behaviors, such as talking back, would be dealt with inside the classroom. Another set of more detrimental misbehavior, such as a tantrum, would be dealt with by sending the student to a "buddy room" where the teacher is expecting them. Finally, students who consistently misbehave, or demonstrate more egregious behaviors such as endangering other students, are monitored by a school leader, who frequently checks in with them. Often times, these students will also take part in social skills workshops, work in a separate classroom as needed, and work with a school counselor to overcome behavioral issues.

Implementation Example: TIERED APPROACH; SINGLE POINT OF CONTACT

At the Sumner School, the Vice Principal has responsibility for the behavioral, as well as social and emotional, wellbeing of students. She conducts daily check-ins with students in the mornings, with an emphasis on positive reinforcement. She also keeps a list of students who struggle the most with behavior and checks in with them more frequently throughout the day. Her clear role allows students to access the Vice Principal when they were 'having an off day', or alternatively need some other form of non-academic support.

At Hyannis West Elementary, a tiered approach is consistently implemented across the school. The basis of the system is a positive intervention approach (facilitated by the *Responsive Classroom* method), in which students are frequently rewarded for good and kind behavior. In addition, recognition is given in assemblies for "random acts of kindness". As part of Tier 1, the expectations for behavior are made clear for all students. For instance, expectations for how to behave in the hallways are displayed in the corridors. Tier 2 involves identifying students who need more support and creating individual intervention plans as needed. For example, a student may have a daily "check-in" and "check-out" with a teacher who specifically asks them what they need to get through the day productively, and then follows-up throughout. In addition, the school counselor provides regular skills based workshops for students who struggle with particular social skills. Staff and community members also participate in mentoring students who need greater assistance, volunteering on a weekly basis to have a lunch or breakfast with the student. Tier 3 of the behavior system provides a separate classroom where students can go for more intensive counseling, tutoring, or other interventions.

1.2.2. Conduct reviews of discipline data consistently to evaluate management structure. We recommend that Level 4/5 schools review discipline data as part of grade-level team meetings. Our quantitative analysis suggests a strong association between the decrease in students disciplined and the probability of schools being a Level 1/2 school. Reviewing student-level data to understand the causes of disciplinary issues and assessing the trends in behavior management across the school may highlight clear areas where school-wide systems are consistently failing. This review should be used to inform changes to the behavior management structure and assess on-going opportunities for improvement of school-wide systems.

Implementation Example: A DAILY LOG

Hyannis West keeps a daily log of behavior incidents. When students are exited from a classroom, this absence is recorded in order to provide data on how much schooling is missed. More serious misdemeanors are reported in a district wide data system, and a counselor and principal review this data routinely.

Implementation Example: REVIEW OF DATA

Sumner School in Boston conducts twice-annual review of student discipline data to address the causes of disciplinary issues and to direct students to specific interventions based on their discipline profile. Students are referred to social-emotional or behavioral services based on those data. In addition, these reviews are used as an opportunity to address school-wide trends and develop appropriate systemic interventions that respond to these.

1.3. Wraparound Services

1.3.1. Create a system for referral, monitoring, and evaluation of wraparound services, ideally through one point of contact. Evidence from Massachusetts Wraparound Zones (WAZ) demonstrates a clear association between WAZ services and student achievement; however, the mere provision of services is not adequate. In WAZ schools, a cohesive system ensures that students are not receiving duplicate services and are being referred to the most appropriate service providers. In addition, schools can monitor the progress of each individual student receiving services and evaluate the outcomes of program participation. MSV reports indicate that teachers who are not trained to accurately identify student needs primarily handle referrals on a one-off basis, which can result in duplicative or inadequate service provision.

Schools should identify one point of contact, usually a counselor or vice principal, who handles all student or family participation in outside services. This person should be responsible for training teachers to identify student needs, handling all referrals, communicating with families and service-providers, and monitoring the outcomes of these services. They should act as a go-to resource for teachers who have questions or concerns and make regular contact with teachers to monitor and identify school-wide needs.

Implementation Example: A SYSTEM OF COORDINATION

At Viveiros in Fall River, a counselor receives all referrals from school staff and coordinates with all external agencies. Teachers are aware of the specific processes and requirements to refer students for services. The counselor is responsible for documenting and tracking referrals to an external service provider. Rather than just being an intermediary, the counselor follows up to evaluate the student's progress and liaises between the service provider, teachers, and families on whether those services are appropriate and have delivered the desired outcomes. If not, then changes are made.

1.4. Academic Interventions and Enrichment

1.4.1. Develop consistent opportunities for teachers to tutor all students with diverse needs. Addressing the diverse needs of students through varied and multi-tiered academic interventions ensures that schools are meeting every child's needs. Many low-preforming schools focus intervention efforts on targeted sub-groups, such as ELL or special education students, but do not have systems to identify specific needs across the entire student body. Schools should develop systems to identify individual students' needs – whether through data analysis or classroom observations – and establish tutoring groups and content based on this evaluation. In Level 1/2 schools, tutoring is viewed as most effective when provided by teachers, or as part of the responsibilities of specialty instructional leaders, rather than an outside and possibly free source. Additionally, Level 1/2 schools often provide tutoring in cycles that are aligned with units being taught and individual student needs. Therefore, if a student needs tutoring for writing but not reading comprehension, they attend these tutoring sessions when they are offered, rather than an ad-hoc range of services that may or may not be relevant.

Implementation Example: STUDENT CENTERED INTERVENTIONS

At the Belmont Street Community School, each student has an academic development plan, as well as a general intervention plan for both academic and non-academic services. Interventions may include additional reading practice with a teacher or additional study skills time, depending on the child's needs. These interventions are determined through data reviews and monitored consistently by grade-level teachers.

Implementation Example: ALIGNING TUTORING AND CURRICULUM

At Sumner in Boston, teachers tutor in six-week cycles and re-evaluate the tutoring groups based on data that is collected throughout the unit. These cycles are based on content, such as operations or writing, rather than student type, such as ELL or SPED. The tutoring offered is aligned with the curriculum being taught. In some cases, teachers also provide tutoring for high performing students in order to challenge or push them beyond the current classroom content. This ensures that all types of student needs are being met.

1.4.2. Develop partnerships with external providers to create opportunities for enrichment and learning. Many schools that do not have the financial or logistical capacity to provide enrichment services by teachers rely on external providers for such services. External partnerships can be developed with churches, sister schools, local community organizations, or universities to provide free or subsidized enrichment programs for students. Schools lacking resources should consider engaging in local partnerships to provide such opportunities.

Implementation Example: BUILD COMMUNITY PARTNERSHIPS

Hyannis West Elementary partners with a range of community services and organizations. For example, members of the Big Brother and Big Sister program attend the Parent Open House evening at the beginning of the year. Parents who feel that their children would benefit from the program provide permission for their child to be assigned a "big brother" or "big sister" to visit the student at lunch or after school. The school also welcomes 'interns' or volunteers from two different local high schools who become regular classroom visitors and are available to assist in reading to small groups or with organizational aspects of the classroom. The Local Rotary Club is also involved in the school and provides funds to support literacy programs and guest readers to different classrooms. In addition, the local Police Department provides an 'adoptive police officer' to regularly visit the school in order to demonstrate the positive role of the police in the community.

Recommendation 2: Create strategies to cultivate a positive school culture.

We recommend that schools cultivate a positive school culture through intentional and explicit strategies clearly linked to desired outcomes. Our analysis shows that positive school culture does not only impact student behavior and parent engagement, but also student attendance and teacher retention, both of which are empirically associated with improvements in overall school performance. While MSV reports often indicate a positive school culture in Level 4 schools, there is rarely a coherent or intentional plan linking various initiatives with desired outcomes, such as teacher satisfaction. Rather than simply implementing a litany of unaligned initiatives, schools must strategically evaluate how those initiatives lead to their desired outcomes. We therefore recommend that schools develop intentional strategies to strengthen school culture through: parent engagement, teacher training, culture, empowerment and vertical integration, and student attendance.

2.1. Teacher Training, Culture and Empowerment

2.1.1. Implement a gradual release training model. Teachers who struggle in the classroom can negatively affect culture and are likely not to be retained. Therefore, a strong teacher-training model can directly promote a positive culture. Because MSV data reveals that classroom observations for Level 4 schools are in the mid to low range on their rubric, a gradual release model could ensure that the low-range teachers improve more quickly than they otherwise might. Level 1/2 schools often use a gradual release training model for struggling or new teachers. The schools we interviewed generally use a 6 to 8 week cycle depending on how much support the teacher needs. The model teaching lasts around two weeks, the co-teaching model lasts around two or three weeks and then the observation phase lasts as long as necessary and tapers off gradually. Based on observation data, these time frames should be adjusted as required for individual teachers.

Implementation Example: GRADUAL RELEASE MODEL

At Viveiros in Fall River, teachers are paired with an instructional leader who model teaches the first few weeks of lessons. Then, they transition to a co-teaching model, and finally, they shift to a single lead teacher classroom with observation feedback cycles. Check-ins and debriefs are included throughout the entire cycle to ensure teachers are learning from the process. After 6-8 weeks, the instructional team looks at student data to decide which teachers need additional support through this model.

2.1.2. Structure and evaluate collaboration time to increase productivity and effectiveness. Scheduling collaboration time is not an issue for most Level 4/5 schools; however, ensuring that this time is used effectively can be a challenge. In general, the principal or instructional leaders in Level 1/2 schools provide a structure for these meetings and guidance on how the time should be used. Then, an instructional leader or coach runs the meetings. School leaders also consistently evaluate this structure by sitting in on meetings to ensure it is effective and productive. As a result, using this time effectively not only improves student outcomes, but leads to more satisfied teachers as well.

Implementation Example: STRUCTURING COLLABORATIVE TIME

While various models are possible, one potential schedule for collaboration time would see the first 10 minutes devoted to student-level data analysis. The next 20 minutes devoted to trends in learning across classrooms, and the final 20 minutes provided for teachers to pair off, revamp and get peer feedback on their lesson plans for the coming week.

Implementation Example: EVALUATING EFFECTIVENESS

At Viveiros in Fall River, a school leader sits in on meetings each week to evaluate their progress and efficiency. This is usually the English Language Arts instructional leader, Math leader, or principal. They do not use a specific rubric to evaluate these meetings, but these observations allow them to intervene and provide feedback should staff members need it. Sometimes they will lead the meeting to model how collaboration time should be run. All of these collaboration meetings include student-level data analysis, which teachers collect informally throughout the week and bring with them to every meeting.

2.1.3. Empower teachers with autonomy and flexibility through frequent communication with school leaders. Many Level 1/2 schools develop strategies and systems to empower teachers and give them a voice. Providing teachers with this greater influence and autonomy can encourage them to stay at the school. School leaders empower teachers by allowing them to make key decisions regarding aspects of teaching such as intervention plans, parent engagement strategies, or classroom-level reward systems. Furthermore, these schools develop consistent systems for communication between teachers and school leaders to analyze teacher observation data and provide feedback.

Implementation Example: EMPOWERING TEACHERS IN THEIR CLASSROOMS

At Carlton Viveiros, teachers are given the autonomy to design their own specials curriculum, teaching students specialty electives based on their own interests.

At the Newton School in Greenfield and the Warner School in Springfield, teachers are given the flexibility to design their own teaching schedules and work alongside school administration to design intervention schedules that meet their students' specific needs.

Furthermore, the entire district at Springfield Public Schools complete Organizational Health Inventory (OHI) surveys, which are used for teachers to assess school culture and communication with school leaders.

2.1.4. Dedicate specific planning time to 'vertical' meetings, particularly at the end and beginning of the academic year. Many schools focus collaborative time on grade-level team meetings but provide few opportunities for collaboration between grade-levels teaching teams. In order to ensure that all teachers can most effectively address a child's needs – both academic and social-emotional –, vertical integration and communication between grade-levels is imperative. At these meetings, teachers should inform the student's next teacher of specific student needs and ensure the continuation of services and interventions.

Vertical integration time should also be used to allow for best practice sharing. Providing teachers with the opportunity to learn from other more experienced teachers, particularly where teachers may have taught the same students or curriculum previously, can be of great value. In various Level 1/2 schools, there is evidence of consistent and on-going meetings across staff groups that allow teachers to solicit help with particular students and subject matters. Given the high-needs of at-risk populations, having extra insights into particular strategies for dealing with a specific child's needs may be of significant value.

2.2. Parent Engagement

2.2.1. Dedicate specific resources and planning efforts to foster consistent opportunities for parental engagement. Where possible, designate specific responsibilities for parental engagement to one or two staff members to provide schools the ability to plan and execute parental engagement in more consistent and strategic ways. Create predictable patterns of parental engagement to enhance parental responsibility, signal high expectations for learning, and deter non-attendance. Level 1/2 implementing these strategies did so across a variety of forums, including through their parent teacher councils (or equivalents) as well as a program of activities and engagements throughout the year.

Implementation Example: STRATEGIC ENGAGEMENT AND ACHIEVEABLE GOALS

At Sumner Elementary, the principal hired a parent who was also a para-teacher already staffed at the school to take responsibility for engaging and improving the parent council. She was also bilingual which greatly helped with communication. The priority was to diversify the parent council with more Hispanic and Black parents. Now, the goal is to engage parents more in the classroom. This involves inviting parents to school to work on projects with their children or shadow them in the classroom. To start this initiative, the principal has assigned two teachers in the second grade to pilot the program. Once they have created a fluid system for parent engagement in the classroom, they will roll up to the other grades. Overall, setting short-term goals with one or two coordinators for parent engagement has worked well for Sumner.

2.2.2. Focus engagement opportunities with parents on academic, as well as social or recognition-based, events. Many Level 4/5 schools mention award ceremonies or social gatherings for parents. However, it is just as important though that parents are involved with the academic aspects of school as well. This will better equip them with content knowledge and an understanding of learning processes to support their child at home. Many Level 1/2 schools do this by scheduling events such as "Science Fairs" or "Math Nights" or an interactive event based around a unit being taught in the curriculum. These become opportunities for students and their parents to engage with academically relevant material and share in the learning process together within the school environment. High-performing schools also welcomed parent involvement in the everyday functioning of a classroom, particularly if a student was struggling. Some schools formally extend this invitation, but most emphasize that parents are welcome to observe and participate in the daily running of the classroom at any time. Social or recognition based events also still take place and usually include some sort of information or resource sharing.

Implementation Example: CATERING FOR ACADEMIC AND SOCIAL ENGAGEMENT

In one school, classroom teachers invited parents twice a year to 'shadow' students for a school day to see daily classroom practices. Classroom teachers also sent home projects with students that are intentionally tailored for parent collaboration.

To engage parents socially, a school leader invites them to a 'Muffins for Moms' or 'Donuts for Dads' breakfast where they can socialize with each other and receive resources or information about school processes such as behavior expectations.

2.3. Culture of Attendance

2.3.1. Create a family-centered system for addressing chronic absenteeism. To address chronic absenteeism, Level 1/2 schools dig deeply into what the root cause of such absenteeism could be. Is it transportation? Mistrust of school? Parent's schedules? Level 1/2 schools create a profile for each child who is chronically absent and communicate with families consistently to identify and solve the problem.

Implementation Example: A MULTI-PRONGED APPROACH FOR COMBATTING ABSETEEISM

At Hyannis West Elementary, they have implemented a number of approaches to deal with absenteeism, and, in particular, with chronic absenteeism. Firstly, they have moved from a system of rewarding students on a yearly basis for perfect attendance, to providing more regular opportunities for recognition of perfect attendance and punctuality, including through monthly student assemblies, and posting student names in a bi-monthly newsletter to families. In addition, the school has increased provision of breakfast in the classrooms in the morning to try to encourage students to come on time to school.
The school counsellor sends letters home after 5, 7 and 10 days of absence. When a student has been absent for 10 days, the family is called in for a meeting, in order to determine the cause of the absence and develop solutions, such as transportation needs for example. A representative from the Local District Attorney's office is also invited to the meeting, not as a punitive measure, but rather as a way of widening the range of solutions available.

2.3.2. Develop a system to support daily phone calls in cases of student absence. This practice is widely implemented among Level 1/2 schools and considered imperative to maintaining high attendance. Interviews indicated that for high-needs populations where students face transient circumstances and lack consistent transportation to school, high expectations and accountability are essential for motivating consistent attendance and overcoming external barriers.

Implementation Example: A DAILY CALL SYSTEM

All schools interviewed had implemented a daily call system in some way. In some schools this task was performed by the school nurse, and in others a dedicated parent liaison communicated on a daily basis with absent students' families. In other cases, such as across Boston Public Schools, the district had implemented an automated call system, however, it was noted that the purpose of this was a safety measure first and foremost.

Recommendation 3: Improve Monitoring Site Visit Rubric

Our final recommendation focuses on specific changes DESE can make to the MSV rubric. These recommendations are based on gaps identified in the quantitative and qualitative analysis of data from Level 1/2 schools and the evaluation of Level 4/5 schools. While this is not part of our original research question for what schools can do, it is in line with the over-arching goal of improving support for low performing schools. By collecting better data in the MSV rubric, we believe DESE will be able to better identify school-level gaps and respond accordingly.

3.1. Add Additional Continuum Points to Portions of MSV Rubric

3.1.1. Indicator 1.5: Instructional Leadership and Improvement. The current continuum points included in a "Sustaining" ranking are weekly or daily observations, timely and actionable feedback, and data collection to monitor progress. DESE should consider including a gradual release model for new or struggling teachers in order to increase implementation of instructional best practices. Level 1/2 schools consistently cite the gradual release model as highly effective for improving teacher quality in every classroom.

> **SAMPLE LANGUAGE (SUSTAINING):** Struggling or new teachers are paired with an instructional leader for a six-week gradual release model.

3.1.2: Indicator 2.2: Instructional Schedule: The current continuum points included in a "Sustaining" ranking describe collaboration "across grade-levels and content areas". DESE should consider including language around vertical integration so that collaboration time *between grade-levels* is also measured and reviewed. Based on our interviews, at minimum once per year, teachers should collaborate with teachers from other grades and/or mentor teachers to discuss particular students and learn from one another about implementation of best practices and coverage of specific curriculum.

> **SAMPLE LANGUAGE (SUSTAINING):** At least once per year, teachers between grade-levels meet to discuss individual student needs and best practices.

3.1.3 Indicator 2.5: Student Assessment Data Use. The current continuum points included in a "Sustaining" ranking describe "consistent" use of benchmarks, common assessments and state assessments. DESE should consider including language around frequency and variety of data collected. In our interviews, teachers from Level 1/2 schools describe using both informal data daily or weekly and formal data at the end of each unit. We recommend teachers collect formal data after each unit and informal data on a weekly basis. This data should be used to adjust upcoming units and lessons based on student misunderstanding.

> **SAMPLE LANGUAGE (SUSTAINING):** Teachers analyze informal data weekly and formal data at the end of each unit to inform their instruction immediately for the next week or unit.

3.1.4: Indicator 2.6: Teacher Progress Assessment Practices. Most Level 4/5 schools are aware that they should analyze student data to inform instruction. One primary difference between Level 4/5 schools and Level 1/2 schools is the frequency with which teachers analyze student data collaboratively as a team. At Level 1/2 schools, teachers analyze data collaboratively at least weekly. The current "Sustaining" language says teachers work "individually and collaboratively" to determine student progress. This does not include language around frequency. We suggest data analysis occur weekly in collaboration meetings, even if only with informal data, which is especially helpful for struggling teachers.

SAMPLE LANGUAGE (SUSTAINING): Teachers bring student data to weekly collaboration meetings for analysis as a team.

3.1.5: Indicator 4.1: School Wide Behavior Plan: Most schools seem to have a school wide behavior plan of some sort, regardless of Level. Currently, the "Sustaining" rating states that the plan should be implemented by a "majority" of the staff and subsequently monitored by school leadership. The Level 1/2 schools we spoke with had behavior plans that included a ladder of escalation for student behavior and a single point of contact for students who struggle the most with behavioral issues. We suggest including more description of what this plan should look like in the MSV report. We also believe that "majority" should be changed to "all" to avoid gaps in consistency between classrooms.

SAMPLE LANGUAGE (SUSTAINING): Schools implement a school wide behavior plan that includes a) a clear ladder of escalation from classroom to principal for student behavior and b) a single point of contact for students who struggle the most with behavioral issues. All teachers and leaders, including part-time and specials teachers, implement this plan consistently.

3.2. Add Additional Indicators for Attendance Strategies

Higher attendance rates are correlated with an increase in the probability of being a Level 1/2 school. Our interviews with Level 1/2 schools also reveal the importance of a family-centric approach to attendance accountability that includes student profiles and home visits for the chronically absent. In addition, daily phone calls are consistently a best practice across Level 1/2 schools as an accountability and information gathering mechanism. This should be a new rubric row under turnaround practice four.

SAMPLE LANGUAGE (SUSTAINING): Absent students' families are called daily; chronically absent students are given a profile and receive a home visit once they have missed 10 school days.

Framework for Implementation

In order to support implementation these recommendations, we developed the following questions for schools to assess their needs and next steps. Since schools vary in existing capacity and need, we believe that individual school leadership teams are best placed to determine a particular and specific plan. Schools should assess their own capacity and needs to identify priority areas to focus on, and develop a timeline for implementing the recommendations outlined above. To that end, we recommend that schools ask themselves the following reflection questions to analyze their strengths and weaknesses. We recommend that schools first focus on ***impact*** to identify the initiatives that will produce the greatest gains for their teacher and student populations. Following this, we recommend that schools analyze the ***feasibility*** of implementing those initiatives given their resources, the school's existing capacity, as well as district-level constraints. School leaders should prioritize initiatives that have the highest impact, and those that are easiest to implement given their current situation.

We recommend that school leaders use this framework to guide discussion with their staff, parents, and students to strategically develop a unique implementation plan that accurately reflects their needs and capabilities. Many high-performing schools indicated that they found it ineffective to attempt all the reforms they desired at once; instead, they focused on one or two key priorities, and then used those as a foundation to build up other reforms and initiatives. This set of reflection questions allows schools to identify their priorities and develop a sequence for action.

After schools identify their priority initiatives, they can refer to Appendix VII, a summary of the recommendations are divided amongst the key stakeholders that principals need to partner with, in order to achieve desired results. There are separate summaries for school leadership, teachers, and the counseling department based on which stakeholders we believe are most closely aligned for implementing each recommendation. Principals can use this guide to consider the stakeholders they need to engage with in order to achieve each of these priorities.

Reflection Questions for IMPACT

1. According to school improvement and Monitoring Site Visit reports, which indicators and areas require improvement? Focus on indicators in which the school is rated below "Sustaining."
2. Which areas reflect the specific needs of your student population. Compare your demographic, academic, attendance and discipline data to national, state and district norms to identify areas that fall below expectations.
3. Which areas do your staff believe can produce the highest impact? Surveys and conversations with staff members are essential in gaining the perspective of those that understand the specific context of your school and students.

Reflection Questions for FEASIBILITY

1. In which areas are there already existing human capital that support full implementation? For example, instructional coaches to implement teacher training and data-driven instruction, or counselors to implement wraparound services.
2. In which areas are there already existing financial and infrastructural resources that can support implementation? For example, focus on initiatives for which funding, physical space and technology is already available.
3. Which initiatives would receive the most staff buy-in and support? Focus on initiatives for which you can receive the most staff buy-in and support.
4. Which areas would add the least amount of additional staff time in addition to their existing responsibilities? Focus on initiatives that require the least amount of added staff time.
5. Which initiatives would require the most coordination of stakeholders and resources? Focus on implementing those that require the least amount of initial coordination, to prioritize "easy wins."

VII. Conclusion

This report outlines two major recommendations aimed at improving the *systems* and *culture* of low-performing schools and one additional recommendation for improving the MSV rubrics in evaluating these schools. Within these two areas of systems and culture, we have highlighted specific sub-recommendations for school leaders and provided examples of how these best practices can be operationalized at the school-level. Specifically, we recommend low-performing schools focus on building systems to support data driven instruction, behavior management, wraparound services, and tutoring and enrichment. We recommend that these schools also focus on intentionally fostering a strong and positive culture in the areas of teacher communication and empowerment, parent engagement and attendance.

Based on interviews with high performing principals who have turned around schools themselves, it is not recommended that all best practices are implemented at once; instead they should be implemented in a sequence the school leader believes best suits their school. In Appendix VII we have provided additional guidance for school leaders to use when beginning the implementation process that will enable them to determine which stakeholders they should partner with to implement specific aspects of these recommendations.

In education, there is general consensus on turnaround best practices. This is apparent in the indicators included on the MSV rubrics and in the turnaround best practices documents used by DESE. However, where minimal gaps have been identified in the MSV rubrics, our third recommendation seeks to address these. While the specifics of this third recommendation do not directly respond to the initial research question asked, we believe that strengthening the monitoring and evaluation processes of schools, to ensure all best practices are captured in DESE's review of schools is imperative to providing optimal support and feedback.

While consensus may exist on *what* best practices are, there is little available detailing what *implementation* should look like, especially in schools serving high-risk children. Through lengthy interviews with school leaders and teachers, we focused on identification of trends in implementation. In this document, we have provided details on how to concretely operationalize these potentially vague notions of improving systems and culture. Coupled with vivid examples on the school-level, this document seeks to adds additional value to the existing literature by highlighting *how* low performing schools can better service at risk students.

The reality in Massachusetts, however, is that poverty and race are inextricably tied to school performance of most public schools. Schools with high levels of poverty and minority enrollment are still more likely than not to be under-performing, and the realities of poverty continue to bring obstacles to student learning, both in and out of school. While we believe our recommendations will produce significant improvements in school performance, our children need much more. The realities of poverty and race cannot be solely addressed by education reform; it requires a comprehensive understanding of the types of poverty and the diverse challenges faced by our students and families.

Appendix I: References

Abdulkadiroglu, Atila; Angrist, Joshua; Dynarski, Susan; Kane, Thomas and Pathak, Parag (2011). Accountability and Flexibility in Public Schools: Evidence from Boston's Charters and Pilots. The Quarterly Journal of Economics 126:2, 699-748.
Barrera-Osorio, Felipe; Bertrand, Marianne; Linden, Leigh and Perez-Calle, Francisco (2011). Improving the Design of Conditional Transfer Programs: Evidence from a Randomized Education Experiment in Colombia. American Economic Journal: Applied Economics 3:2 167-195.
Bettinger, Eric P., Bridget Terry Long, Philip Oreopoulos, and Lisa Sanbonmatsu (2012). The Role of Application Assistance and Information in College Decisions: Results from the H&R Block FAFSA Experiment. The Quarterly Journal of Economics 127:3, 1205-1242.
Bryk, A.S., Bender Sebring, P., Allensworth, E., Luppescu, S. and Easton, J.Q. (2010). "The Influence of Community Context." In A.S. Bryk, P. Sebring Bender, E. Allensworth, S. Luppescu and J.Q. Easton (Eds.), Organizing Schools for Improvement: Lessons from Chicago (pp. 137-196). Chicago, IL: University of Chicago Press.
Chakrabarti, Rajashri (2014). Incentives and Responses Under No Child Left Behind: Credible Threats and The Role of Competition. Journal of Public Economics 110: 124-146.
Chetty, Raj, Friedman, John and Jonah Rockoff (2014). Measuring the Impacts of Teachers II: Teacher Value-Added and Student Outcomes in Adulthood. American Economic Review 104:9, 2633–2679.
Deming, David (2009). Early Childhood Intervention and Life-Cycle Skill Development: Evidence from Head Start. American Economic Journal: Applied Economics 1:3, 111-134.
Duflo, Esther; Hanna, Rema and Ryan, Stephen (2012). Incentives Work: Getting Teachers to Come to School. American Economic Review 102:4, 1241-78.
Fairlie, Robert and Robinson, Jonathan (2013). Experimental Evidence on the Effects of Home Computers on Academic Achievement among Schoolchildren. American Economic Journal: Applied Economics 5:3, 211-40.
Figlio, David and Hart, Cassandra (2014). Competitive Effects of Means-Tested School Vouchers.American Economic Journal: Applied Economics 6:1, 133-156.
Fredriksson, Peter; Ockert, Bjorn; and Oosterbeek, Hessel (2013). Long-Term Effects of Class Size. The Quarterly Journal of Economics 128:1, 249-285.
Fryer Jr., Roland (2011). Financial Incentives and Student Achievement: Evidence from Randomized Trials. The Quarterly Journal of Economics 126:4, 1755-1798.
Goodman, Joshua (2012). The Labor of Division: Returns to Compulsory Math Coursework. HKS Faculty Research Working Paper Series 12-032.
Goodman, Joshua (2014). Flaking Out: Student Absences and Snow Days as Disruptions of Instructional Time. NBER Working Paper 20221.
Jackson, Kirabo C., Johnson, Rucker and Persico, Claudia (2014). The Effect of School Finance Reforms on the Distribution of Spending, Academic Achievement, and Adult Outcomes. NBER Working Paper 20118.
Kuhn, Peter and Weinberger, Catherine (2005). Leadership Skills and Wages. Journal of Labor Economics 23:3, 395-436.
Kuhn, Peter and Weinberger, Catherine (2005). Leadership Skills and Wages. Journal of Labor Economics. 23:3, 395-436.
Marsh, Julie A., John F. Pane and Laura S. Hamilton. Making Sense of Data-Driven Decision Making in Education: Evidence from Recent RAND Research. Santa Monica, CA: RAND Corporation, 2006. http://www.rand.org/pubs/occasional_papers/OP170.html.
Nancy Frey and Douglas Fisher, "Better Learning through Structured Teaching: A Framework for the

Gradual Release of Responsibility," Association for Supervision and Curriculum Development, http://eric.ed.gov/?id=ED509133.

Roland G. Fryer J. Injecting Charter School Best Practices into Traditional Public Schools: Evidence From Field Experiments* Quarterly Journal of Economics (2014). 2014;129(3):1355-1407. 2014_injecting_charter_school_best_practices_into_traditional_public_schools.pdf

Shen, J. (1997). Teacher retention and attrition in public schools: Evidence from SASS91. The Journal of Educational Research, 91(2), 81. Retrieved from http://search.proquest.com.ezp-prod1.hul.harvard.edu/docview/204546375?accountid=11311

Sugai, George and Robert R. Horner. "A Promising Approach for Expanding and Sustaining School-Wide Positive Behavior Support." School Psychology Review35, no. 2 (06, 2006): 245-259. http://search.proquest.com.ezp-prod1.hul.harvard.edu/docview/219656206?accountid=11311

Appendix II: Detailed Literature Review

This Appendix includes detailed summaries and analyses of literature relevant to this study. These detailed literature reviews are summarized in Section IV of the report.

1 - Systems and Structures in Schools

Studies on the impact of systems and structures in schools focus on the allocation of resources, the development of programs, and external partnerships. First, studies on the impact of resource allocation in schools show varying effects on student outcomes. First, an increase in instructional time provided (Dobbie & Fryer 2011) and a decrease in student absences (Goodman 2014) are associated with significant increases in student achievement. Second, a decrease in class size is also associated with increases in both cognitive and non-cognitive outcomes (Fredriksson et al., 2013), measured by comparing students above and below a particular threshold for class size. Furthermore, a study conducted by Fryer to inject charter school practices in traditional public schools also showed that by improving human capital (and removing ineffective teachers and administrators), providing additional tutoring interventions based on data and using data to drive instruction is associated with closing the math achievement gap in only three years. Finally, a study conducted in Chicago Public Schools by Bryk demonstrated an association between outside factors, such as collective efficacy of the community, the availability of outside connections, and various community factors such as crime rate and percentage of students neglected or abused with improvements both in student outcomes and student attendance. This suggests that student achievement (and thus, school performance) is not only a result of actions and activities within a school, but that within the community external to the school.

Furthermore, studies on returns to schooling and school programming demonstrate that there are factors that may not be captured in our analysis. For instance, a study conducted examining the Head Start program shows its effects on low income students who go on to elementary school. Participation in programs like this is not evidenced in our data, so this may present a confounding factor. Moreover, this study highlighted significant other variables, including measures of a mother's intellectual abilities, which increased the ability of students to maintain increases in test scores for example. The longer-term impacts of returns to pre-Kindergarten and early education programs may be a systematic factor across the State of Massachusetts, that can not be adequately addressed or accounted for within the boundaries of the present study.

Financial resources

The Effect of School Finance Reforms on the Distribution of Spending, Academic Achievement, and Adult Outcomes. C. Kirabo Jackson, Rucker Johnson, Claudia Persico.

Summary: This study examined the effect of school finance reform initiatives meant to decrease the spending gap between high and low-income school districts. It examined four types of school finance reforms: adequacy-based court-ordered reforms (based on argument that resources for low-income districts were insufficient), equity-based court-ordered reforms (based on argument that resources between high and low-income districts were inequitable), reforms that entail high tax prices (such as spending limits), and reforms that entail low tax prices (incentives to increase local taxes). It used panel data

to examine the effects of these reforms on school spending for both high and low-income districts. Finally, it also examined the effects of higher spending resulting from these reforms, and how they impact high school graduation rates and adult outcomes.

Conclusion: This study found that while all reforms reduced inequality in spending, they differed in practical impacts. Adequacy-based court-ordered reforms increased overall spending for all schools, while equity-based court-ordered reforms had little effect on overall spending levels. The study showed that while equity-based cases reduced inequality by around $800 per student, it also decreased the absolute level of spending by around $500 per pupil. On the other hand, in adequacy-based cases, the gap only decreased by around $400 per student, but the absolute level of spending increased by over $1,000 for low-income districts. Furthermore, reforms that entailed high tax prices reduced long-run spending by all districts, while those that entailed low tax prices increased spending growth, especially for low-income districts. Spending limit policies, for example, did reduce inequality, but it decreased low-income district spending by almost $900 per student in years 10-20. Reward-for-effort matching grants, however, increased overall spending by around $100 per student, with greater increases for lower-income districts. The study further found that a 20% increase in per-pupil spending per year for all 12 years of schooling led to a 0.9 more completed years of education, 25% higher earnings, and a 20 percentage point decrease in adult poverty.

Relevance to PAE: These results are somewhat relevant, as an examination of Massachusetts' school finance reforms, and the subsequent trends in district spending, could explain

Instructional time & student absences

Dobbie, W. and R. G. Fryer (2011). Getting beneath the veil of effective schools: Evidence from New York City. Working Paper 17632, National Bureau of Economic Research.

Hoxby, C. M. and S. Murarka (2009). Charter schools in New York City: Who enrolls and how they affect their students' achievement. Working Paper 14852, National Bureau of Economic Research.

Most academic studies of instructional time argue that increased instructional time and longer school days contribute to improved student outcomes. Hoxby and Muraka (2009) argue that a longer school year has a significant effect on student achievement (each school day increase is associated with a 0.02 standard deviation increase in student achievement). This finding is further substantiated by studies by Dobbie and Fryer (2011).

Flaking Out: Student Absences and Snow Days as Disruptions of Instructional Time. Joshua Goodman.

Summary: This study uses student and school fixed effects, as well as instrumental variables, to examine the effect of student absences and school closures on student achievement. The study relies on the assumption that moderate snowfall leads to student absences, while heavy snowfall leads to school closures.

Conclusion: This study showed that student absences are associated with decreases in student achievement, while entire school closures do not impact student outcomes. It found that each additional absence was associated with a 0.05 standard deviation decrease

in math achievement, but that there was no significant impact from each additional day of closure. The study explains that this is consistent with teaching practices where coordinated disruptions such as school closures are well-managed, but are difficult to adapt to situations where individual students are absent and cause specific disruptions. This is because on days where students are all absent, teachers can adjust instruction to recover missed days, but on days where individual students are absent, they are likely to miss the material already covered.

Relevance to PAE: This is highly relevant to our PAE, as student absences could likely be a key factor in determining student performance. The more days students are at school, the more instruction they receive. We would be interested in studying student absence data across Massachusetts, and examine whether Level 1/2 and 4/5 schools serving similar demographics have similar attendance characteristics.

Teacher quality

Measuring the Impacts of Teachers I: Measuring Bias in Teacher Value-Added Estimates. Chetty, Friedman and Rockoff.
AND
Measuring the Impacts of Teachers II: Teacher Value-Added and Student Outcomes in Adulthood. Chetty, Friedman and Rockoff.

This study is **not relevant** to our PAE, as it addresses adult outcomes, and not immediate student achievement.

Curriculum

Goodman, Joshua (2012). The Labor of Division: Returns to Compulsory Math Coursework. HKS Faculty Research Working Paper Series 12-032.

This is **not relevant** to our PAE as it measures the impact of state-level curriculum requirements. Since we are studying differential impacts within Massachusetts, the findings of this study are not relevant to our scope.

Class Size

Fredriksson, Peter; Ockert, Bjorn; and Oosterbeek, Hessel (2013). Long-Term Effects of Class Size. The Quarterly Journal of Economics 128:1, 249-285.

Summary: This study uses a regression discontinuity and IV design to examine the effects of class sizes between the ages of 10-13 for students in Sweden on their achievement at ages 13, 16 and 18. It further examines long term effects such as educational attainment, wages and earnings between the ages of 27-42.

Conclusion: The study finds that smaller class sizes between the ages of 10-13 are beneficial for both cognitive and noncognitive outcomes at age 13, and for academic achievement at age 16. It finds that classes above the class size threshold are associated with a statistically significant 0.033 standard deviation decrease in cognitive achievement at age 13, a .0265 standard deviation decrease in non-cognitive achievement at age 13, and a decrease of 0.0233 standard deviations in academic achievement at age 16.

Relevance to PAE: This study suggests, particularly for the age group we are studying, that class size does affect student achievement. While this study was done in Sweden and holds less external validity for the United States, the demographic characteristics of both countries are similar enough that these findings could be extrapolated to an American context. We will therefore attempt to focus on class size as a possible variable and determinant of school performance.

Technology

Fairlie, Robert and Robinson, Jonathan (2013). Experimental Evidence on the Effects of Home Computers on Academic Achievement among Schoolchildren. American Economic Journal: Applied Economics 5:3, 211-40.

Summary: This study randomly selected students from 5 California school districts that did not previously have computer access at home, and studied changes in performance before and after computers were given to them. Computers were provided during the second quarter of the school year; thus first quarter data was used as pre-treatment results, and third/fourth quarter data were used as post-treatment results. The effects of computer access were then measured against students' outcomes on tests, attendance, discipline, and surveys on effort.

Conclusion: This study found that there is no significant effect, and in many cases, no effect at all, of computer access at home on student outcomes. Furthermore, students even report that having a computer at home does not increase the likelihood that they will use it for word processing or research. It further does not have any effect on academic outcomes.

This study is **not relevant** to our PAE as it addresses the effect of home computers, which out of the scope of our study. Our study only studies district and school practices within their control; the provision of home computers is not, and therefore is outside the scope of this study.

Returns to Schooling

Deming David (2009) Early Childhood Intervention and Life-Cycle Skill Development: Evidence from Head Start American Economic Journal: Applied Economics

Summary: This study examines the long-term impact of Head Start, a nationwide preschool program for poor children. Using data from the National Longitudinal Survey of Youth, the author compares siblings who differed in participation in the program. He finds that there are moderate to large long-term impacts, in terms of closing the gap between children with median and bottom quartile family incomes, which is comparable to other model programs.

Details of the Study: The data used was from the National Longitudinal Mother-Child Supplement, tracking participants from 1984 to 1990. The within-family differences model, and control for other variants such as maternal work history or child care arrangements.

Findings: The long-term impact of Head Start is about 0.23 standard deviations on a summary index of young adult outcomes, with larger impacts for relatively disadvantaged children. This is around one-third of the gap between the bottom permanent income

quartile and the median in the CNLSY sample; it is 80% as large as gains from "model" preschool programs. Results are robust to various alterations to the study design.

The study comments that while test scores are commonly used benchmarks, the links between these and adult outcomes is not well understood. The study therefore also shed light on life-cycle benefits of early-skill formation. The study shows that an initial test score gain, at ages 5-6 years, fades out by 11-14, and this is particularly so with African American and very disadvantaged children. However, these children experience the largest long-term benefits.

The study highlights the fade-out effects on test scores for students whose mothers had low AFQT scores. For children whose mothers scored one standard deviation below the average on a cognitive test score, the long-term effect of Head Start is 0.28 standard deviations, and yet their net test score gain is essentially zero. Thus, a projection of future benefits for these children based solely on test score gains would greatly understate the impact of the program.

Relevance: This study may be particularly relevant in highlighting confounding factors in terms of which schools have higher test scores or more successful overall outcomes despite demographics. Participation in head start by a significant portion of the student population may be an important factor that we should acknowledge would be ideal to control for. In addition, it also shows the importance of other factors not captured by our data, such as the intelligence of the mother, in terms of student success and ability to retain benefits from learning.

Card David (1993) Using Geographic Variation in College Proximity to Estimate the Return to Schooling, Princeton University

This study is not relevant to our PAE in so far as it is examining the causal effect of school on later income and earnings in life. By providing evidence that education does have a positive impact on the earnings of males it grounds the case for the importance of education, but this does seem as relevant.

Other:

Gelber, Isen, Kessler (2014) The Effects of Youth Employment: Evidence from New York City Summer Youth Employment Program Lotteries. National Bureau of Economic Research

Summary: **Not relevant** to our PAE as it analyzes the effects of employment program; not in the scope of improving education outcomes.

2 – Human Capital

Studies on human capital focus on teacher incentives and teacher development. On the teacher level, performance pay is a type of incentive that is highly debated. Washington D.C.'s city-wide IMPACT system, a robust teacher evaluation system coupled with performance pay, has been found to increase the performance of low performing and high performing teachers as well as encourage strong teachers to remain in the schools (Dee, 2015). While a performance pay system is up to the state or district level to implement, certain characteristics of such a teacher evaluation system could be implemented in

individual schools. For example, the teacher evaluation system in Washington D.C. includes frequent observation and feedback on classroom best practices.

In terms of staff culture, a study (Shen 1997) also demonstrated associations between four key elements with increased teacher retention. Those include: 1) hiring more experienced teachers; 2) increase teacher salaries; 3) emphasize the intrinsic merits of teaching; and 4) empowering teachers in influencing school decisions and policies.

Teacher/Leader Autonomy

Abdulkadiroglu, Atila; Angrist, Joshua; Dynarski, Susan; Kane, Thomas and Pathak, Parag (2011). Accountability and Flexibility in Public Schools: Evidence from Boston's Charters and Pilots. The Quarterly Journal of Economics 126:2, 699-748.

Summary: This paper is focused on the differences in student achievement between charter schools versus pilot schools. Charter schools are autonomous entities that are not bound by union contracts. Pilot schools are innovation schools that are still bound to union contracts. This affects compensation, hours, expectations, etc. This does not necessarily fit nicely into an "incentive" category per se, but could speak to the benefits of autonomy of both leaders and teachers. In that way, autonomy then becomes an incentive - you relinquish union bound contracts and security for more autonomy and flexibility.

Relevance to PAE: We could argue for more autonomy in these schools for principals and teachers, and also longer school days, but that is slightly a stretch here. It is difficult to know how much autonomy each charter provides etc, but the length of student school day is absolutely relevant.

Duflo, Esther; Hanna, Rema and Ryan, Stephen (2012). Incentives Work: Getting Teachers to Come to School. American Economic Review 102:4, 1241-78.

Summary: Teacher absenteeism in India, and many developing countries, is a large issue. To address this, this study monitored and compensated teachers from increased attendance at school. They monitored via cameras and compensated financially. This was a randomized control trial. The teachers treated though are in non-traditional schools who are not part of the politically active teacher's group. They are para-teachers instead, and the schools are run by nonprofit groups etc rather than the government.

Conclusion: The treatment group's absenteeism fell by 21 percentage points and student test scores increased by 0.17 standard deviations. They found that teachers respond strongly (high elasticity) to financial incentives in this model. Because the incentives were provided for non-traditional schools to teachers who do not make up the large politically active teaching block, it is hard to tell whether this would work with regular teachers.

Relevance to PAE: Financial incentives seem to work in terms of getting eliminating absenteeism. This though is context-specific: India has an unusually high absenteeism problem so the effect on the margin may not be as large in places like the U.S. where absenteeism is not as severe on average. Additionally, this was implemented with non-traditional schools who employ para-teachers (signed on yearly contracts) rather than the politically active teaching block in traditional schools. This is equivalent to unionized versus non-unionized in the U.S. and by extension perhaps, charter versus non-charter. One

thing to consider is financial incentives for additional responsibilities or tasks - more data analysis for X amount? more after-school tutoring for Y amount? take on coaching three teachers for Z amount? We would need to look at U.S. specific studies with financial incentives to truly understand how powerful financial incentives can be in this culture though.

3 – Social-Emotional and Academic Interventions for Students

Non-cognitive skill development is a difficult outcome to measure. One large, longitudinal study though looked at the association between exhibiting leadership skills in high school and wages. It found that those who occupy two leadership positions in high school on average earn 6.9 percent higher wages ten years later and are more likely to hold managerial positions in life (Kuhn, 2005). This study is unique in measuring leaderships skills before entering the labor market and so is relevant to our question of school-level best practices. Importantly, the study found that leadership skills are capturing some effect associated with "sociability" and *not* cognitive ability. How do you teach leadership in grade school? There is little consensus behind an answer to this question. We can infer from this study though that providing students in early grades with the skills needed to occupy leadership positions in high school could lead to improved outcomes later in life. More generally, teaching leadership skills in school could have profound effects on long-term student outcomes. In terms of the impact of non-cognitive skill development on low income or minority students, there are no major studies on this topic.

Secondly, the Department of Elementary and Secondary Education in Massachusetts conducted a study on the effect of Wrap Around Zones (WAZ) on student performance. These are state-funded non-academic supports that address the climate and culture of the school as well as students' social and emotional capacity. They found that significant improvements in standardized test scores, especially for third and fourth grades, but no improvement in suspension rates, attendance or retention (DESE, 2012). Therefore, the WAZ supports are effective for increasing immediate academic performance for students facing social or emotional challenges, but it is less clear whether this affects long-term behavior.

Lastly, studies on incentives for improving student outcomes range from intrinsic and extrinsic rewards for students. To identify school-level best practices, looking at teacher specific and student specific incentives are most relevant because they are under the control of the school rather than the local or state level. On the student level, on average, financial incentives for poor and minority students are statistically zero, and likely not a sustainable intervention (Fryer, 2011). Young, second grade students were found to read more when they were paid for reading more books. Other students, who were offered payment for increasing their grades or test scores, were not found to increase their performance. The rationale is that students do not completely understand how to increase test scores or grades, but do know how to read the book. This finding supports the idea that students respond positively to incentives for specific actions, such as reading more books or memorizing vocabulary words, that can lead to better outcomes like test scores or grades. On the school-level, this could take the form of daily reward systems, public data collection and tracking, or academic competitions.

Non-cognitive Skill Development

Kuhn, Peter and Weinberger, Catherine (2005). Leadership Skills and Wages. Journal of Labor Economics 23:3, 395-436.

Summary: This is a longitudinal study that regresses adult wages on indicators of leadership skills taken before labor market entry while controlling for cognitive measures (test scores primarily), family background, and high school fixed effects. The purpose is to evaluate the additional effect of "noncognitive" skills such as leadership exhibited in high-school on future earnings. The fundamental assumption is that these leadership indicators (captain, class president, etc) are based real leadership skill (ie. the coach chooses a captain because they exhibit leadership skills rather than nepotism or some other reason). Additionally, they also used a self-survey to assess leadership skills as an indicator.

Conclusion: Students who exhibit leadership skills in high school earn significantly more 10 years later - 6.9% higher wage on average if a student was both a president and captain of a club/team. This is not the case for team or club members only which supports their hypothesis that its the leadership skills (rather than the other skills acquired from being on a team or in a certain type of club) that differentiates these students. Students who inhabit leadership positions in high school are also more likely to hold managerial positions 11 years later in life. Overall, we can conclude that on average, controlling for family and high school and cognitive variables, students who exhibit leadership skills in high school go on to earn higher wages on average have a higher probability of occupying managerial positions later in life. For our purposes, it is difficult to *how* these leadership skills are attained - innate or taught? And when - K-8? or during high-school leadership opportunities? If we assume that students are chosen or elected to leadership positions or perceive themselves as leaders based on real leadership skills, then this suggests leadership skills are either acquired or manifested *before* they occupy said leadership position. If that is the case, then there is an argument to be made that leadership is something that can be developed during adolescent and young adult years. The study finds that students who attend schools with more leadership opportunities earn more later on average. The effect though is only statistically significant for students who exhibit leadership skills before tenth-grade, suggesting a complementarity between innate and acquired leadership skills.

Relevance to PAE: We could argue students need more leadership opportunities in school, but also that they should receive more leadership training earlier on. In general, this study is most relevant to high school, but we could extrapolate to earlier grades and the leadership skills and opportunities being presented to students there.

- Moving forward, we should take note of schools that deliberately develop leadership skills in students or provide opportunities for leadership positions to be held.
- Falls River Vivieros has implemented curriculum around character building, but not distinctly leadership skills. The responsive classroom may cultivate leaderships skills (empathy, self-control, patience etc) but it depends on how you define leadership skill.

Transparency of Information/Personal Assistance

Bettinger, Eric P., Bridget Terry Long, Philip Oreopoulos, and Lisa Sanbonmatsu (2012). The Role of Application Assistance and Information in College Decisions: Results from the H&R Block FAFSA Experiment. The Quarterly Journal of Economics 127:3, 1205-1242.

This article is irrelevant to our PAE. It is concerned with the increase in college enrollment and financial receipt when provided personal assistance and information regarding college cost and the FAFSA. While it provides excellent insight into the benefits of providing personal assistance for increasing participation in certain programs (healthcare, government supports, etc), this is not relevant to our PAE either. This could be used as evidence for increasing personal assistance for parents in school choice models, so perhaps a mention in a footnote or an appendix, but otherwise, this research does not apply to our PAE.

4 –Culture & Incentives

School culture envelopes the culture built for both students and teachers. The most relevant studies look at specific best practices on the school-level. In a study by Roland Fryer, he analyzes the impact of injecting empirically backed charter school best practices into traditional public schools that were previously failing. The five best practices that were "injected" into traditional public schools were increased time of school day and year, improved human capital (teachers and leadership), more student level differentiation through tutoring, frequent use of data to inform instruction, and a culture of high expectations. The schools that implemented these practices increased math achievement by 0.15 to 0.18 standard deviations per year. In other words, they could close the black-white achievement gap in math within three years. The effects on reading were marginal and statistically insignificant (Fryer, 2014). The student populations were primarily poor, Black and Hispanic students. Furthermore, other studies have also shown that developing consistent schoolwide structures for positive behavior supports, specifically, contribute to improved student behavior. Because of these significant gains with a student population similar to the population we are studying in Massachusetts, we have reason to believe that schools implementing some, if not all, of these best practices are better equipped to serve at risk students.

Roland Fryer. Injecting Charter School Best Practices into Traditional Public Schools: Evidence from Field Experiments. Harvard University.

Examines the effectiveness of injecting charter school best practices into traditional public schools in Houston, Texas. The best practices were determined from Fryer's other paper called "Getting Beneath the Veil of Effective Schools: Evidence from New York City". This paper found significant increases in effectiveness for traditional resource based models (class size, per pupil expenditure, non-certified teachers etc) does not explain variation. The following five practices, as collected in four years of case studies and qualitative analysis, explain over fifty percent of variation in high performing charter schools.

Best Practices include:

- **Increased Time.** Lengthened school days by one hour and school years by ten days. Students were incentivized to attend school on Saturdays.
- **Improved Human Capital.** 19 of 20 principals were removed as well as 46% of the teaching staff.
- **More Student Level Differentiation**. All fourth, sixth and ninth graders were provided a tutor and other grades were provided additional tutoring based on the MATCH model.
- **Frequent Use of Data to Inform Instruction.** Interim assessments were required every three to four weeks, three cumulative assessments were provided, and assistance in analyzing and presenting data was provided to teachers.
- **A Culture of High Expectations**. Provided clear expectations for leadership, a rubric for school and classroom environment, and student-parent-teacher contracts. Specific student performance goals were set for each school and the principal was held accountable and incentivize financially.

Conclusion: All statistical approaches lead to the same basic conclusions. Injecting best practices from charter schools into low performing traditional public schools can significantly increase student achievement in math and has marginal, if any, effect on English Language Arts achievement. The math results were such that they could eliminate the achievement gap in three years time.

Bryk, A.S., Bender Sebring, P., Allensworth, E., Luppescu, S. and Easton, J.Q. (2010). "The Influence of Community Context." In A.S. Bryk, P. Sebring Bender, E. Allensworth, S. Luppescu and J.Q. Easton (Eds.), Organizing Schools for Improvement: Lessons from Chicago (pp. 137-196). Chicago, IL: University of Chicago Press.

Study of test score and school attendance growth in Chicago found numerous social factors that lead to substantial growth:

1. Religious participation
2. Collective efficacy (community social capital)
3. Outside connections
4. Crime rate of immediate neighborhood
5. Percentage of students abused or neglected

Trust: while trust does not contribute directly to student learning, it creates the fabric by which school improvement strategies become sustainable, and facilitates core organizational change.

- Trust allows for the expansion and sustainability of essential supports
- Smaller schools/academies enable relational trust
- Trust is built on teacher AND student retention

Competition

Chakrabarti, Rajashri (2014). Incentives and Responses Under No Child Left Behind: Credible Threats and The Role of Competition. Journal of Public Economics 110: 124-146.

Summary: They used Regression Discontinuity Design (RD) to test whether AYP increased performance in math, reading, and attendance. The purpose was to investigate whether high stakes testing and the threat of closure by NCLB encouraged schools to:

- Focus on high stakes stakes subjects (reading and math) at the sacrifice of low stakes subjects?
- Focus only on students right around the cutoff for proficiency? With expense for those groups of students at the end?
- Focus more on sub-groups?
- Do schools respond to competition induced by proximity to AYP adequate schools?
- Increase test participation, attendance, and graduation?

Conclusions:

- Focus on high stakes stakes subjects (reading and math) at the sacrifice of low stakes subjects? NO. In fact, spillover effects from focusing on reading seemed to have increased performance in language arts despite being a low-stakes subject.
- Focus on high stakes testing grades? YES. There was a decreased in third grade because fourth grade is a testing year.
- Focus only on students right around the cutoff for proficiency? With expense for those groups of students at the end? NO.
- Focus more on sub-groups? NO. Actually led to deterioration of performance for economically disadvantaged and special education. Overall, performance for sub-group of Whites increased the most.
- Do schools respond to competition induced by proximity to AYP adequate schools (due to threat of students transferring to AYP pass schools)? YES. AYP failed schools facing more competition performed better more broadly and strongly. They achieved statistically significant increases in attendance, graduation rates, and test participation as well as greater shifts to the right of students being proficient or advanced proficient. The credibility of the threats was also found to matter. Additionally, it was found that districts did not allocate more resources towards AYP failed schools either so it is not a resource allocation issue.
- Increase test participation, attendance, and graduation? NO.
- Overall, schools increased reading performance and math performance if they failed on those measures to begin with. Therefore, it seems they responded to the incentive of not failing AYP again based on what they failed before. This did not improve the performance overall though for other subjects or other non-testing grades for example.

Relevance to PAE: Since these are district-level and state-level results, it is difficult to pull out best practices. That being said, the notion that economically disadvantaged students and special education students suffer when high stakes testing is in place is worth considering when schools decide how/when/why to implement their own testing and data collection. Additionally, it also encourages schools to take special care of those special sub-groups in preparation for an upcoming standardized test. Additionally, the idea of competition was very interesting. In both cases (math and reading induced failures) increased competition increased performance. For best practices within school, perhaps

this further encourages data collection between classrooms or the teacher observation-feedback system. The fact that per pupil spending was unassociated with increases in performance also confirms that hypothesis that the best practices are from within schools among the personnel versus external variables. Overall, because this is more concerned with district-level and state-level policies, we can only extrapolate general characteristics of the system rather than discrete best practices.

Figlio, David and Hart, Cassandra (2014). Competitive Effects of Means-Tested School Vouchers. American Economic Journal: Applied Economics 6:1, 133-156.

Conclusion: Increased competition through vouchers increases student performance and are not associated with student composition or resource allocation.

Relevance to PAE: This is not entirely relevant to our PAE because Massachussetts does not have a voucher system, but the notion of competition as an incentive is an interesting one. Key questions to ask are:

- Are there ways to increase a sense of competition for schools without a voucher system? Perhaps the leveling system is adequate.
- Are charter schools a sufficient competitive force?
- Are there ways to induce a sense of competitiveness within schools perhaps?
- Per pupil spending once again is not associated with increased student performance - what are best practices that DO NOT cost additional money?

Appendix III: Methodology for Quantitative Analysis

Our research involved four key steps: School Matching, Hypothesis Development, Case Studies and Quantitative Review of Findings. The School Matching phase required identifying and grouping schools that have similar Economic and Minority Status. The Hypothesis Development stage uses these groupings and conducts data analysis to identify correlative relationships between school practices and performance, and how those differ between schools within these groups. Furthermore, the Case Study stage was where we tested the hypotheses created through data analysis, and used qualitative research (case studies, interviews and field visits) to evaluate the validity of our hypotheses, refining them, and concluding by identifying best practices that differentiate high- and low-performing schools with similar demographic characteristics. Finally, the Analysis of Monitoring Site Visit Reports will examine strategies employed by Level 4 schools and to identify areas of growth for those schools based on our hypothesis development and case study stages.

Stage I: School Matching

The School Matching stage involves grouping Level 1/2 and Level 4/5 schools with similar Economic and Minority status together, in order to conduct a comparative analysis of demographically similar schools.

We identified economic disadvantage (Free and Reduced Price Lunch enrollment) and minority status as two key characteristics for assignment of groups, as these are commonly referenced predictors of student performance. These comparison groups consist of Level 1/2 and Level 4/5 schools, where the proportion of students of economically disadvantaged students attending was within 3.5 percentage points of each other. A cutoff threshold was also determined by comparing the demographic data of Level 4/5 schools. Our sample only included Level 1/2 schools that met the minimum threshold of economically disadvantaged and minority students, set at the 10th percentile mark of the proportion of economically disadvantaged and minority populations among Level 4/5 schools. We used the 10th percentile mark in order to eliminate any outliers among Level 4/5 schools; to be included in the sample, Level 1/2 schools therefore must have at least 53% economically disadvantaged population or 55% minority population. A full listing of the sample schools can be found in Appendix IV.

Analysis of these comparison groups revealed that sufficient numbers of demographically similar schools for comparison only exist amongst elementary schools. There were very few middle and high schools that met the threshold for comparison. As a result, our analysis and comparison focuses mainly on elementary schools. Indeed, high performing schools with both high poverty and high minority populations is an anomaly. Thus, this study will focus on strategies that focus specifically on serving these populations, and schools that have demonstrated success doing so.

Stage II: Findings from Quantitative Analysis and Hypothesis Development

With the matching groups created, we used data to compare the schools within those groups and identify the practices that differentiate Level 1/2 and Level 4/5 schools within each group. Hypothesis development will first rely on literature review of existing work on school reform to identify drivers of school improvement. We then conducted an analysis of school-level data to establish correlative relationships between practices and student outcomes.

Based on the literature review, we determined the following indicators are possible drivers and determinants of school performance. We did not include any indicators that would be endogenous to school performance, or would affect a school's Level rating through factors other than itself. A full description of omitted variables and an explanation for their omission can be found in Appendix V.

The selected indicators for analysis were:

1) Attendance Rate
2) Percentage of student intakes per year (students that enrolled after 1st day of school)
3) Principal retention rate
4) Teacher retention rate
5) Percentage of staff evaluated per year
6) Percentage of teachers teaching in their licensed subject area
7) Percentage of teachers in core subject areas that are Highly Qualified
8) Percentage of students disciplined

A multivariate regression was used to analyze how each of these factors correlate with the probability of a school being a high performing (Level 1 or 2) school, controlling for all other variables. Analysis suggested that only two factors – student attendance rate and teacher retention rate – had a statistically significant effect on a school's likelihood of being a high-performing school. The regression functions are below:

(1) γ (Dummy variable for Level 1/2 status) = $\beta_0 + \beta_1$ (Attendance Rate)
(2) γ (Dummy variable for Level 1/2 status) = $\beta_0 + \beta_1$ (Student Intake Rate)
(3) γ (Dummy variable for Level 1/2 status) = $\beta_0 + \beta_1$ (Principal Retention Rate)
(4) γ (Dummy variable for Level 1/2 status) = $\beta_0 + \beta_1$ (Teacher Retention Rate)
(5) γ (Dummy variable for Level 1/2 status) = $\beta_0 + \beta_1$ (% of Staff Evaluated)
(6) γ (Dummy variable for Level 1/2 status) = $\beta_0 + \beta_1$ (% of Teachers in Licensed Area)
(7) γ (Dummy variable for Level 1/2 status) = $\beta_0 + \beta_1$ (% of Core Teachers Highly Qualified)
(8) γ (Dummy variable for Level 1/2 status) = $\beta_0 + \beta_1$ (Student Discipline Rate)
(9) γ (Dummy variable for Level 1/2 status) = $\beta_0 + \beta_1$ (Attendance Rate) + β_2 (Student Intake Rate) + β_3 (Principal Retention Rate) + β_4 (Teacher Retention Rate) + β_5 (% of Staff Evaluated) + β_6 (% of Teachers in Licensed Area) + β_7 (% of Core Teachers Highly Qualified) + β_8 (Student Discipline Rate)

The analysis demonstrated the associations between various indicators and the probability of a school being a high-performing (Level 1 or 2) school. This analysis suggested that only the student attendance rate and teacher retention rate had a statistically significant effect on a school's level status. The full table of results is as follows:

Table 1: Effect of school indicators on the probability of being a Level 1/2 school
(all figures represent percentage point increases in probability of being a Level 1/2 school)

Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Student attendance rate	12.8***	-	-	-	-	-	-	-	7.4***
% student intakes	-	3.2***	-	-	-	-	-	-	-0.79
Principal retention rate	-	-	0.28***	-	-	-	-	-	0.096
Teacher retention rate	-	-	-	1.4***	-	-	-	-	0.86**
% staff evaluated	-	-	-	-		-	-	-	0.033
% teachers in licensed area	-	-	-	-	-	0.89**	-	-	-1.1*
% core teachers highly qualified	-	-	-	-	-	-	0.97**	-	0.094
% of students disciplined	-	-	-	-	-	-	-	2.5***	0.80

Stage III: Case Studies

In order to identify best practices specific to high-performing schools and to supplement our literature review and quantitative analysis, we conducted field visits and case studies of Level 1 and 2 schools in our sample. We visited and interviewed the principal, school leaders and teachers at six elementary schools, and used those findings to identify common threads and practices across our sample of high-performing schools, that were either not evidenced by or unavailable from the quantitative data.

At each school, we conducted interviews with the principal and school leaders, including assistant principals, instructional coaches, and grade-level lead teachers. At some schools, separate teacher focus groups were also conducted to gauge alignment between the administration and the instructional staff. Our interview protocol was based on our initial hypothesis development, and included questions about school culture, human capital, family and community involvement, instruction and use of data, and services for students. The full interview protocol can be found in Appendix VI.

The eight schools we visited or interviewed were:

1. Carlton M. Vivieros School, Fall River
2. Newton School, Greenfield
3. Mary Lynch Elementary School, Springfield
4. Warner School, Springfield
5. Kensington International School, Springfield
6. Belmont Street Community School, Worcester
7. Charles Sumner Elementary School, Boston
8. Hyannis West Elementary, Barnstable

Stage IV: Analysis of Monitoring Site Visits

One of the limitations of this interview approach was the lack of a direct comparison point with Level 4 or 5 schools. While we could identify common aspects of school culture and practice associated with high-performing schools in our sample, without access to qualitative data about Level 4 and 5 schools, there was no way of confirming these practices were ones that differentiated high-performing from low-performing schools. In order to address this, we conducted an analysis of the Monitoring Site Visit reports (MSVs) that DESE conducts in order to evaluate the progress of Level 4 schools. These MSVs identify strategies for performance and growth, based on four turnaround practices set by DESE, and indicate the school's planned strategies and assess the execution and implementation of those strategies.

The four overarching strategies highlighted by the MSVs as areas for improvement included:

1. Leadership, Shared Responsibility, and Professional Collaboration
2. Intentional Practices for Improving Instruction
3. Student-Specific Supports and instruction to All Students
4. School Climate and Culture

Each of these categories comprised of a number of indicators, along which schools were rated as either showing: "No Evidence", "Developing", "Providing", "Sustaining" or "Coherent Implementation". Further, qualitative reports of a school's achievement against these indicators is given in the detail of the MSV. Using this more detailed analysis, we summarized our findings from the case studies and MSV report reviews for 8 key strategies.

Limitations of the study

Though based on rigorous analysis of both the quantitative and qualitative data available to us, this research is subject to a number of limitations. While these are varied, three main areas present as particularly important when considering our findings and recommendations.

The first is the size of the sample available. As noted, the schools being examined are an anomaly to general patterns across demography and outcomes in education. Therefore, the study, by design is somewhat limited in its internal validity – the sample was not sufficiently large enough to provide strong evidence of the patterns observed. Similarly, the selection for interview was not random. All schools that were Level 1 or 2 and had similar demographics to typical Level 4 or 5 schools were invited to participate in the study. Only those schools that replied were interviewed; therefore, it is possible that a selection bias in these types of schools is also at work. Nevertheless, given the small number of schools in the original pool, it is unlikely this will have affected results too dramatically.

A second limitation arises out of the nature of the data itself. It became clear to us, from speaking with principals and teachers who had previously had experience in Level 4/5 schools, that the category of "economic disadvantage" is a wide one. This means that while some of the schools that are performing at the Level 1/2 standard look similar on the face of the data, to Level 4/5 schools, there may be more consistent, substantive differences that really account for the differences in performance. In particular, the type of poverty or economic disadvantage differs depending on the suburb and area, whether a school is located regionally or in an urban center, for example. It was noted to us that in Level 4/5 schools, some of the same strategies had been applied without success, simply because the

issues facing students, for example, in terms of how pervasive violence in their community was, were so much more serious.

The third limitation of the study is simply that there are a number of areas, highlighted by the literature review conducted, as well as our school visits, that we do not have clear or systematic data about. A large area that was not examined in depth by our team was the budgetary and financial constraints of different schools. Similarly, there was evidence that district-wide leadership played a role in making certain aspects of school culture more or less pervasive. These, and many other aspects of school operations are likely important to control for or examine to understand precisely what the levers for success are.

Appendix IV: School Sample

Level	School	Type	EDIS%	Minority %	2014 Test Scores: Average Proficient or above	2014 Test Scores: Proficient or above in ELA	2014 Test Scores: Proficient or above in Math
1	Lowell - S Christa McAuliffe Elementary	Public	54.7	51.4	53	43	63
1	Springfield - Alice B Beal Elementary	Public	58.6	64.3	60	58	62
1	Fitchburg - Crocker Elementary	Public	61.4	56.3	62	64	60
1	Lawrence - South Lawrence East Elementary School	Public	66.3	89.3	54.5	44	65
1	Lowell - Charlotte M Murkland Elementary	Public	67.5	33.1	51.5	40	63
1	Fall River - John J Doran	Public	66.8	34.4	43	43	43
1	Springfield - Daniel B Brunton	Public	67.2	78.8	47	40	54
1	Lawrence - Francis M Leahy	Public	66.4	97.4	40	31	49
1	West Springfield - Philip G Coburn	Public	69.9	22.1	56.5	46	67
1	Fall River - Carlton M. Viveiros Elementary School	Public	68.9	32.6	43.5	39	48
1	Worcester - Union Hill School	Public	71	68.6	46	42	50
1	Lawrence - Gerard A. Guilmette	Public	70.7	95.8	54.5	46	63
1	Worcester - Belmont Street Community	Public	71.5	67	37.5	36	39
1	Chicopee - Gen John J Stefanik	Public	77.9	80.3	59.5	56	63
1	Springfield - Mary M Lynch	Public	77.5	88	51.5	47	56
1	Boston - Joseph Hurley	Public	72.3	78.4	62	59	65
2	Quincy - Snug Harbor Community School	Public	55.1	21.2	42	36	48
2	Boston - Josiah Quincy	Public	56.8	32.2	61.5	54	69
2	New Bedford - Elwyn G Campbell	Public	55	40.7	52.5	51	54
2	Peabody - William A Welch Sr	Public	55.1	42.9	51.5	52	51
2	New Bedford - Sgt Wm H Carney Academy	Public	55.8	48.7	54.5	54	55
2	Brockton - Edgar B Davis	Public	55.3	75.3	43	48	38
2	Boston - Charles Sumner	Public	57.7	85.9	45	40	50

2	Fall River - William S Greene	Public	59.3	23.1	43.5	40	47
2	Barnstable - Hyannis West Elementary	Public	59.4	38.4	55	49	61
2	Greenfield - Newton School	Public	63.6	21.9	53	36	70
2	Taunton - H H Galligan	Public	63.2	36.1	59.5	59	60
2	Springfield - Frederick Harris	Public	63.9	75.3	52	41	63
2	New Bedford - James B Congdon	Public	64.7	52.5	45.5	42	49
2	Holyoke - Lt Clayre Sullivan Elementary	Public	66.3	79	37.5	39	36
2	Springfield - Frank H Freedman	Public	66.1	82.9	49	55	43
2	Springfield - Warner	Public	67	78.4	64.5	53	76
2	Lawrence - John K Tarbox	Public	68.4	98.3	45	38	52
2	New Bedford - Carlos Pacheco	Public	72.1	62.6	49	38	60
2	Springfield - Arthur T Talmadge	Public	72.1	75.6	49	49	49
2	Springfield - Kensington Avenue	Public	76.4	82.7	38.5	40	37
4	Boston - Henry Grew	Public	55	85.2	30	28	32
4	Boston - William Ellery Channing	Public	54.6	92.2	28	28	28
4	Boston - Mattahunt	Public	58.4	94.5	13.5	10	17
4	Lawrence - Oliver Partnership School	Public	58.9	96.1	37	28	46
4	Boston - John Winthrop	Public	63.9	91.1	16.5	18	15
4	Athol-Royalston - Riverbend-Sanders Street School	Public	68.2	16.9	23.5	23	24
4	Worcester - Elm Park Community	Public	66.4	63.4	18	22	14
4	Lawrence - UP Academy Leonard Middle School	Charter	66.5	97.9	44.5	53	36
4	New Bedford - Hayden/McFadden	Public	70.1	57.1	25.5	20	31
4	Lawrence - Community Day Arlington	Charter	69.3	97.7	30	26	34
4	Fall River - Samuel Watson	Public	71.8	33.1	21	23	19
4	Springfield - White Street	Public	77.4	81.1	47.5	40	55
4	Springfield - William N. DeBerry	Public	80.8	95.2	30	21	39
4	Springfield - Milton Bradley School	Public	79.2	95.9	20.5	20	21
5	New Bedford - John	Public	60.8	55.1	44	43	45

	Avery Parker						
5	Boston - Paul A Dever	Public	66	85.7	34	27	41
5	Boston - John P Holland	Charter	64.7	85.6	19.5	14	25
5	Holyoke - Morgan Elementary	Public	84.2	97.2	15.5	19	12

Appendix V: Selection of Indicators for Statistical Analysis

Selected Indicators

Attendance Rate: the average percentage of the number of days present for all students. This indicator was selected for analysis as our research and literature review has shown that increased student attendance and learning time is associated with improved learning outcomes. We will therefore analyze statewide data for Massachusetts to determine whether this is also associated with a school's accountability level.

Student intake rate: the percentage of all enrolled students that enrolled after the first day of the school year. This indicator was selected for analysis as a higher percentage of students that enter the school after the beginning of the year is likely to affect school performance; it is reasonable to assume that students that enter a school after the first day will need more time to adjust to a new setting and curriculum, and may suffer academically as a result. While effects could be both positive or negative, we believe this is a relevant, exogenous variable that should be examined. We will therefore analyze statewide data for Massachusetts to determine whether this is also associated with a school's accountability level.

Principal retention rate: the percentage of principals that remain at the school for the entire year and return for the beginning of the next year. This indicator was selected for analysis as consistency and stability in school leadership is likely to affect student outcomes. Consistent school leadership means that teachers and students are more likely to be accustomed to the administration's policies, and outcomes are more likely to represent the leadership's priorities. We will therefore analyze statewide data for Massachusetts to determine whether this is also associated with a school's accountability level.

Teacher retention rate: the percentage of teachers that remain at the school for the entire year and return for the beginning of the next year. This indicator was selected for analysis as consistency and stability in instructional staff is likely to affect student outcomes. Consistency in instructional staff means that teachers can continually improve instead of having to be retrained year after year, and can focus on improvement rather than spending time in transition. We will therefore analyze statewide data for Massachusetts to determine whether this is also associated with a school's accountability level.

Percentage of staff evaluated per year: the percentage of teaching staff that received an evaluation the previous year. This indicator was selected for analysis as we believe that accountability incentives are likely to be associated with student outcomes and school performance. If teachers are being evaluated, they are held accountable to their performance, incentivizing them to improve their own performance. This, then, will in turn impact student outcomes and school performance. We will therefore analyze statewide data for Massachusetts to determine whether this is also associated with a school's accountability level.

Percentage of teachers teaching in their licensed subject area: the percentage of teachers that are licensed in the specific subject area that they are assigned to. This indicator was selected for analysis as we believe that teachers that teach in their specific licensed subject area, in which they are experts, are more likely to be effective. For example, teachers trained and certified to teach mathematics are more likely to be effective

mathematics teachers than teachers trained and certified in literature. We will therefore analyze statewide data for Massachusetts to determine whether this is also associated with a school's accountability level.

Percentage of teachers in core subject areas that are Highly Qualified: the percentage of teachers in core classes (ELA, math, social studies, science, foreign languages, arts) that hold a Massachusetts teaching license and demonstrate subject-matter competency in the subject they teach. This indicator was selected for analysis as we believe that Highly Qualified teachers are more likely to be effective than non-Highly Qualified teachers. Teachers that have been certified as experts of their craft should be more effective than those that have not received such certification. We will therefore analyze statewide data for Massachusetts to determine whether this is also associated with a school's accountability level.

Percentage of students disciplined: the percentage of all enrolled students that received a disciplinary disposition, including in-school suspensions, out-of-school suspensions, permanent expulsions, and removals to alternate settings, such as alternative schooling, home or community service. This indicator was selected for analysis as we believe that student discipline is a strong determinant of school performance. Schools where students are not disciplined are likely to have poorer cultures, and see significant instructional time wasted on disciplinary interventions. Furthermore, these schools also expend more resources addressing discipline issues, taking resources away from instruction. We will therefore analyze statewide data for Massachusetts to determine whether this is also associated with a school's accountability level.

Omitted Indicators

Student dropout rate: the percentage of enrolled students that dropped out of school and did not return to any school before October 1 of the next year. This was not included as student dropout rate is likely to be an endogenous; the performance and level of a school is likely to impact the student dropout rate. Students at poor performing schools are more likely to drop out. This is therefore an unreliable determinant of the variables that contribute to school performance; if their performance affects this variable, we cannot conclude that the variable will, in reverse, also affect school performance.

Student retention rate: the percentage of enrolled students that returned to enroll in the same grade as the preceding year. This was not included as student retention rate is likely to be an endogenous; the performance and level of a school is likely to impact the student retention rate. We cannot determine whether students have to repeat a year because of poor school performance, or whether students repeating leads to a school performing better. Furthermore, we cannot determine whether students are retained because a school has rigorous assessment practices, or whether students are suffering from poor teaching. This is therefore an unreliable determinant of the variables that contribute to school performance; if their performance affects this variable, we cannot conclude that the variable will, in reverse, also affect school performance.

Student churn rate: the percentage of all enrolled students that entered or exited the school after the first day of school and before the last day of school of that year. This was not included as student churn rate a less reliable indicator of student stability than the student intake rate. Students that leave before the end of the school year do not affect a

school's test scores for that current year. This is therefore an irrelevant variable to measure.

Student enrollment stability: the percentage of all enrolled students that remained at the school for the entire year. This was not included as student enrollment stability was not a useful indicator of student performance. Whether a student leaves the school before the last day of the year does not affect their performance at their current school, and therefore has no bearing on their test scores and academic performance at that school.

Age of teachers: the proportion of teachers in each age group. This was not included as we believe that while the number of years of teaching experience may contribute to student outcomes, teachers' age itself is unlikely to have any bearing on student performance.

Race of teachers: the proportion of teachers of each racial group (Black, White, Hispanic, Asian, Native American, Biracial, Other). This was not included as we believe that while students may respond better to teachers of the same race, the proportion of teachers of any race at the entire school is irrelevant. There is no data matching student and teacher races, and thus a school-wide data point is not useful for analysis.

Teacher evaluation ratings: the percentage of teachers receiving exemplary, proficient, needs improvement or unsatisfactory evaluation ratings. This was not included as we believe that teacher evaluation ratings are likely to be endogenous to school performance. Low performing schools often have low performing principals, who assign ratings to teachers. Teacher evaluations are subjective and are relative to overall school performance, not compared to schools across the entire Commonwealth.

Student attrition rate: the percentage of students enrolled at a school at the end of a school year that did not enroll on the first day of the following school year. This was not included as student attrition rate is likely to be an endogenous; the performance and level of a school is likely to impact the student attrition rate. Students at poor performing schools are more likely to leave or transfer to a different school. This is therefore an unreliable determinant of the variables that contribute to school performance; if their performance affects this variable, we cannot conclude that the variable will, in reverse, also affect school performance.

The following indicators were omitted because they are absolute numbers, not percentages, and are therefore not as useful for comparison:

- Number of students absent ten days or more
- Number of students chronically absent
- Number of students with 10 or more unexcused absences
- Number of teachers evaluated
- Number of students receiving different types of discipline interventions

Appendix VII: Interview Protocol

Interview Protocol

This is the list of questions we intend to use during our interviews while conducting research for the purpose of analyzing effective strategies used in schools serving disadvantaged populations.

Introduction:

My name is (Lucy Boyd or Jonathan Hui or Amy Chandran) from Harvard University, and I am asking you to take part in a research study with the Massachusetts Department of Elementary and Secondary Education. We are looking to compare Level 1/2 schools serving demographically similar populations as various Level 4/5 schools across the State. This interview is intended to provide us with a better picture about the specific ways you, and your school, have been able to achieve high levels of student performance and an effective school environment. The interview will last about 30 minutes. Being in this study is voluntary. Please tell me if you do not want to participate at any time. You can skip questions that you do not want to answer or stop the interview at any time.

If you so request, I will keep the data I collect confidential, and will not share your personal information or specific data you provide with anyone outside the research team. Otherwise, I would like to be able to include some of your responses in a set case study to be published, where these are particularly pertinent to our findings.

Would you be happy for us to use quotes or facts from this interview to highlight key findings in our data collection process?

(If so) Is using your name and responses publically okay with you? Alternatively, may we cite your responses anonymously?

Are you happy for me to record this conversation?

If you have any questions, you can also contact my research advisor, Josh Goodman, who can verify the details or the research project scope or provide further clarification: Joshua_Goodman@hks.harvard.edu.

Opening Question for All Interviewees:

1. Overall, what do you believe are the primary mechanisms by which your school achieves high student performance?

For Principals:

Now we are going to ask a series of specific questions that relate to the following focus areas: student culture, human capital, data driven instruction, tutoring, and additional services. We will end with a series of specific questions about serving students from diverse backgrounds.

1. Student Culture Best Practices:
    a. What are specific ways in which you increase student attendance rates? Which have been successful? Which have not? How do you know this?
    b. Your school's attrition rates are also relatively low. How have you managed to keep student turnover low? What are some specific practices your school has used?
    c. Please describe your school's disciplinary system and procedures (Possible Probes: Do you track student discipline data? Is there an incentive structure?)
    d. Please describe the student culture of your school. Please be as specific as possible.
        i. Would you call your school's culture one of high expectations? What are these expectations?

   ii. Are there any specific activities or environmental prompts in place that you believe are especially important in building this culture?
e. Can you describe parent and community involvement in the school.
   i. How do your parent and community engagement strategies impact school culture? What are some strategies that have worked for you?

2. Human Capital Best Practices:
   a. What are specific ways in which you address teacher retention? (Possible Probe: As a principal, what is your strategy for improving the teacher experience at your school?)
   b. Please describe how your school trains teachers and develops their teaching skills.
      i. How many hours of Professional Development do teachers engage in each year?
   c. How many classroom observations do teachers receive each year?
   d. What is the average number of teacher absences per year?
3. Data Driven Instruction:
   a. Please describe the role of data in your instruction here. (Possible Probe: Are teachers collecting data frequently? If so, what do they do with this data and does it inform their instruction?)
      i. What do data meetings look like? Do they all share common practices? If so, what are they?
      ii. What kinds of data are your teachers collecting and discussing?
   b. Is there anyone on the administrative or teaching staff that has particular responsibility for data collection and analysis? If not, how is this process managed?
4. Academics and Tutoring:
   a. How many hours per day are students in school, excluding after school programming?
   b. How many school days per year is your school in session? Do you host Saturday school?
   c. Does your school provide extra resources to students; I am thinking of tutoring, extra homework assistance hours, special opportunity classes or other opportunities for students?
   d. (If yes to above) Please describe your school's tutoring (or other) program, if it exists. (Possible Probe: Is it 1:1, group tutoring or some other format? Who leads the tutoring? How are students identified for tutoring?)
5. Other Services:
   a. Does your school use any other types of non-academic services in-house? Examples include support with climate and culture of the school, socio-emotional needs of students, or behavioral needs of students? This might take the form of a school or counselor, for example.
      i. (If yes) How many hours does each service typically spend servicing students per week?
   b. Do you have a listing of your extracurricular programs and activities? Which one(s) would you highlight as your most successful or popular? How do you know they contribute to the holistic development of your students?

6. Final Follow up Questions:
   a. As you are aware, we are looking at your school because it serves a student body that is demographically similar to some schools that have not been as successful as yours. We are therefore particularly interested in strategies that you see as important to serving a student body with a large proportion of children from economically disadvantaged backgrounds and / or ethnic minorities. Is there anything your school has done to address these groups in particular, or anything you believe is key to a culture of successfully serving these populations?
   b. Your school has achieved Level ½ status in the Department's ranking service, what do you see as having been most important to achieving this success?

c. Is there anything that we haven't discussed that you think has been particularly important for your school's success, or anything else you would like to mention?

For Teachers:

Now we are going to ask a series of specific questions that relate to the following focus areas: student culture, human capital, and data driven instruction.

1. Student Culture Best Practices:
    a. Please describe the student culture of your school and more specifically, the culture of your classroom. Please be as specific as possible.
        i. Are there any specific activities or environmental prompts in place that you believe are especially important in building this culture?
    b. What has your school done to make sure students are coming to school and are staying from year to year?
2. Human Capital Best Practices:
    c. How does your school support teachers? Do you feel that this is a particular strength of the school? Why?
    d. What practices does your school put in place to retain its teachers? Do you think these are effective?
    e. Please describe the professional development and teacher training implemented at your school. (Possible Probes: Do you have a mentor teacher? How often are you observed, if at all? Do you engage in after school training with other teachers?)
    f. How many hours (approximately) of professional development are you required to undertake per year?
3. Data Driven Instruction:
    g. Are you engaged in collecting data about teaching practices or your instruction on a regular basis?
    h. If so, please describe the role of data in your instruction here. (Possible Probe: How do you use data to inform your instruction?)
4. Academic Support for Students:
    a. Does your school have particular processes for dealing with students who are struggling academically, or is a case-by-case assessment made for student needs?
    b. What support systems are in place for students who may need extra assistance?
    c. How effective do you think these systems are in bridging achievement gaps within your classroom? How do you know this?
5. Final Follow up Questions:
    d. As you are aware, we are looking at your school because it serves a student body that is demographically similar to some schools that have not been as successful as yours. We are therefore particularly interested in strategies that you see as important to serving a student body with a large proportion of children from economically disadvantaged backgrounds and / or ethnic minorities. Is there anything your school has done to address these groups in particular, or anything you believe is key to a culture of successfully serving these populations?
    e. Your school has achieved Level ½ status in the Department's ranking service, what do you see as having been most important to achieving this success?
    f. Is there anything that we haven't discussed that you think has been particularly important for your school's success, or anything else you would like to mention?

Thank you so much for your time. If you have any questions or feedback, please feel free to reach out to us at Jonathan_Hui@hks16.harvard.edu.

Appendix VII: Stakeholder Considerations

The following brief guides break down our recommendations by which group of people principals will need to collaborate with to implement them. They groups are: the leadership team, teachers, and counseling/support staff.

The Leadership Team

Area of Improvement	Ideal

Behavior Management	• One school leader is responsible for handling student misbehavior that must be dealt with outside of the classroom as part of a uniform escalation model.
	  ○ See recommendation 1.2.1.
	• One school leader tracks student discipline and behavior data and the leadership team evaluates this data consistently during leadership meetings.
	  ○ See recommendation 1.2.2.

Teacher Collaboration	• At least one school leader attends a portion of teacher collaboration meetings to evaluate productivity and effectiveness. • See recommendation 2.1.2.
Teacher Empowerment	• School leaders meet with teachers on a consistent basis for check-ins and conduct teacher satisfaction surveys. ○ See recommendation 2.1.3.
Data Driven Instruction	• School leaders review formal and informal data with teachers to provide feedback and support in adapting lessons to student needs. ○ See recommendation 1.1.1.
Parent Engagement	• One or two school leaders are responsible for creating a strategy to engage parents both socially and academically. They work with teachers in each grade-level to delegate tasks and scale best practices. ○ See recommendation 2.2.1.

Student Attendance	• One school leader is responsible for recognizing students on a monthly basis for perfect or near perfect attendance.
	  ○ See recommendation 2.3.1.
	• One school leader, or a rotating team of leaders, call homes daily of students who are absent.
	  ○ See recommendation 2.3.2.

Enrichment Opportunities	• One school leader is responsible for reaching out to local organizations to orchestrate enrichment opportunities for students after school. ○ See recommendation 1.4.2.

Teachers

Area of Improvement	Ideal
Teacher Training	• Veteran or high performing teachers support struggling or new teachers through a gradual release model. • See recommendation 2.1.1.

Teacher Collaboration	• Grade-level teachers collaborate during common planning time weekly, including specialists and interventionists.
	  ○ See recommendation 2.1.2.
	• Grade-span teachers collaborate at key points throughout the year.
	  ○ See recommendation 2.1.4.

Teacher Empowerment	• Teachers are given autonomy and flexibility over scheduling and responsibilities. ○ See recommendation 2.1.3.
Tutoring	• Teachers provide tutoring in cycles throughout the year based on specific student needs that are re-evaluated at the end of each cycle. ○ See recommendation 1.4.1.
Behavior Management	• Every teacher has a classroom level behavioral system that feeds into a school-wide behavioral system through a seamless escalation ladder. ○ See recommendation 1.2.1.
Data Driven Instruction	• Teachers collect formal and informal data on a weekly basis and evaluate student-level data in weekly collaboration meetings and with an instructional leader. ○ See recommendation 1.1.1.

The Counselor, Social Worker or Support Personnel

Area of Improvement	Ideal
Student Attendance	• Social Worker or Counselor should keep profiles of students who are chronically absent and work with teachers and leadership to develop individual interventionist strategies. • See recommendation 2.3.1.
Behavior Management	• Social Worker or Counselor works collaborates with school leader responsible for student behavior data to refer students for social, emotional, or behavioral services. o See recommendation 1.2.2.
Wraparound Services	• Social Worker or Counselor acts as central point of contact for all referral services that connects teachers, leaders, and service providers to one another. • Social Worker or Counselor monitors the effectiveness of this system for each child and ensures duplicate services are not being provided. o See recommendation 1.3.
Student Enrichment	• Social Worker or Counselor is responsible for reaching out to local organizations to orchestrate enrichment opportunities for students after school. o See recommendation 1.4.2.