

2011-12



WAKE COUNTY
PUBLIC SCHOOL SYSTEM

**WAKE COUNTY PUBLIC SCHOOL SYSTEM (WCPSS)
PROFESSIONAL LEARNING TEAMS (PLTs):
2010-11 to 2011-12 SCHOOL-BASED POLICY STUDY**

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ABSTRACT

Professional Learning Teams were first introduced in WCPSS in 2003. Implementation checks, first done in 2007-08, showed most teachers (81.5%) reported involvement in PLT work. These high percentages improved slowly over time, with 87% positive responses to items by fall of 2011. In terms of impact, 81% of teachers indicated students learned more because of their PLT work. Student retention rates, classroom grades, state test performance, and graduation rates have all improved over time. Regression analyses indicated those schools who utilized PLTs the most had greater decreases in student retention rates than those with lower implementation. Similar analyses for student growth on test results just missed statistical significance. While it is difficult to separate out the impact of PLT work from other initiatives, these analyses suggest PLTs have contributed to improvements in WCPSS outcomes despite tough economic times and increasing challenges for teachers.

**Data and Accountability Department
D&A Report No. 12.02
April 2012
www.wcpss.net/evaluation-research**

**WCPSS PROFESSIONAL LEARNING COMMUNITIES:
2010-11 TO 2011-12 SCHOOL-BASED POLICY STUDY**

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**WAKE COUNTY PUBLIC SCHOOL SYSTEM (WCPSS)
PROFESSIONAL LEARNING TEAMS (PLTs):
2010-11 TO 2011-12 SCHOOL-BASED POLICY
IMPLEMENTATION STUDY**

SUMMARY

PLT IMPLEMENTATION OVER TIME

Overall, WCPSS teachers have consistently expressed a high level of positive agreement with the vast majority of the High Five PLT Survey items. The most recent data from 2011-12 show positive responses to each of the six themes pertaining to different research-based aspects of PLT functioning (in which the survey respondents indicated that they “agreed” or “strongly agreed” with the survey statements) range from a low of 75% (*support and resource allocation*) to a high of 93% (*collaborative culture and team processes*). This represents an increase of 6 to 10 percentage points since 2007-08, depending on theme. The overall level of positive agreement has stabilized over the past three years; the percentage of positive responses to *common formative assessments* remained unchanged from 2009-10 to 2011-12, while the other survey themes have only improved between one and three percentage points over the same three-year period (Table 1).

When all High Five PLT Survey themes are combined into one single composite score, the overall composite levels of positive agreement range from 81.5% in 2007-08 to 87.2% in 2011-12. WCPSS has shown an improvement in the PLT Performance Composite of 5.7 percentage points from 2007-08 to 2011-12, with the elementary, middle, and high schools showing composite gains of 4.2, 7.5, and 9.1 percentage points, respectively. The middle and high schools have shown consistent improvement over time; the elementary school index has shown a modest decline (less than one percentage point) every year since 2009-10 (see Table 2).

TEACHER IMPACT

Arguably, the most important High Five survey theme addresses the overall impact of the PLT initiative on instructional practice; it focuses on teachers’ summative perceptions of their PLT work, including the effect professional collaboration is having on their classroom effectiveness and their students’ academic achievement. The impact-themed items have consistently returned the second-lowest level of positive agreement within the survey over the past five years (83% in 2011-12), second only to *support and resource allocation* (75% in 2011-12). Furthermore, the *overall impact* theme has shown some of the slowest relative growth over time; the percentage of positive responses to these items has only improved by 7 percentage points from its low of 76% in 2007-08.

Given the crucial importance of the impact items, a PLT Performance Composite was calculated based on an analysis of the individual teacher responses to the impact-themed items alone (see Table 5 and Figure 3). At first glance, the data are encouraging; overall,

WCPSS has shown an improvement in the impact-themed performance index of 9.5 percentage points over five years, moving from 72.5% in 2007-08 to 82.0% in 2011-12 (see Table 5). The elementary, middle, and high schools posted composite gains of 8.7, 10.1, and 11.7 percentage points, respectively.

PLT functioning does not appear to be correlated to teacher retention rates, albeit WCPSS did retain more teachers during the year the “Wake Wednesdays” policy establishing district-wide PLT meeting times was implemented in 2009-10; the percentage of teachers leaving the district was 11.0% in 2008-09, then fell to 9.6% in 2009-10, and rebounded to 11.2% in 2010-11 (see Table 6). This improvement in teacher retention, however, might also relate to the economic recession or other factors.

STUDENT IMPACT

A comprehensive analysis of the number of failing grades in the secondary levels for middle school and high school showed a consistent pattern. Schools with high-performing PLTs had a lower percentage of failing grades than schools with low to middle-performing PLTs (see Tables 7 and 8).

A positive impact of PLTs on student retention rates was expected as teachers worked together to find better ways to reach individual students and groups of students. Evidence suggests this was accomplished, with PLTs’ existence correlating well with a reduction in retention rates in WCPSS over the past four years. The most recent available data show that the district’s overall retention rate has declined every year, from 4.6% in 2006-07 to 3.6% in 2010-11 (see Table 9). When examined by grade, the data show that the biggest declines in the retention rates occurred in the grades where most retentions typically occur.

Without exception, the schools with the highest level of PLT functioning had markedly lower retention rates than those with the lowest level of functioning (Table 10). The grades with the biggest differences in retention rates were in the high school level, particularly in grades 10 (7.6% for high-performing versus 11.2% for low performing), 9 (15.5% for high-performing versus 18.8% for low-performing), and 11 (6% for high-performing and 8.5% for low-performing). The differences between the high and low retention rates in the three primary grades were not as dramatic, yet noteworthy nonetheless. Here the retention rates improved by 0.5 percentage points in the second grade (1.3% versus 1.8%), 0.6 percentage points in kindergarten (2.4% versus 3%), and 1.1 percentage points in first grade (2% versus 3.1%).

EOG/EOC proficiency rates have improved in almost every subject consistently tested between 2008-09 and 2010-11 (Table 11). Since retest results began to be included in 2008-09, the comparisons across these three years are consistent. These improvements range from 1.2 percentage points for Math Grades 3-5 (84.7% in 2008-09 to 85.9% in 2010-11) to 13.0 percentage points in physical science (67.3% in 2008-09 to 80.3% in 2010-11). There was also a notable 8.3 percentage point gain for Algebra 1 (74.6% in 2008-09 to 82.9% in 2010-11) and a 6.9 percentage point gain Algebra 2 (81.5% in 2008-

09 to 88.4% in 2010-11). In other cases, such as U.S. History (77.6% in 2008-09 to 83.9% in 2010-11), the proficiency rate increased 6.3 percentage points over a three-year timeframe. Patterns of improvement actually reflect PLT implementation agreement ratings. Scale scores have also shown a corresponding improvement.

A regression analysis of combined 2009-10 and 2010-11 data did not find a statistically significant relationship between each school's individual level of PLT functioning and its corresponding ABCs Performance and ABCs Growth Composites; however, a significant relationship was found in previous analyses of the same variables calculated from combined 2007-08 and 2008-09 data.

The implications of this analysis can be interpreted in different ways. On one hand, they could mean that the relationship between PLT functioning (as measured by the annual High Five Survey) and student achievement (as measured by the ABCs Performance and ABCs Growth Composites) was stronger before Board Policy 3610 was implemented. By extension, it could be argued that PLTs are having less impact in recent years than they did previously. On the other hand, PLT work has become more institutionalized among the district's schools, and therefore the reduced variability (see Table 13) is creating a similar impact in more schools. The latter explanation is supported by the other descriptive data for student retention rates and achievement results, suggesting that high levels of PLT functioning remain positively correlated to desirable educational outcomes.

RECOMMENDATIONS

The Board, the Superintendent, and key leadership staff should:

- Review the most recent PLT-related reports focusing on implementation and results to understand the present status.
- Determine a future direction for PLT work and establish a plan to achieve those goals. This may involve re-establishing a PLT contact or coordinator for every school, upgrading on-line training modules for new and experienced staff, etc.
- Revise Board policy 3610 in line with plans.
- Communicate any changes to Board policy and the reasons for them clearly. Clarifying expectations for PLT work with both experienced and new staff members will be important.

**WAKE COUNTY PUBLIC SCHOOL SYSTEM (WCPSS)
PROFESSIONAL LEARNING TEAMS (PLTs):
2010-11 to 2011-12 SCHOOL-BASED POLICY
IMPLEMENTATION STUDY**

BACKGROUND

The concept of Professional Learning Communities, or PLCs, was first introduced in the 1960s as an alternative to independent, disconnected teachers working in isolation. Within a PLC, teachers break with this tradition by actively collaborating, sharing expertise, improving their skills, examining and using various forms of data, and learning from each other—all for the purpose of improved student learning.

In the educational literature, the term PLC is sometimes used to refer to the small collaborative groups, and sometimes to a collection of these small groups at a school, regional, or district level. However, the smaller groups are also known as Professional Learning Teams (PLTs) in the literature (DuFour, DuFour, Eaker, & Many, 2007). PLT became the universal term for all WCPSS small teams in 2009. By extension, the many PLTs operating within the district’s network comprise a larger, all-inclusive Professional Learning Community.

Over the years the PLT concept has become increasingly familiar to WCPSS education professionals as a “best practice” to foster professional growth and increase student achievement. Educational research supports the implementation of PLTs at all grade levels as a way to improve student outcomes; the overwhelming consensus is that it is one of the best practices in the teaching profession (DuFour, DuFour, Eaker, & Many, 2007; Huffman, Hipp, Pankake, & Moller, 2001; Phillips, 2003; Roberts & Pruitt, 2003). Teacher collaboration is hailed as one of the most effective ways to turn ordinary schools into extraordinary ones (Honawar, 2008).

Within WCPSS, the PLT concept first took root in 2003 when a group of six corporations (SAS, BlueCross-BlueShield of North Carolina, A.J. Fletcher Foundation, Capital Broadcasting, Progress Energy, and The News & Observer) formed a partnership with the five school districts of Chapel Hill-Carrboro, Durham, Johnston, Orange, and Wake counties. This consortium, the High Five Regional Partnership for High School Excellence, combined forces to improve graduation rates and to better prepare students for higher education and the careers of their choice. After reviewing the educational research, the foundation of the improvement effort focused on the implementation of PLTs across all schools and districts. Since the 2003-04 school year, the High Five partnership has funded numerous training opportunities for principals, teachers, and support staff members. High Five initially focused on training high school staff on PLT-related topics such as implementation and grading practices, with other levels gradually added.

WCPSS central and school administrators have worked to fully instill the PLT concept through High Five and through independent efforts. Early on, a WCPSS Steering

Committee was formed, which guided training efforts and instituted an electronic “fishbone” (a quality tool) to provide access to a variety of resources to support PLC/PLT work. The Steering Committee met less often over time. Major activities by WCPSS Central Services administrators to support PLT work within the schools are detailed in Baenen & Jackl, (2010).

The implementation of PLTs has been emphasized district-wide as a key strategy for achieving the district mission since 2006-07 (Reichstetter, 2008). The initiative received an additional impetus in August 2007, when the system invited Phi Delta Kappa associates to conduct a comprehensive Curriculum Management Audit. The report contained eight recommendations and several action steps for building a more collaborative culture with structures and processes in place that are data-based and results-oriented. After considering the anticipated benefits of increased collaboration among educators, the Board took action in 2009 to make PLT implementation more uniform and consistent across the district.

The WCPSS Data and Accountability department began studying the PLT concept five years ago when the paradigm was defined and the relevant literature reviewed (Reichstetter, 2006). Since then, evaluation specialists have reported on the 2006-07 survey to collect baseline data (Reichstetter & Baenen, 2007), conducted a study of PLT implementation status within the district (Reichstetter, 2008), disaggregated High Five survey data based on years of teaching experience (Baenen, 2009), and reported on central services PLT survey data (Jackl, 2009; Baenen & Jackl, 2010; Jackl 2011). These previous results are at periodic intervals referred to throughout this report, along with the reports on the High Five survey data noted previously.

BOARD POLICY (3610, 4510, 5040)

On July 21, 2009, the WCPSS School Board officially endorsed and formalized the PLT concept with Board Policy 3610, which defines a PLT:

A Professional Learning Team is made up of members who regularly collaborate toward continued improvement in meeting student needs. Using data, professional experience, and best practice, the team works toward realizing a shared vision for a better learning environment. The primary emphasis of this work is on the support of learning and meeting the needs of all students.

Board Policy 3610 specifies that “every school-based and certified staff member should have equal access to a minimum of one hour for participation in weekly PLTs and to the Board-approved early release days for collaboration and job-embedded professional development.” At that time, WCPSS Central Services administrators decided the best way to implement this policy would be to dismiss the students one hour early every Wednesday to allow teachers to meet in collaborative groups. The weekly early dismissal to provide the one-hour block of protected time dedicated to PLT work became known as “Wake Wednesdays.” The early dismissals were discontinued by the Board immediately after the 2009-10 school year, largely based on parent concerns about

difficulties posed by the changing schedule. However, the expectation that PLTs would meet at least weekly for one hour continued. Since then, schools have developed their own schedules for continuing PLT work.

It should be noted that the Board-approved “early release” days have continued as they have been done in the past. On designated early release days, the students are dismissed two hours and 30 minutes earlier than the usual time so staff members can engage in training and collaboration after the safe departure of the students has been completed.

To ensure district-wide PLT implementation, the Board policy outlines the specific responsibilities of the Board itself, the Superintendent, Central Services staff, the School Improvement Leadership Teams, all other school-based staff, and principals. The Superintendent was directed to provide data that demonstrated the fidelity of implementation of the policy and its impact on student achievement. The responsibility for preparing reports on PLTs on a bi-annual basis was assigned to the district’s Data and Accountability Department. The three primary purposes of this particular report are to:

- Determine how the district’s overall level of school-based PLT functioning has changed over time at the elementary, middle, and high schools;
- Determine if there is a significant relationship between PLT performance and the schools’ academic achievement outcomes (as measured by the ABCs Performance and Growth Composites);
- Determine if the benefits of PLT work that were expected to materialize in the 2010-11 school year, as detailed in the PLT Steering Committee’s logic model, occurred or not.

EXPECTED PLT OUTCOMES

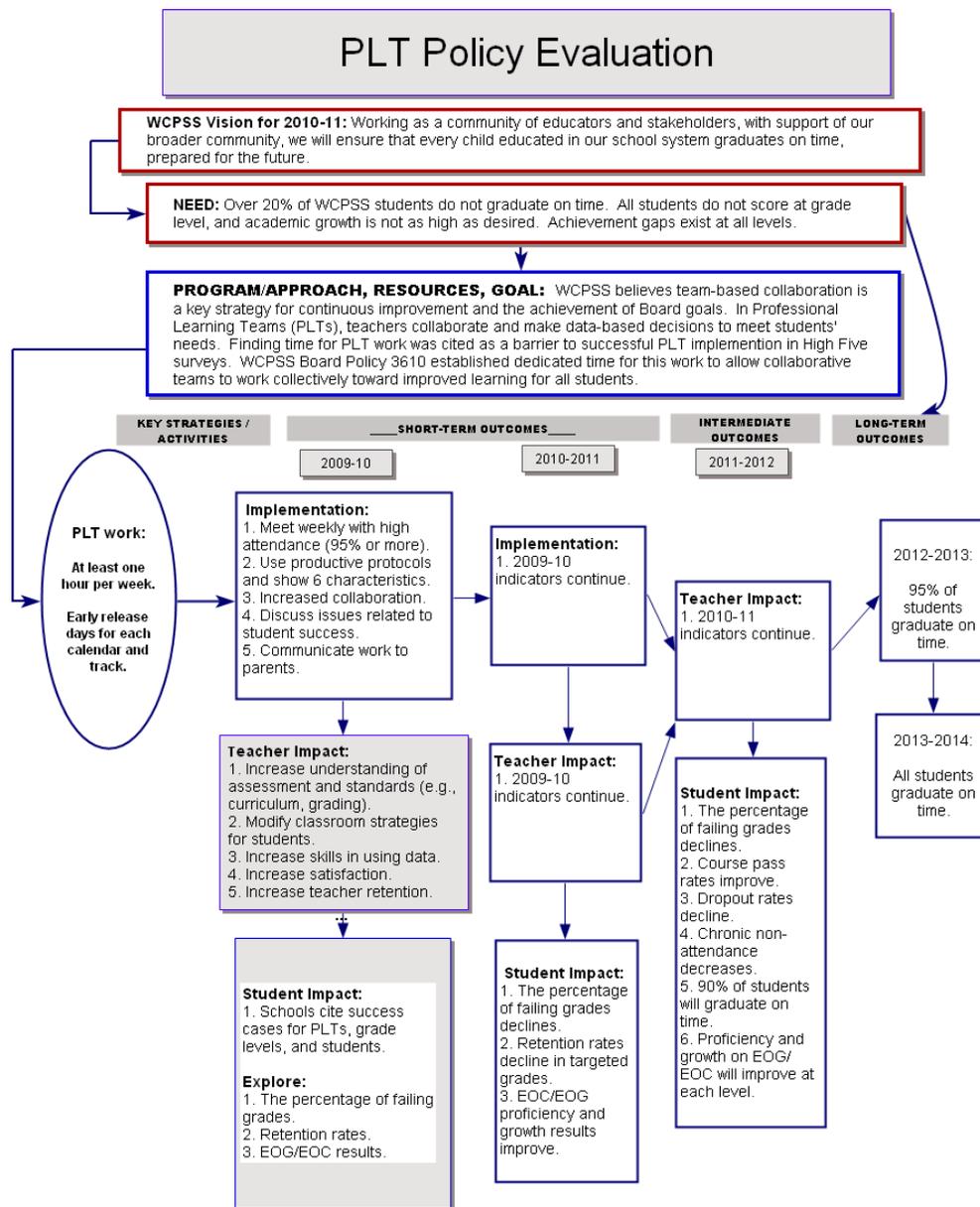
The purpose of PLTs is to meet student learning needs more fully in order to improve student outcomes. The Board policy specifies improvement in student achievement and attainment of the Board goal (high student growth in achievement and all students graduating on time).

Board policy 3610 did not establish specific expectations for what improvements would become evident, nor on what timeline. Therefore, Evaluation and Research (now Data and Accountability) staff worked with the PLT Steering Committee to develop a logic model that clarified the committee’s expectations in terms of fidelity of implementation and improved student results. The committee reached a consensus on the short-term, intermediate, and long-term outcomes likely to result from increased teacher collaboration.

To conceptualize this information in graphic form, the logic model shown in Figure 1 was developed. The logic model graphically illustrates the links between the planned activities and the desired outcomes that are expected to occur as a result (Hughes, Oberleithner, & Wrisley, n.d.).

In 2009-10 the Evaluation and Research department disseminated a comprehensive policy analysis focusing primarily on PLT implementation and teacher impact (Jackl & Baenen, 2010). That report included some preliminary analyses of student impact or, more specifically, the tentative relationship between PLT work and the percentage of failing grades, retention rates, and End of Grade (EOG) and End of Course (EOC) test results. This report adds data from the 2010-11 and 2011-12 school years; it revisits the issues of PLT implementation and teacher impact, then reexamines the percentage of failing grades, retention rates, and EOG/EOC test scores to determine if the student impact indicators improved or not.

Figure 1
PLT Policy Evaluation Logic Model as of 2010-11



METHODOLOGY AND DATA SOURCES

Several different data sources, described below, were tapped for this evaluation. The methodology employed to make inferences from these data sources is explained more comprehensively in later sections of this report as they become relevant. While the primary focus of this report is on the completed 2010-11 school year, some 2011-12 data has already become available (most notably from the most recent administration of the High Five PLT Survey). Therefore, some recent data has been incorporated into these analyses as appropriate to make this report as current as possible.

High Five PLT Surveys and Performance Composites

As of the writing of this report, five district-wide PLT surveys of WCPSS teachers have been completed to help assess implementation and impact. The High Five PLT survey items have remained unchanged (beginning with the 2007-08 survey and continuing through the current 2011-12 school year), allowing more reliable comparisons over time. The most recent High Five PLT Survey Report (Jackl, 2011) examined the district's four-year trends (from 2007-08 through 2010-11) in greater detail. For this report, the total number of positive responses across the district (teachers indicating that they either "strongly agree" or "agree" with the survey items) was divided by the total number of responses to each survey item. This produced a PLT Performance Composite variable indicating the overall level of positive responses to each item for all of the district's teachers; this data was then disaggregated by school level (elementary, middle, or high) and/or each of the High Five PLT Survey themes.

PLT Performance Indices

For the regression analyses, High Five PLT Survey results from the 2007-08, 2008-09, 2009-10, and 2010-11 school years were compiled and averaged to produce a "PLT Performance Index" to quantitatively determine the overall level of PLT functioning within each individual school during each of the given years. Note that these variables are specific to each individual school; they are not based on the total number of positive responses across the entire district like the PLT Performance Composite (described above). One PLT Performance Index was calculated based on the percentage of individual positive responses for all items on the High Five PLT surveys; a second PLT Performance Index was calculated using the survey responses from the impact-themed section of the surveys only. Combined, the two indices provide a deeper perspective and more reliable inferences than either measure used in isolation. Using regression analysis, this statistic was correlated with standardized school data to quantitatively explore the relationship between the schools' level of PLT functioning and the schools' corresponding ABCs Performance and Growth Composites.

WCPSS Central Databases

WCPSS central databases include data relevant to student outcomes of PLT work. Over time, the impact of the PLT policy on student outcomes is expected to increase once schools consistently implement PLTs and rely on common formative assessments. Based on the logic model (see Figure 1), positive changes in standardized test scores (EOG/EOC), failing grades, and retention rates were anticipated for 2010-11.

STUDY DESIGN AND LIMITATIONS

The High Five Survey data document that that nearly all of the district's teachers have been engaging in collaborative work at some level since the survey was first launched in 2007-08; in the most recent survey, approximately 99% of the district's teachers self-reported that they belonged to at least one PLT. This report presents the earliest available 2007-08 data as a baseline, yet it must be noted that PLT training and variable levels of implementation were already underway by the time those data were collected. This facet of the analysis does not preclude discussions of the various data trends and implementation progress, albeit a true "before and after" comparison of PLT implementation is not feasible and causality cannot be conclusively established.

Secondly, while strong levels of support for the PLT paradigm have been documented within WCPSS, it is also clear that there is considerable variation when it comes to the logistical aspects of implementing PLTs at various school sites. While it remains possible to identify best practices for collaborative work, and to query teaching staff to ascertain whether or not the research-based practices in the High Five survey are being implemented, one must also remember that what works well at one school may not necessarily produce identical results when superimposed upon different faculties at other locations. Additionally, since most PLTs consist of relatively small groups, factors such as individual personalities, group dynamics, administrators' expectations and operational parameters, and even the leadership style of the facilitator can impact the performance of the entire group (Jackl & Baenen, 2010).

Thirdly, WCPSS is the largest school district in the state and – at the writing of this report – is the 16th largest in the entire nation. The size of the district provides relatively large numbers that, upon analysis, usually have enough statistical power to generate significant conclusions. However, it must also be noted that data were not obtained from other districts; the leadership of the High Five consortium collectively agreed not to share their survey data with each other. So although many districts have also been implementing PLTs to a greater or lesser extent, the strength of their implementation varies enough to make direct comparisons to WCPSS impossible, even if such data became available. In other words, this report's time-series analyses, regression analyses, school-level comparisons, implementation assessments, etc., are germane to WCPSS. Generalizability to other districts may – or may not – be appropriate.

Finally, it would be wise to remember that schools across the district are running many programs and educational initiatives simultaneously. An improvement in EOG scores,

for example, might be the result of effective PLT work by the teaching staff – but it is also possible that the improvement could be attributed to a change in school leadership, new or expanded initiatives, an influx of community resources, a student reassignment plan, or any number of explanatory variables. Conversely, a decline in desirable outcomes may be attributed to a changing demographic profile, staff reductions, larger class sizes, or other factors – even solid PLT work and other elements. While the regression analysis controlled for these positive and negative influences to the greatest extent possible, it is not possible to totally isolate the impact of PLTs in the absence of all other variables. In addition, PLTs are a tool to promote effective collaboration which can help to improve implementation of any initiative if done well.

In summation, it is important to remember that data for this evaluation was drawn from an array of reliable sources, was analyzed using proven methodologies, and was interpreted with the inherent limitations of social science research in mind. As such, meaningful and useful conclusions and recommendations for improvement can be drawn.

PLT IMPLEMENTATION OVER TIME

The High Five PLT Survey has been the district’s primary instrument for measuring various aspects of PLT functioning within the district. The survey is divided into six themes related to different research-based aspects of PLT functioning. Table 1 shows the level of positive agreement throughout the district over time; additional detail is provided in the most recent High Five PLT survey report (Jackl, 2011).

Overall, WCPSS teachers have consistently expressed a high level of positive agreement with the vast majority of the High Five PLT Survey items. Based on the most recent survey data, the items with the highest level of positive agreement are “we have established norms to clarify how we will work as a team (96%), “we make sound, structured decision-making processes” (95%), and “we have worked to align our instruction with learning outcomes” (95%). In 2011-12, the three survey items with the lowest level of positive agreement have been “my school celebrates team progress toward implementing our PLTs” (71%), “my team celebrates team progress toward SMART goals” (73%), and “we receive feedback and support from our leadership” (77%).

Over a five-year period, positive responses to each theme (in which the survey respondents indicated that they “agreed” or “strongly agreed” with the survey statements) have increased between six and ten percentage points. It is worth noting, however, that the overall level of positive agreement has stabilized; the percentage of positive responses to the *common formative assessments* theme has remained unchanged since 2009-10, while the other themes have only improved between one and three percentage points over the same three-year period.

Historically, the highest levels of positive agreement have been with the survey items pertaining to *collaborative culture/team processes*, although the *focus on learning and teaching* theme has steadily increased every year, reaching 92% by 2011-12. The *instructional strategies/intervention* theme has shown the most growth (+10 percentage

points). It is also worth noting that the three items comprising the *support and resource allocation* theme has shown more relative improvement than most (+9 percentage points), yet has always been the least positive theme within the survey. These items question teachers about the level of support their PLT receives from school leadership, as well as how often the team celebrates progress towards full PLT implementation and the attainment of their SMART goals. Finally, while we can acknowledge that the *overall impact* theme has risen seven percentage points since 2007-08, it has only increased by three percentage points in the past three years.

Table 1
Overall PLT Survey Composites by Theme: 2007-08 to 2011-12

Theme	Percent Agree / Strongly Agree					
	2007-08	2008-09	2009-10	2010-11	2011-12	Change from 07-08 to 11-12
Collaborative Culture/Team Processes	87%	89%	92%	91%	93%	6%
Focus on Learning and Teaching	85%	87%	90%	91%	92%	7%
Instructional Strategy/Intervention	80%	85%	87%	88%	90%	10%
Common Formative Assessments	79%	81%	85%	85%	85%	6%
Overall Impact	76%	79%	80%	80%	83%	7%
Support and Resource Allocation	66%	71%	73%	73%	75%	9%

2007-08 n = 6,858; 2008-09 n = 7,306; 2009-10 n = 7,660; 2010-11 n = 7,507, 2011-12 n = 7,840

Note: All percentages were rounded to the nearest whole number.

Data Source: WCPSS data analysis of 2007-08, 2008-09, 2009-10, 2010-11, and 2011-12 High Five PLT Surveys.

The six themes provide data on various aspects of PLT implementation within the district. For this report we created a single statistic that encompasses all six themes. This variable, henceforth referred to as the *PLT Performance Composite*, was calculated by dividing the total number of individual positive responses (“agree” or “strongly agree”) to the High Five PLT Survey items by the total number of item responses.

For the purposes of this analysis, the PLT Performance Composite is used as a comprehensive, quantitative measure to assess the status of the district’s PLT work over time; a PLT Performance Composite was calculated for each year of the High Five survey. Admittedly, the statistic was calculated entirely from the High Five survey data, which is a self-report, yet Evaluation and Research’s last PLT policy study (Jackl & Baenen, 2010) incorporated a series of school observations and case studies that supported the validity of the quantitative survey data. In any event, it is reasonable and logical to assume that a school district returning a PLT Performance Composite of 93 is implementing PLTs more fully and effectively than a district returning a PLT Performance Composite of 79.

Overall, WCPSS has shown an improvement in the PLT Performance Composite of 5.7 percentage points over five years, with the elementary, middle, and high schools showing composite gains of 4.2, 7.5, and 9.1 percentage points, respectively. The middle and high schools have shown consistent improvement over time; the elementary school index has

shown a modest decline (1.3 percentage points) over the last two years. As of 2011-12, implementation of PLTs at all levels converged at approximately 87%. It should be noted, however, that the largest increases appeared between the 2007-08 baseline and the 2008-09 survey data. The most recent four-year trend, therefore, is less dramatic; the district's index increased by 2.7 percentage points since 2008-09, with the elementary, middle, and high school teachers posting gains of 1.1, 5.1, and 2.7 percentage points, respectively. Table 2 and Figure 2 display these data.

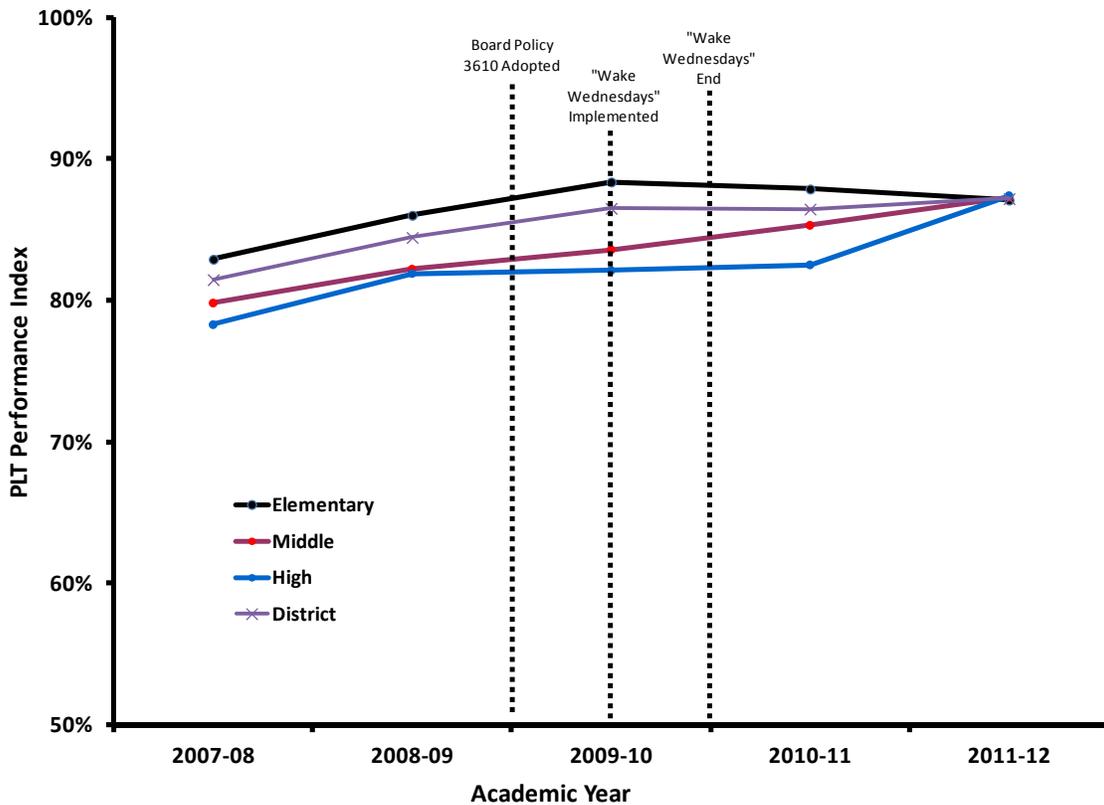
Table 2
PLT Performance Composites by School Level over Time: 07-08 to 11-12

Level	2007-08	2008-09	2009-10	2010-11	2011-12	Change from 07-08 to 11-12
Elementary School Teachers	82.9%	86.0%	88.4%	87.9%	87.1%	4.2%
Middle School Teachers	79.8%	82.2%	83.6%	85.3%	87.3%	7.5%
High School Teachers	78.3%	81.9%	82.1%	82.5%	87.4%	9.1%
All Teachers Combined	81.5%	84.5%	86.5%	86.5%	87.2%	5.7%

2007-08 n = 6,858; 2008-09 n = 7,306; 2009-10 n = 7,660; 2010-11 n = 7,507; 2011-12 n = 7,840

Data Source: WCPSS data analysis of 2007-08, 2008-09, 2009-10, 2010-11, and 2011-12 High Five PLT Surveys.

Figure 2
PLT Performance Composites by School Level over Time: 2007-08 to 2011-12



2007-08 n = 6,858; 2008-09 n = 7,306; 2009-10 n = 7,660; 2010-11 n = 7,507; 2011-12 n = 7,840

Note: The “zero” to “50” scale is not shown on the graph’s y axis.

Data Source: WCPSS data analysis of 2007-08, 2008-09, 2009-10, 2010-11, and 2011-12 High Five PLT Surveys.

TEACHER IMPACT

Impact on Instruction and Learning

Arguably, the most important High Five survey theme addresses the overall impact of the PLT initiative on instructional practice. While most items on the survey address the fundamental aspects of PLT implementation, such as the strength of the team’s core processes and strategies, this theme is more evaluative in nature. More specifically, it focuses on teachers’ summative perceptions of their PLT work, including the effect professional collaboration is having on their classroom effectiveness and their students’ academic achievement. This is, of course, the ultimate goal of PLTs and the primary rationale for their implementation.

Although still high, the impact-themed items have consistently returned the second-lowest level of positive agreement within the survey over the past five years, ranging from 76% in 2007-08 to 83% in 2011-12 (see Table 1). This places the *overall impact* theme second only to *support and resource allocation*. Furthermore, the *overall impact* theme has shown some of the slowest relative growth over time; the percentage of

positive responses to these items has only improved by seven percentage points since 2007-08.

Table 3
PLT Survey Responses to Impact-Area Statements, 2007-08 to 2011-12

Statement	School Year	Strongly Agree	Agree	Disagree	Strongly Disagree	Don't Know/No Response	% Positive	% Negative
I am a better teacher because of my work with my PLT.	2007-08	22%	55%	17%	5%	1%	77%	23%
	2008-09	27%	52%	14%	4%	2%	79%	20%
	2009-10	29%	51%	15%	4%	2%	80%	21%
	2010-11	27%	55%	13%	3%	1%	82%	17%
	2011-12	29%	54%	13%	3%	1%	83%	17%
Change from 2007-08 to 2011-12:		7%	-1%	-4%	-2%	0%	6%	-6%
Elementary	2011-12	27%	57%	13%	2%	1%	84%	16%
Middle	2011-12	32%	54%	11%	2%	1%	86%	14%
High	2011-12	31%	51%	13%	4%	1%	82%	18%
My students are learning more because of my work with my PLT.	2007-08	20%	55%	20%	4%	1%	75%	25%
	2008-09	25%	51%	18%	3%	3%	76%	24%
	2009-10	27%	51%	17%	4%	2%	78%	23%
	2010-11	24%	56%	16%	3%	1%	80%	20%
	2011-12	26%	55%	15%	3%	2%	81%	20%
Change from 2007-08 to 2011-12:		6%	0%	-5%	-1%	1%	6%	-5%
Elementary	2011-12	25%	57%	14%	2%	1%	82%	17%
Middle	2011-12	27%	56%	13%	2%	1%	83%	16%
High	2011-12	28%	50%	16%	4%	2%	78%	22%

2007-08 n = 6,858; 2008-09 n = 7,306; 2009-10 n = 7,426; 2010-11 n = 7,403

2011-12 n = Elementary: 3,997; Middle: 1,606; High: 2,004; Total: 7,607

Notes: Non-teaching and/or non-professional support staff members responding to the survey were not included in these totals.

All percentages were rounded to the nearest whole number; consequently, totals may not equal 100 percent in all cases.

Data Source: SAS Institute data analysis of 2007-08, 2008-09, 2009-10, 2010-11, and 2011-12 High Five PLT Surveys.

The two most revealing questions about PLT impact directly ask if PLT work is making the teacher better, and if the students are learning more. Table 3 notes that positive trends were evident for these items. The level of positive agreement for these two items in 2011-12 was 83% and 81%, respectively – documenting a five-year gain of six percentage points in both cases. It is also important to highlight that the number of teachers indicating that they “strongly agree” with the statements increased by seven and six percentage points, respectively, since 2007-08.

As shown in Table 4, the item asking teachers if time spent with their PLT was saving them time overall has historically returned the lowest percentage of positive responses for the impact-themed items; 71% of the teachers expressed some level of positive agreement with the statement in 2011-12, a figure which has only increased by three percentage points since 2007-08. This item also showed a six percentage point variance when disaggregated by grade level; the middle school teachers showed the highest level of agreement (75%), followed by the elementary school (70%) and high school teachers (69%). The highest percentage of positive responses within this theme have always come

from the item asking if PLTs can provide a more supportive environment for teachers; 94% of the teachers expressed agreement (+2 percentage points from previous years).

Table 4
PLT Survey Responses to Impact-Area Statements, 2007-08 to 2011-12

Statement	School Year	Strongly Agree	Agree	Disagree	Strongly Disagree	Don't Know/No Response	% Positive	% Negative
PLTs can provide a more supportive environment for teachers.	2007-08	34%	58%	6%	2%	0%	92%	8%
	2008-09	39%	53%	5%	2%	2%	92%	9%
	2009-10	40%	52%	5%	2%	1%	92%	8%
	2010-11	35%	57%	5%	2%	1%	92%	8%
	2011-12	38%	56%	4%	1%	1%	94%	6%
Change from 2007-08 to 2011-12:		4%	-2%	-2%	-1%	1%	2%	-2%
Elementary	2011-12	36%	58%	4%	1%	1%	94%	6%
Middle	2011-12	40%	55%	4%	1%	1%	95%	6%
High	2011-12	42%	52%	4%	2%	1%	94%	7%
Time spent with my PLT will save me time overall.	2007-08	21%	47%	24%	8%	1%	68%	33%
	2008-09	25%	44%	22%	7%	3%	69%	32%
	2009-10	27%	41%	22%	8%	2%	68%	32%
	2010-11	21%	46%	24%	8%	1%	67%	33%
	2011-12	23%	48%	22%	6%	1%	71%	29%
Change from 2007-08 to 2011-12:		2%	1%	-2%	-2%	0%	3%	-4%
Elementary	2011-12	20%	50%	23%	6%	1%	70%	30%
Middle	2011-12	27%	48%	19%	5%	1%	75%	25%
High	2011-12	26%	43%	22%	8%	1%	69%	31%

2007-08 n = 6,858; 2008-09 n = 7,306; 2009-10 n = 7,426; 2010-11 n = 7,403

2011-12 n = Elementary: 3,997; Middle: 1,606; High: 2,004; Total: 7,607

Notes: Non-teaching and/or non-professional support staff members responding to the survey were not included in these totals.

All percentages were rounded to the nearest whole number; consequently, totals may not equal 100 percent in all cases.

Data Source: SAS Institute data analysis of 2007-08, 2008-09, 2009-10, 2010-11, and 2011-12 High Five PLT Surveys.

Given the key importance of the impact items, a PLT Performance Composite was calculated based on an analysis of the individual teacher responses to the four impact-themed items alone (see Table 5 and Figure 3). At first glance, the data are encouraging; overall, WCPSS has shown an improvement in the impact-themed performance index of 9.5 percentage points over four years, with the elementary, middle, and high schools posting composite gains of 8.7, 10.1, and 11.7 percentage points, respectively.

As with the previous analysis across all High Five survey items, the single-year gains from 2007-08 to 2008-09 account for a disproportionate amount of the increase in the Impact theme. Based on the most recent four-year trend, ranging from 2008-09 to 2011-12, the gains are more modest. More specifically, the elementary school composite increased by 0.5 percentage points, whereas the middle and high schools posted gains of 3 and 8 percentage points, respectively. Based on the same timeline, the district's impact-themed PLT composite moved from 79.5% to 82% -- an increase of only 2.5 percentage points. Nevertheless, it is fair to say that more than four out of five teachers

agree that PLT work is having a positive impact on their classroom performance and, by extension, on the academic achievement of their students.

The significance of these data is open to interpretation. On one hand, the PLT Performance Composites could be described as stagnant... one could argue that little or no forward progress is being made. On the other hand, the survey data indicate positive overall composite scores currently exceeding 75% across all six themes (see Table 1).

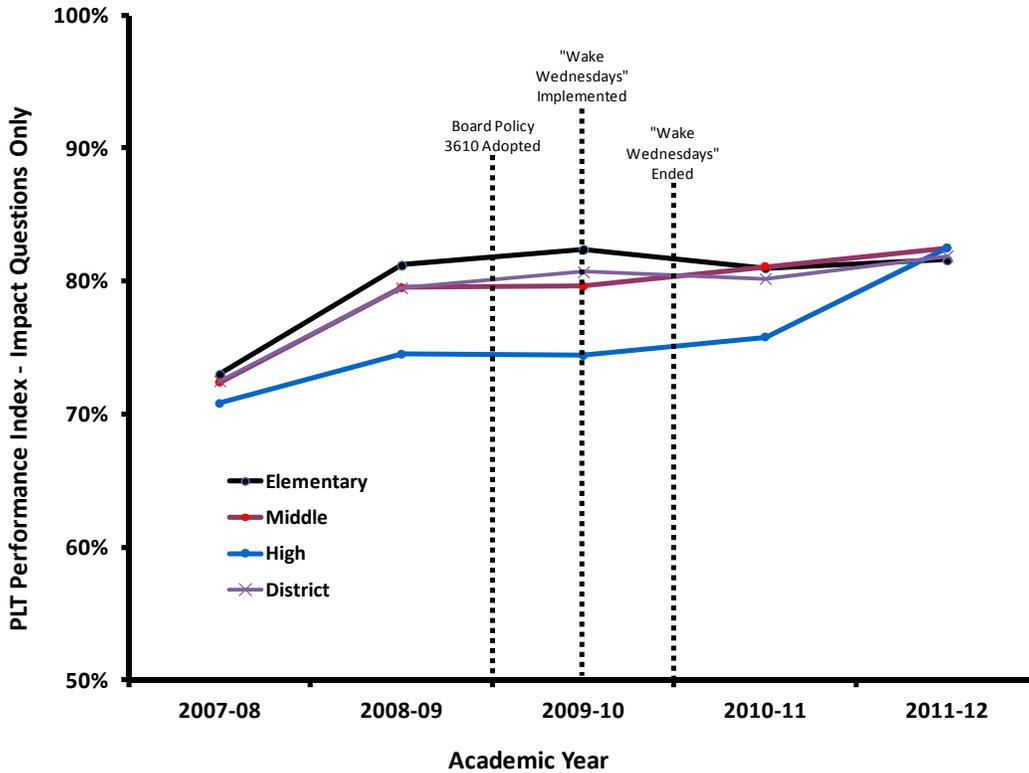
The fact that these data have remained relatively stable over time, and that the various school levels have converged in 2011-12, suggest that leadership’s expectations for professional collaboration have been successfully integrated into the district’s culture. By extension, the fact that these composite metrics have not declined suggests that the best practices for PLT work have become firmly ingrained, at least to varying extents, within the schools’ faculties.

Table 5
PLT Performance Composites by School Level over Time: 07-08 to 11-12
Impact Items Only

Level	2007-08	2008-09	2009-10	2010-11	2011-12	Change from 07-08 to 11-12
Elementary School Teachers	73.0%	81.2%	82.4%	81.0%	81.7%	8.7%
Middle School Teachers	72.4%	79.5%	79.6%	81.1%	82.5%	10.1%
High School Teachers	70.8%	74.5%	74.4%	75.8%	82.5%	11.7%
All Teachers Combined	72.5%	79.5%	80.7%	80.2%	82.0%	9.5%

2007-08 n = 6,858; 2008-09 n = 7,306; 2009-10 n = 7,660; 2010-11 n = 7,507; 2011-12 n = 7,840
Data Source: WCPSS data analysis of 2007-08, 2008-09, 2009-10, 2010-11, and 2011-12 High Five PLT Surveys.

Figure 3
PLT Performance Composites by School Level over Time: 2007-08 to 2011-12
Impact Items Only



2007-08 n = 6,858; 2008-09 n = 7,306; 2009-10 n = 7,660; 2010-11 n = 7,507; 2011-12 n = 7,840

Notes: All percentages were rounded to the nearest whole number.

The “zero” to “50” scale is not shown on the graph’s y axis.

Data Source: WCPSS data analysis of 2007-08, 2008-09, 2009-10, 2010-11, and 2011-12 High Five PLT Surveys

Teacher Retention

In the most recent High Five survey, 94% of all teachers either “agreed” or “strongly agreed” that PLTs provide a more supportive environment for teachers (see Table 4). Nevertheless, the attrition rate for WCPSS teachers has hovered around 10% per year for the past four years (see Table 6).

Yet while the district’s long-term retention rate appears relatively stable, some interesting fluctuations are evident. The retention data graphed in Figure 3 illustrate that the implementation of Board policy 3610 in 2008-09 and the “Wake Wednesdays” policy in 2009-10 may have had a positive effect on the district’s retention rate for elementary and middle school teachers during the year “Wake Wednesdays” were implemented, a gain that was then reversed as the policy was discontinued. High school teachers’ attrition rate continued to rise during the period of “Wake Wednesdays.” However, any inferences from these data must be drawn cautiously since other factors were happening at the same time. In addition, the year-to-year changes were fairly small. Figure 4 also

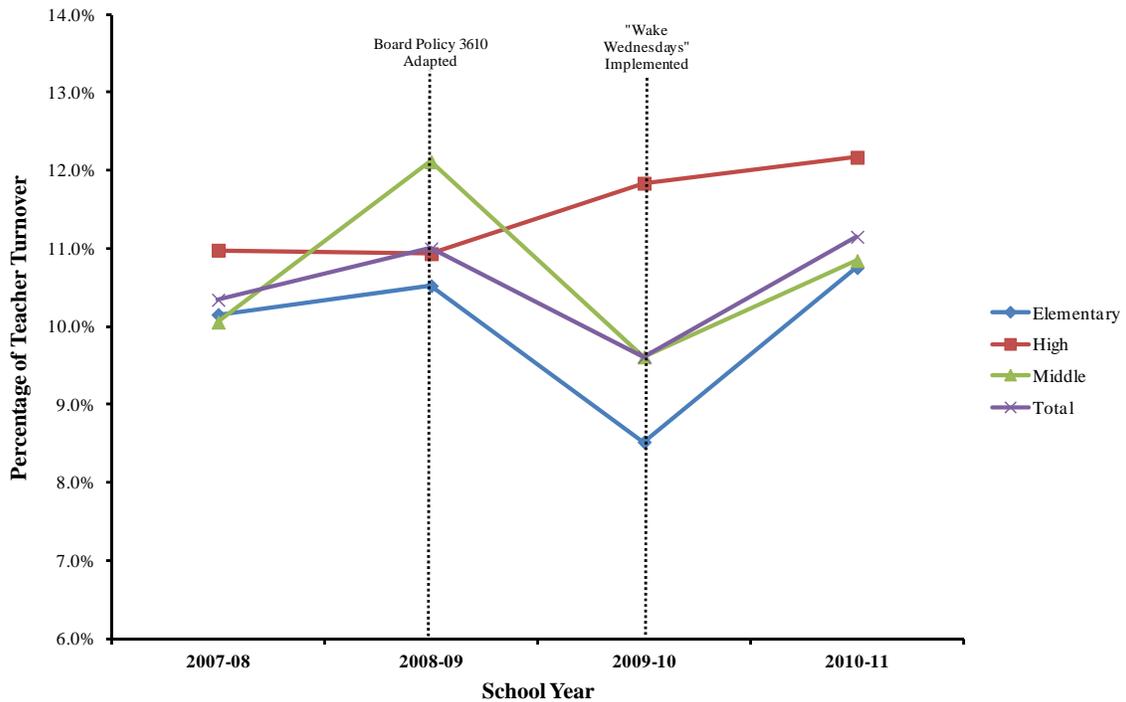
illustrates how elementary school teachers have been the least likely to leave the district, whereas the high school teachers have been the most likely (with the exception of 2008-09).

Table 6
WCPSS Teacher Turnover: 2007-08 to 2010-11

Grade	2007-08			2008-09			2009-10			2010-11			2007-2011 Difference
	n	n left WCPSS	% turnover	n total	n left WCPSS	% turnover	n total	n left WCPSS	% turnover	n total	n left WCPSS	% turnover	
Elementary	4,520	459	10.2%	4,827	508	10.5%	4,893	417	8.5%	4,778	514	10.8%	0.6%
High	2,295	252	11.0%	2,387	261	10.9%	2,416	286	11.8%	2,498	304	12.2%	1.2%
Middle	2,098	211	10.1%	2,204	267	12.1%	2,268	218	9.6%	2,139	232	10.8%	0.8%
Total	8,913	922	10.3%	9,418	1,036	11.0%	9,577	921	9.6%	9,415	1,050	11.2%	0.8%

Data Source: WCPSS Human Resources.

Figure 4
WCPSS Teacher Turnover: 2007-08 to 2010-11



Data Source: WCPSS Human Resources.

STUDENT IMPACT

Percentage of Failing Grades

Grades are one measure of students' success, and they impact students' future course taking, likelihood of graduating, and college choices. This measure is more subjective than some others, in that grades have traditionally mixed the level of student knowledge and effort into one grade, and different teachers create their own standards for which aspects of the work count and to what extent. It is hoped that PLT collaboration leads to more common grading standards, as teachers develop and use common formative assessments, discuss issues such as grading and instruction and student progress and needs. It is further expected that student grades will improve as they are better supported on an ongoing basis and more engaged in their work.

Some of the High Five presenters in recent years have focused on traditional grading practices and alternatives, and WCPSS elementary schools have used standard-based grading for several years. Grading changes have been more teacher- and school-based at the secondary level. Analyses reported here are from the middle and high school grades.

The analysis summarized in Table 7 reports the number and percentage of failing grades at the middle school level in the 2007-08 and 2008-09 school years. To help determine the effect of successful PLT implementation, the data was disaggregated into three tiers of schools that contained low-performing, middle-performing, or high-performing PLTs, according to each school's individual PLT Performance Index for each of the designated school years. To provide a more accurate picture over time, the data from 2007-08 and 2008-09 were averaged; those means are reported as well.

Failing grades were not common at the middle school level in the years studied, ranging from a two-year average of 2.4% of the grades given at grade 6 to an average of 5.1% at grade 8. A review of the middle school trends reveals that:

- With only one exception (Grade 6 in 2007-08), the schools with high-performing PLTs had a lower percentage of failing grades in every grade level in each of the designated school years.
- When the two-year averages are compared, the schools with high-performing PLTs had a lower percentage of failing grades than the schools with middle or low-performing PLTs.
- The frequency of failing grades dropped more between 2007-08 and 2008-09 in schools with medium or high levels of PLT implementation than those with low levels of PLT implementation.

Admittedly, in some cases the difference was less than one percentage point. At this juncture, however, we must remember that relatively few failing grades were given, that these data represent actual students, and the large size of WCPSS means that even small

changes in the overall percentages can reflect substantial numbers of children who have passed – instead of failed – any particular course.

Table 7
WCPSS Middle School Failing Grades: 2007-08 to 2008-09

PLT Tier	Grade 6			Grade 7			Grade 8		
	n	Number of Failing Grades	%	n	Number of Failing Grades	%	n	Number of Failing Grades	%
Low									
2007-2008	25,044	597	2.38%	25,187	1,149	4.56%	24,695	1,126	4.56%
2008-2009	32,279	759	2.35%	30,712	1,167	3.80%	31,831	1,768	5.55%
Average	28,662	678	2.37%	27,950	1,158	4.18%	28,263	1,447	5.06%
Medium									
2007-2008	24,426	803	3.29%	27,078	1,408	5.20%	27,907	1,978	7.09%
2008-2009	24,425	477	1.95%	24,565	981	3.99%	27,793	1,555	5.59%
Average	24,426	640	2.62%	25,822	1,195	4.60%	27,850	1,767	6.34%
High									
2007-2008	22,851	717	3.14%	21,824	892	4.09%	22,068	911	4.13%
2008-2009	24,334	282	1.16%	23,472	584	2.49%	23,114	714	3.09%
Average	23,593	500	2.15%	22,648	738	3.29%	22,591	813	3.61%
All									
2007-2008	22,851	717	3.14%	21,824	892	4.09%	22,068	911	4.13%
2008-2009	81,038	1,518	1.87%	78,749	2,732	3.47%	82,738	4,037	4.88%
Average	51,945	1,118	2.51%	50,287	1,812	3.78%	52,403	2,474	4.50%

Source: WCPSS analysis of 2007-08 and 2008-09 Student Information Systems.

Note: Average “n” was rounded to the nearest whole number.

Since most failing grades occur at the high school level, a similar analysis was conducted for grades 9-12 using data from the 2008-09, 2009-10, and 2010-11 school years. As shown in Table 8, the percentage of grades that are Fs is highest at grade 9 (11.8% across the three years studied) and decreases with each higher grade (to 8.5% at grade 10, 6.7% at grade 11, and 3.6% at grade 12). Because grade 9 is also the highest dropout grade, discussions on grading have been particularly important for grade 9 teachers.

As Table 8 also illustrates, the data are even more encouraging than the middle school results. Without exception, the schools within the high-performing PLT tier had a lower percentage of failing grades in every grade, in every school year, than the schools whose index placed them in the middle and low-performing PLT tiers. The largest improvements were evident at grade 9, where failures were most common.

While it is exceedingly difficult to establish causation in the social sciences, the data pattern is undeniable: schools with high-performing PLTs have a lower percentage of

failing grades, at least in WCPSS. The data pattern is further strengthened by its consistency across all three of the most recent school years, as well as its consistency across all secondary grade levels.

Table 8
WCPSS High School Failing Grades: 2008-09 to 2010-11

PLT Tier	Grade 9			Grade 10			Grade 11			Grade 12		
	n	Number of Failing Grades	%	n	Number of Failing Grades	%	n	Number of Failing Grades	%	n	Number of Failing Grades	%
Low												
2008-2009	21,540	2,664	12.4%	17,675	1,396	7.9%	15,688	1,031	6.6%	13,606	571	4.2%
2009-2010	21,751	2,671	12.3%	18,800	1,565	8.3%	16,798	1,134	6.8%	15,701	591	3.8%
2010-2011	20,739	2,661	12.8%	15,674	1,653	9.5%	16,480	1,185	7.2%	15,779	671	4.3%
Average	21,343	2,665	12.5%	17,383	1,538	8.6%	16,322	1,117	6.8%	15,029	611	4.1%
Medium												
2008-2009	32,362	4,094	12.7%	29,791	2,562	8.6%	26,081	1,688	6.5%	24,936	922	3.7%
2009-2010	33,695	3,933	11.7%	29,817	2,736	9.2%	28,162	2,041	7.2%	22,956	878	3.8%
2010-2011	32,041	3,908	12.2%	26,940	2,647	8.9%	28,475	2,116	7.4%	25,725	939	3.7%
Average	32,699	3,978	12.2%	28,849	2,648	8.9%	27,573	1,948	7.1%	24,539	913	3.7%
High												
2008-2009	32,712	3,914	12.0%	26,251	1,897	7.2%	22,876	1,442	6.3%	19,439	600	3.1%
2009-2010	32,405	3,720	11.5%	28,312	2,039	7.2%	24,538	1,446	5.9%	21,222	688	3.2%
2010-2011	36,204	3,572	9.9%	27,844	2,209	7.4%	26,562	1,688	6.4%	22,379	778	3.5%
Average	33,774	3,735	11.1%	27,469	2,048	7.3%	24,659	1,525	6.2%	21,013	689	3.3%
All												
2008-2009	86,614	10,672	12.3%	73,717	5,855	7.9%	64,645	4,161	6.4%	57,981	2,093	3.6%
2009-2010	87,851	10,324	11.8%	76,929	6,340	8.2%	69,498	4,621	6.7%	59,879	2,157	3.6%
2010-2011	88,984	10,141	11.4%	70,458	6,509	9.2%	71,517	4,989	7.0%	63,883	2,388	3.7%
Average	87,816	10,379	11.8%	73,701	6,235	8.5%	68,553	4,590	6.7%	60,581	2,213	3.6%

Source: WCPSS analysis of 2008-09, 2009-10, and 2010-11 Student Information Systems.

Note: Average “n” was rounded to the nearest whole number.

Retention Rates

A positive impact of PLTs on student retention rates was expected as teachers worked together to find better ways to reach individual students and groups of students. Changes in grading could also reduce the percentage of failed classes and grades. Evidence suggests PLTs’ existence correlates well with a reduction in retention rates in WCPSS over the past five years. The most recent available data show that the district’s overall retention rate has declined every year, from 4.6% in 2006-07 to 3.6% in 2010-11 (see Table 9).

When examined by grade, the data show that the biggest declines in the retention rates occurred in the grades where most retentions occur. More specifically, retention rates have been the highest for ninth grade students across the K-12 spectrum, with nearly one in five students retained in 2006-07. This is followed by the tenth, eleventh, and twelfth grades. At the elementary level, most retentions were in the kindergarten and first grade. In kindergarten, the retention rate was cut in half, falling from 4.2% to 2.0% from 2006-07 to 2010-11. Similarly, first grade retentions fell from 4.7% to 2.4% along the same timeline. In the higher grades, it is worth noting that the ninth grade retention rate peaked at 19.5% in 2006-07 before steadily dropping to 15.2% in 2010-11.

Only the eighth (0.2 percentage points) and eleventh (0.1 percentage points) grades showed any increase in the retention percentage over the same five year time span, and these increases were very small (with eighth grade retention still below two percent).

Table 9
WCPSS Retention Rates: 2006-07 to 2010-11

Grade	2006-07		2007-08		2008-09		2009-10		2010-11		Difference 2006-2011
	n	%	n	%	n	%	n	%	n	%	
K	480	4.2%	376	3.3%	398	3.4%	272	2.5%	232	2.0%	-2.2%
1	527	4.7%	474	4.0%	385	3.3%	324	2.7%	265	2.4%	-2.3%
2	278	2.6%	255	2.3%	246	2.1%	185	1.6%	195	1.6%	-1.0%
3	175	1.7%	134	1.2%	182	1.6%	145	1.2%	183	1.6%	-0.1%
4	82	0.8%	57	0.5%	71	0.7%	70	0.6%	60	0.5%	-0.3%
5	52	0.5%	51	0.5%	67	0.6%	51	0.5%	70	0.6%	0.1%
6	84	0.9%	106	1.1%	79	0.8%	61	0.6%	62	0.6%	-0.3%
7	106	1.1%	120	1.2%	74	0.7%	93	0.9%	70	0.6%	-0.5%
8	119	1.2%	138	1.4%	123	1.2%	111	1.1%	150	1.4%	0.2%
9	2,013	19.5%	2,091	19.0%	1,941	17.2%	1,844	16.2%	1,681	15.2%	-4.3%
10	968	10.7%	953	10.5%	926	9.6%	956	9.6%	939	9.6%	-1.1%
11	598	7.3%	564	6.7%	580	6.9%	671	7.4%	695	7.4%	0.1%
12	374	4.9%	380	4.7%	355	4.2%	385	4.5%	417	4.5%	-0.4%
Total	5,856	4.6%	5,699	4.3%	5,427	4.0%	5,168	3.7%	5,019	3.6%	-1.1%

Data Source: WCPSS Student Information Systems data file of K-12 students flagged as promoted, graduated, or retained as of the end of the 2006-07, 2007-08, 2008-09, 2009-10, and 2010-11 school years.

The data show that the district's retention rates have continued to fall steadily and one must wonder if it is possible to attribute the improvement – at least in part – to PLT work by the teaching staff. Skeptics could certainly argue that the district has continued to run many different programs and educational initiatives concurrently. Any changes in the student outcome data, such as the declining retention rate, could be influenced either positively or negatively by any number of extraneous factors.

In an attempt to isolate the effect of successful PLT work to the greatest extent possible, a special analysis of retention rates was conducted for this report. Within each school level, the schools were sorted on a continuum based on their 2009-10 PLT Performance

Indices. At that point they were divided as evenly as possible into three groups of low, middle, and high performing PLTs, based on each school’s PLT Performance Index.

Afterwards, the retention rates of the schools with low, middle, and high performing PLTs were averaged to create a second retention composite for selected grades. For the purposes of this analysis, the grades with the highest traditional retention rates were selected – kindergarten, first, and second grades from the primary levels, as well as all four years of high school at the secondary levels. The end result was an average retention rate for selected grades for each PLT tier. Finally, a Pearson Chi-Square test for statistical significance was calculated for all values. Table 10 reports the results of this analysis, and several aspects are worth noting:

1. For the first grade, the relationship between PLT tier and the retention rate was statistically significant at a high ($p<.01$) level. The Chi-Square results for the ninth, tenth, and eleventh grades were even more impressive; the relationship between PLT tier and retention rate was statistically significant at the $p<.001$ level.
2. Without exception, the schools with the highest level of PLT functioning have markedly lower student retention rates than those with the lowest level of functioning. The grades with the biggest difference in retention rates were at the high school level, particularly in grades 10 (3.6 percentage points), 9 (3.3 percentage points), and 11 (2.5 percentage points). The differences between the high and low retention rates in the three primary grades were not as dramatic, yet noteworthy nonetheless. Here the retention rates differed by 0.5 percentage points in the second grade, 0.6 percentage points in kindergarten, and 1.1 percentage points in first grade.
3. With only one exception (the middle tier of kindergarten), each grade’s retention rate was lower with higher levels of PLT functioning. Generally speaking, the highest-performing tier had lower retention rates than the middle-performing tier, which had lower retention rates than the lowest-performing tier. Given the consistency of the data across these key grade levels with the historically highest retention rates, it is possible to make the tentative inference that successful PLT work is likely to reduce the retention rate of students.

Table 10
WCPSS Retention Rates by PLT Tier in Selected Grades: 2009-10

Tier	K	1	2	9	10	11	12
Low	3.0%	3.1%	1.8%	18.8%	11.2%	8.5%	5.1%
Middle	2.2%	3.0%	1.7%	15.7%	10.7%	8.2%	4.5%
High	2.4%	2.0%	1.3%	15.5%	7.6%	6.0%	3.9%

Data Source: WCPSS analysis of Student Information Systems data file of K-12 students flagged as promoted, graduated, or retained as of the end of the 2009-10 school year.

*Statistically significant relationship with the “High” tier at the $p<.01$ level.

**Statistically significant relationship with the “High” tier at the $p<.0001$ level.

EOG/EOC Proficiency and Growth Results

EOG/EOC data is one of the district's most trusted indicators of student achievement. Consequently, it is logical to examine EOG/EOC growth, as well as scale scores, over the time period in which PLTs were being implemented. It is also important to note that the 2008-09, 2009-10, and 2010-11 results include the retests, which may explain some of the improvement when those results are compared to years when the retests were not counted. Table 11, therefore, reports the 2007-08 results for information purposes, but for consistency, differences in improvement were calculated by comparing 2010-11 results to 2008-09.

EOG/EOC proficiency rates have improved in almost every subject consistently tested between 2008-09 and 2010-11. These improvements range from 1.2 percentage points for Math Grades 3-5 (84.7% in 2008-09 to 85.9% in 2010-11) to 13.0 percentage points in physical science (67.3% in 2008-09 to 80.3% in 2010-11). There was also a notable 8.3 percentage point gain for Algebra 1 (74.6% in 2008-09 to 82.9% in 2010-11) and a 6.9 percentage point gain Algebra 2 (81.5% in 2008-09 to 88.4% in 2010-11). In other cases, such as U.S. History (77.6% in 2008-09 to 83.9% in 2010-11), the proficiency rate increased 6.3 percentage points over a three-year timeframe.

One-year trends are more mixed, and the differences are much smaller than the long-term trends. When 2010-11 scores are compared to the previous year, there were only two courses that changed more than two percentage points: Science Grade 5 increased by 4.7 percentage points from 2009-10, and Algebra 1 Grades 6-8 decreased by 2.1 percentage points. However, in the case of Algebra 1 Grades 6-8 it must be noted that the number of students involved approximately doubled due to the Evaluation Value Added Assessment System (EVAAS®) placements, yet the proficiency rate remained very high (97%).

Table 11
EOG/EOC Performance: 2007-08 to 2010-11

EOC/G Name	2007-08		2008-09		2009-10		2010-11		2008-09 to 2010-11
	% Proficient	n	Difference						
Math Grades 3-5	79.0%	31,775	84.7%	32,677	85.0%	33,824	85.9%	34,655	1.2%
Reading Grades 3-5	65.4%	31,769	73.4%	32,657	74.6%	33,811	76.3%	34,650	2.9%
Science Grade 5	n/a	n/a	65.2%	10,696	70.7%	10,963	75.4%	11,322	10.2%
Math Grades 6-8	74.5%	29,767	82.0%	30,665	83.5%	31,473	84.4%	32,581	2.4%
Reading Grades 6-8	64.7%	29,759	73.5%	30,661	75.6%	31,462	76.1%	32,575	2.6%
Science Grade 8	n/a	n/a	74.3%	10,106	77.9%	10,169	79.2%	10,702	4.9%
Algebra 1 Grades 6-8	96.7%	3,360	97.9%	3,125	99.1%	3,323	97.0%	5,027	-0.9%
Algebra 1	74.2%	10,221	74.6%	10,798	83.3%	10,170	82.9%	10,667	8.3%
Algebra 2	77.0%	8,441	81.5%	8,391	88.5%	8,638	88.4%	7,076	6.9%
Biology	76.3%	9,618	80.1%	10,544	83.7%	10,198	84.2%	10,629	4.1%
Civics and Economics	78.0%	9,653	80.4%	9,695	83.9%	10,439	85.5%	10,773	5.1%
English 1	78.9%	10,558	80.6%	10,899	85.1%	10,937	84.5%	11,082	3.9%
Geometry	74.5%	7,859	80.5%	8,541	85.6%	7,796	n/a	n/a	5.1%
Physical Science	60.0%	3,459	67.3%	3,438	81.1%	3,545	80.3%	3,704	13.0%
US History	74.3%	8,619	77.6%	8,470	85.1%	9,328	83.9%	9,567	6.3%
Writing Grade 10	78.4%	8,919	79.2%	9,540	76.3%	9,828	76.8%	9,899	-2.4%

Source: WCPSS analysis of 2007-08, 2008-09, 2009-10, and 2010-11 testing data.

Note: The reported change in Science Grade 5 and Science Grade 8 scores reflects the difference between 2008-09 and 2010-11; the tests were not administered in 2007-08.

Note: The reported change in Geometry reflects the difference between 2008-09 and 2009-10; the test was not administered in 2010-11.

Note: Retests are included in 2008-09, 2009-10, and 2010-11 results.

As shown in Table 12, scales scores remained relatively stable, with a slight upward trend across all academic disciplines. In 20 comparisons by subject and grade between 2008-09 and 2010-11, no declines were evident in any subject area. Viewed holistically, the scale scores posted an improvement ranging from 0.4 to 2.5 points between 2008-09 and 2010-11.

Table 12
WCPSS Scale Score Averages: 2008-09 to 2010-11

EOC/G Name	2008-09		2009-10		2010-11		2008-2011
	n	Average	n	Average	n	Average	Difference
Math Grade 3	10,808	348.1	11,222	348.1	11,623	348.7	+0.6
Reading Grade 3	10,785	342.8	11,188	342.9	11,622	343.5	+0.7
Math Grade 4	10,483	354.2	10,796	354.6	11,711	355.0	+0.8
Reading Grade 4	10,452	348.8	10,751	349.1	11,709	349.5	+0.7
Math Grade 5	10,349	359	10,517	359.7	11,321	360.4	+1.4
Reading Grade 5	10,313	353.9	10,493	353.9	11,319	354.6	+0.7
Math Grade 6	10,163	360	10,372	360.4	10,999	360.7	+0.7
Reading Grade 6	10,164	356.3	10,354	356.6	10,996	356.8	+0.5
Math Grade 7	9,779	362.5	10,192	362.9	10,877	363.5	+1.0
Reading Grade 7	9,790	359.2	10,181	359.4	10,871	359.9	+0.7
Math Grade 8	9,830	364.3	9,893	365.3	10,705	365.6	+1.3
Reading Grade 8	9,816	361.4	9,879	362.1	10,708	362.3	+0.9
Algebra 1	11,116	155.9	10,463	157.3	12,727	157.0	+1.1
Algebra 2	8,427	155.2	8,598	156.1	6,938	156.4	+1.2
Biology	10,416	155.2	10,033	155.7	10,583	155.9	+0.7
Civics and Economics	9,677	155.9	10,392	156.4	10,727	156.7	+0.8
English 1	10,692	153.7	10,736	154.2	11,048	154.1	+0.4
Geometry	8,785	156.1	7,981	157.2	n/a	n/a	+1.1
Physical Science	3,437	152.1	3,535	154.5	3,673	154.6	+2.5
US History	8,453	155.5	9,289	157.2	9,509	157.3	+1.8

* Difference between 2008-09 and 2009-10

Source: WCPSS analysis of 2007-08, 2008-09, 2009-10, and 2010-11 testing data.

Note: Average and Number of Scores only represents multiple choice assessments (no alternate, etc).

Note: Retests are included in 2008-09, 2009-10 and 2010-11 results.

Few would argue that, generally speaking, test scores have risen since Board policy 3610 was established. But is PLT implementation the cause of this improvement, at least partially, or is the improvement entirely attributable to other factors? As noted earlier, there are many other factors influencing student achievement, and it is unwise to attribute positive or negative changes to any single variable, or even any combination of variables, without a more sophisticated analysis of patterns. For this reason, we conducted a more complex analysis to explore the relationship between academic outcomes and PLT functioning and determine the statistical significance of any differences found.

Relationship of PLT Implementation to Achievement Outcomes

A previous report (Jackl & Baenen, 2010) conducted exploratory analyses searching for impact on student outcomes based on schools that had been implementing PLTs with consistency prior to 2009-10, and those that were less consistent. A regression analysis was designed and conducted to explore the relationship between the High Five PLT Performance Indices and student performance indicators available through central databases, including the schools' performance and growth composites. Those results suggested a fairly strong relationship between PLT implementation and both school performance and student growth on state tests.

These earlier findings were enough inducement to conduct additional regression analyses using combined data from the completed 2007-08 and 2008-09 schools years. For comparison, identical analyses were performed with the combined data from the 2009-10 and 2010-11 school years. The key question of interest was whether the relationship between PLT implementation and ABCs indicators improved after the implementation of the PLT policy.

The simplest form of regression analysis is *linear regression*, which explores the relationship between two variables – an *explanatory* (independent) variable and an *outcome* (dependent) variable. In this case, the regression analysis helped determine if the schools' level of PLT functioning (explanatory variable) was related to their corresponding level of academic achievement (dependent variable), as measured by the state's ABCs Performance and Growth Composites. The Growth Composite analysis is actually the more important of the two in terms of PLT impact since improvement over two years in students' achievement is reflected in Growth. Performance, on the other hand, reflects the relationship of student performance to PLT implementation each year. Thus, it could partially reflect improvement and partially whether schools starting out with higher or lower performance composites were more or less likely to adopt PLTs.

This differs from the previous analyses discussed in this report, in which a PLT composite was calculated for each High Five survey theme based on the number of positive responses to each survey item returned by the district's individual teachers. For this analysis, the *PLT Performance Index* is a variable based on the percentage of positive responses at each individual school; it is not based on the percentage of positive responses throughout the entire district. In other words, PLT Performance Indices were calculated for each school by dividing the total number of positive responses to the High Five PLT Survey items by the total number of item responses within that school alone. Table 13 shows the variability that was present among the district's schools, disaggregated by school level, over the past four years.

Variability

The data show that the PLT indices for each grade span vary over time as well as across grade spans in a given year.

- By grade span, consistency improved at the elementary and middle schools over time, but not at the high school level. In 2007-08, the elementary indices ranged from a low of 55.9% to a high of 97% – a difference of 41.1 percentage points. By 2010-11, the elementary level’s lowest PLT Performance Index was 74.7%, with the highest corresponding elementary index reaching 97.9%. This resulted in a much narrower range of variance – only 23.2% in 2010-11. The range for middle school decreased between 2007-08 and 2008-09, and then stabilized at about 22 percentage points. High school patterns were more erratic by year. Variation in PLT implementation at the high school level was considerably higher in 2010-11 (40.8 percentage points) than in 2007-08 (21.4 percentage points).
- By year, the most consistency across levels was evident in 2009-10, the year in which the policy was implemented and a dedicated hour for PLT work was available through “Wake Wednesdays.”

The relative amount of variation among the schools, at the various school levels, impacts regression equations in important ways. In short, it is easier to determine statistically significant relationships when more variation is present than when the ranges are smaller and the schools are clustered more tightly together.

Table 13
PLT Index Variability by School Level: 2008-09 through 2010-11

School Level	2007-08 Low	2007-08 High	2007-08 Range
Elementary	55.9%	97.0%	41.1%
Middle	62.1%	90.7%	28.6%
High	68.7%	90.1%	21.4%
All Schools	55.9%	97.0%	41.1%
	2008-09 Low	2008-09 High	2008-09 Range
Elementary	63.0%	96.4%	33.4%
Middle	70.8%	91.7%	20.9%
High	62.1%	100.0%	37.9%
All Schools	62.1%	100.0%	37.9%
	2009-10 Low	2009-10 High	2009-10 Range
Elementary	75.2%	97.4%	22.2%
Middle	71.4%	94.2%	22.8%
High	65.7%	92.1%	26.4%
All Schools	65.7%	97.4%	31.7%
	2010-11 Low	2010-11 High	2010-11 Range
Elementary	74.7%	97.9%	23.2%
Middle	70.4%	92.0%	21.6%
High	53.6%	94.4%	40.8%
All Schools	53.6%	97.9%	44.3%

Source: WCPSS analysis of 2007-08, 2008-09, 2009-10, and 2010-11 High Five Survey data.
 Interpretation Example: The range of PLT functioning, as measured by variations in the PLT Performance Indices, was greater for all schools in 2010-11 (44.3 percentage points) than in 2009-10 (31.7 percentage points).

Regression Results

The results from the analysis of the combined 2009-10 and 2010-11 data did not meet the gold standard for statistical significance for either performance or growth. The relationship between the schools' PLT Performance Indices and their corresponding ABCs Performance and Growth Composites became weaker over time.

Table 14
Linear Regression Models
PLT Performance Indices by WCPSS School Data:
2007-08 / 2008-09 vs. 2009-10 / 2010-11

Outcome Variable	<i>n</i>	<i>r</i>	<i>r</i> ²	<i>p</i> (significance)
Performance Composite 2007-08 / 2008-09	155	0.2585	6.68%	0.0012
Performance Composite 2009-10 / 2010-11	163	0.0947	0.90%	0.2291
Growth Composite 2007-08 / 2008-09	152	0.3047	9.28%	0.0001
Growth Composite 2009-10 / 2010-11	163	0.1451	2.10%	0.0646

Note: Bold font indicates statistical significance at the $p < .05$ level.

Source: WCPSS analysis of 2008-09 and 2010-11 High Five Survey data and WCPSS school data.

The best way to understand the relationship between the variables in a linear regression analysis is to graphically depict that relationship using a scatterplot, as shown in Figure 5. The explanatory variable for the first linear regression analysis is the combined average of each school's *PLT Performance Index* from the 2007-08 and 2008-09 school years. These two school years were selected because Board policy 3610 had not yet formally adopted PLTs as a key strategy within the district. The outcome variable for this analysis, therefore, is each school's combined average of its ABCs Performance Composites from the 2007-08 and 2008-09 school years.

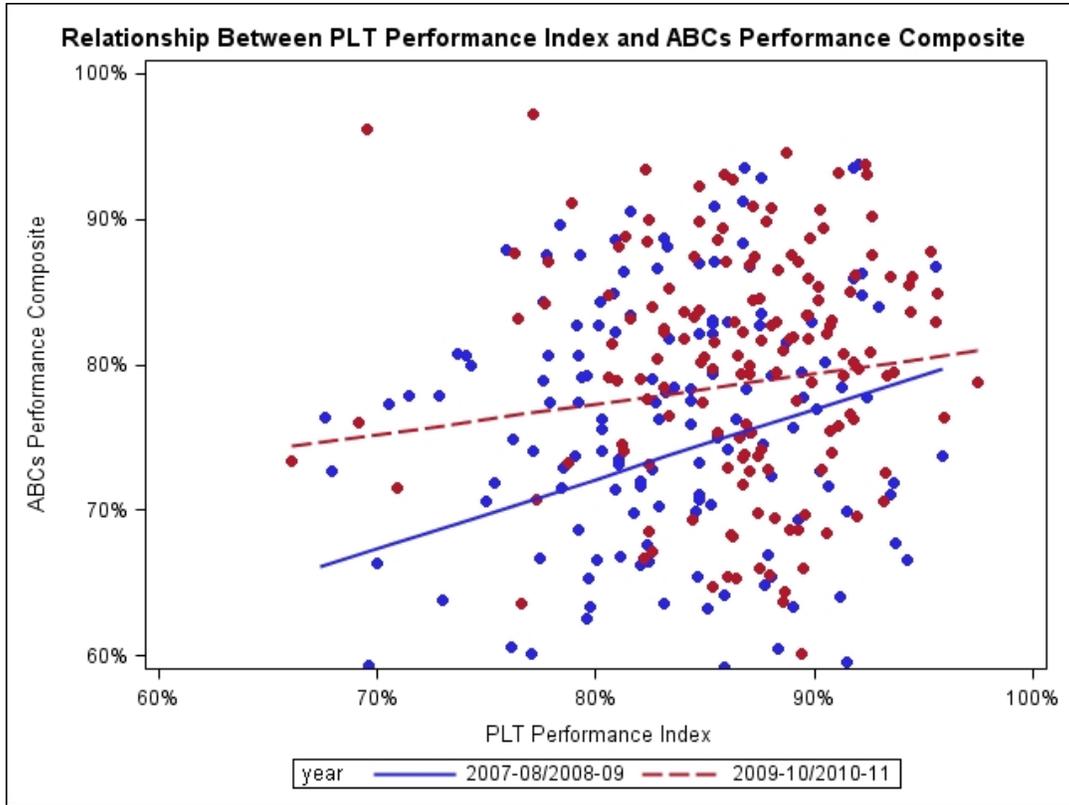
This first relationship, shown in blue, was drawn by plotting the schools' average PLT Performance Indices from 2007-08 and 2008-09 on the x-axis, and the schools' average ABCs Performance Composites from the same school years on the y-axis. The "line of best fit," also shown in blue, comes as close as possible to as many points as possible. The slope of that line – or the lack thereof – is determined by the nature of the relationship between the variables. In this case the regression line is sloping upwards, suggesting that the average ABCs Performance Composite for a school is likely to increase as its PLT Performance Index improves.

The second analysis, superimposed upon the first analysis in Figure 5, is illustrated in red. The methodology employed for this regression was identical to the one described above. The only difference was that it used the average PLT Performance Indices and average ABCs Performance Composites from the 2009-10 and 2010-11 school years instead of 2007-08 and 2008-09.

In this case, the red linear regression line generated from the 2009-10/2010-11 data is much flatter than the steeper-sloping blue line generated from the 2007-08/2008-09 data. This suggests a weaker relationship between the explanatory and outcome variables for the years after the Board policy was adopted than the years before. In other words, the data is suggesting that the relationship between PLTs and the achievement of students (as

measured by the two-year averages of the ABCs Performance Composites) did not improve after the Board policy was adopted.

Figure 5



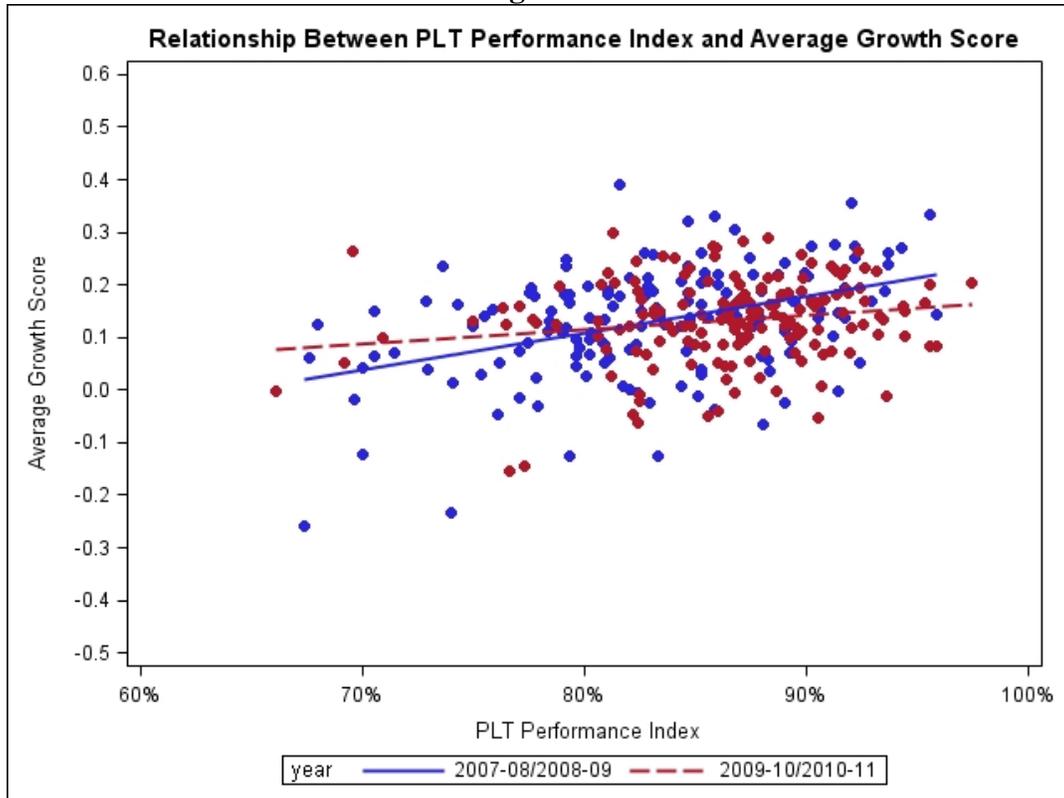
Source: WCPSS analysis of 2007-08, 2008-09, 2009-10, and 2010-11 High Five Survey data and WCPSS school data.
 Note: The blue represents a combined average of the data from the 2007-08 and 2008-09 school years.
 Note: The red represents a combined average of the data from the 2009-10 and 2010-11 school years.

The third and fourth linear regression analyses employ the same methodology from the same deliberately selected school years. In fact, even the average PLT Performance Indices are the same. The only difference is that in this case the outcome variables are a two-year average of each school’s ABCs Growth Composites instead of the ABCs Performance Composites shown previously. Note that the scale is much tighter using growth as the measure. Growth is on a normalized scale with a mean of zero and a standard deviation of one.

The third analysis, graphically illustrated in blue in Figure 6, was drawn by plotting each school’s average PLT Performance Indices from 2007-08 and 2008-09 on the x-axis, and the schools’ average ABCs Growth Composites from the same years on the y-axis. As before, the blue “line of best fit” also in blue, is drawn to be as close as possible to as many points as possible. The slope of the line, the distribution of the plots, as well as their proximity to the regression line, suggest that the average ABCs Growth Composites are likely to increase as the average PLT Performance Indices increase.

Finally, the fourth linear regression analysis, superimposed in red on Figure 6, was drawn by plotting each school's two-year average PLT Performance Index from 2009-10 and 2010-11 on the x-axis, and each school's average ABCs Growth Composite from the same school years on the y-axis. The line of best fit is flatter than the blue regression line from the earlier school years – suggesting a weaker relationship. Note that the distribution of these points, representing academic change, cluster together more tightly around the regression line – indicating less variability.

Figure 6



Source: WCPSS analysis of 2007-08, 2008-09, 2009-10, and 2010-11 High Five Survey data and WCPSS school data.

Note: The blue represents a combined average of the data from the 2007-08 and 2008-09 school years.

Note: The red represents a combined average of the data from the 2009-10 and 2010-11 school years.

The implications of these findings are open to debate. On one hand, they could mean that the relationship between PLT functioning (as measured by the annual High Five Survey) and student achievement (as measured by the ABCs Performance and Growth Composites) was stronger before Board Policy 3610 was implemented. By extension, it could be argued that PLTs are having less impact in recent years than they did previously. On the other hand, the data could imply that PLT work has become institutionalized among the district's schools and therefore the reduced variability (see Table 14) is creating a similar impact in more schools. The latter explanation is supported by the other descriptive data for student retention rates, grades, and EOG/EOC achievement results, suggesting that high levels of PLT functioning remain positively correlated to desirable educational outcomes.

DISCUSSION

This report examined PLT implementation, student impact, teacher impact, and the relationship between PLT functioning and student achievement. This was done by utilizing a variety of data sources and analytic techniques. Based on these analyses, the data suggest that PLT implementation is strong and stable within the district. These implementation efforts have spanned several years, and the five-year data trends suggest that PLTs have become – to an extent – institutionalized within the district’s schools. Despite this, slow, incremental progress towards full implementation is still being made.

By extension, the data from the district’s most trusted indices of academic achievement suggest that student performance is improving. Retention rates have steadily declined, the number of failing grades has fallen, and test scores have risen. These trends should result in higher graduation rates, which is the ultimate goal of PLTs over time. WCPSS data show that, after a four-year decline, the district’s four-year cohort graduation rate rose to 81.0% in 2010-11, with 15 of 23 schools posting increases. Rates for Hispanic/Latino, Black/African-American, and Free or Reduced-Price Lunch (FRL) students showed significant gains. Teachers’ responses to the High Five PLT Survey items have remained overwhelmingly positive, approaching 90% agreement in most cases, and the turnover rate has not increased. The data suggest that PLT work is having a positive impact on teachers’ instruction, and this has remained relatively consistent despite the economic downturn, budget strains, larger class sizes, staff reductions, and other challenges that have occurred in the past five years.

Throughout this report the authors have noted that educational outcomes are affected by a wide array of variables, and that PLT work is just one factor influencing those outputs. With that being said, the attempt to isolate the impact of successful PLT implementation on selected educational outcomes using an expanded regression analysis was particularly helpful, even if the data fell short of meeting the gold standard for statistical significance. Additional research may be warranted to better understand the nature of these complex relationships and to determine if the links between academic achievement and PLT functioning can be more definitively established.

RECOMMENDATIONS

The Board, the Superintendent, and key leadership staff should:

1. Review the most recent PLT-related reports focusing on implementation and results. PLT collaboration appears to be occurring at all schools more consistently, although some variation in implementation exists and quality may vary.
2. Determine a future direction for PLT work and establish a plan to achieve those goals. This may involve re-establishing PLT contacts for every school, updating on-line resources or upgrading on-line training modules for new and experienced staff, or revisiting where WCPSS stands with common formative assessments as opposed to benchmark assessments.

3. Revise Board policy 3610 accordingly. Changes may be needed to the role of Central Services in supporting schools, or in the ways schools are asked to report PLT activities to their parents. In addition, decreasing the frequency of reporting to the Board on the PLT initiative (from “twice a year” to “periodically” perhaps) should be considered now that the effort is fairly institutionalized. This will free up resources for other evaluations and studies. Decreasing the frequency of administering the High 5 Survey on PLTs to every other year should also be considered, which will take consultation with the other four area districts. This would allow teachers to be asked about other issues in the opposite year.
4. Communicate any changes to Board policy and the reasons for them clearly. It is especially important to clarify and review expectations for PLT work with new staff members. If PLTs are to be sustained, it is important to all staff to publically reaffirm the district’s commitment to Professional Learning Teams and assure the teachers that such work will continue.

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