2014 Educational Return on Investment Report

2012-2013 Program Evaluation

April 2014

Office of Accountability
Department of Research, Evaluation, and Assessment

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ABOUT THE DEPARTMENT OF RESEARCH, EVALUATION, AND ASSESSMENT

The Department of Research, Evaluation, and Assessment (REA) is a multi-faceted team that serves the district within the Office of Accountability. The REA department is comprised of the Supervisor of Research and Evaluation, the Supervisor of Assessment, a senior data analyst, a data analyst, and two accountability specialists. The department is responsible for state accountability measures, administration of all district-wide assessments, program evaluation, researching curricular data, communicating data to appropriate stakeholders across the district, and providing its analytical expertise to assist school leaders in making student-centered, data-driven decisions. In addition to these responsibilities, the REA team also serves as the gateway for external organizations requesting access to data from the Knox County Schools to include in third-party research.

ABOUT THE OFFICE OF ACCOUNTABILITY

The Office of Accountability operates under the leadership of the Chief Accountability Officer. The office is responsible for district accountability and organizational performance, with the ultimate goal of increasing student academic achievement. Staff members lead efforts to interpret data, identify root causes, and provide actionable feedback to inform strategic planning and resource allocation. The Office of Accountability directs and coordinates the following areas: Elementary and Secondary Education Act compliance; assessment; research; program evaluation; performance evaluation data collection and support; performance-based compensation data collection and support; federal programs; strategic planning and improvement; and competitive grant funding and management.

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The Parthenon Group

Education Resource Strategies (ERS)

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FREQUENTLY USED ACRONYMS

AMO Annual Measurable Objectives. AMOs are performance targets related to student growth and achievement, which are an element of the Tennessee Department of Education accountability framework.

CBM Curriculum-Based Measurement. KCS uses *AIMSweb* as its universal screener to monitor student progress in literacy and numeracy based upon CBM.

DEA Discovery Education Assessments. KCS uses these formative assessments as diagnostic tools to help inform instruction. These assessments are available in grades 2 – 8 in reading, math, and science (online).

EOC End-of-Course exam. EOC exams are state-mandated assessments for English I, II, and III; Algebra I and II; Biology I; Chemistry I; and U.S. History.

KCS Knox County Schools. The KCS is the third largest school district in Tennessee. KCS serves 58,000 students.

IA Instructional Assistant. KCS employs IAs across the district to support the work of teachers and administrators in schools. Many IAs support intervention programs for struggling students.

ILC Individual Learning Cycle. ILCs are personalized professional development and support for teachers in collaboration with instructional coaches.

NCE Normal Curve Equivalent. NCEs are the unit of measurement used to refer to student comparative performance on state assessments in grades 4 – 8. While percentiles are bunched at the mean under a normal curve, NCEs maintain equal length intervals.

PLC Professional Learning Communities. PLCs are collaborative planning sessions based on the model created by Richard and Rebecca DuFour.

REA Department of Research, Evaluation, and Assessment (Knox County Schools).

RLA Reading and Language Arts. RLA is a specific subject assessed by the Tennessee department of education.

SAT 10 Stanford Achievement Test Series 10 (also known as K – 2 Assessment). The SAT 10 is a norm-referenced assessment utilized in KCS for students in Kindergarten through grade 2.

SMART Specific, Measurable, Attainable, Relevant, and Time-bound goals. SMART goals are used to monitor performance, specifically with regard to student academic outcomes.

STEM Science, Technology, Engineering, and Math. STEM programs provide students with opportunities for cross-curricular instruction, with a focus on practical application.

STEAM STEM plus the Arts. STEAM programs add an arts component to the STEM discipline to further develop student creativity in design and practical application.

TAP TAP – The System for Teacher and Student Advancement. A school reform model developed by the National Institute for Excellence in Teaching (NIET), TAP provides teachers with career advancement opportunities, job-embedded professional development, and performance-based compensation.

TCAP Tennessee Comprehensive Assessment Program. The TCAP exams are those administered by the Tennessee Department of Education in grades 3 – 12 to assess student mastery of the state standards.

TEAM Tennessee Educator Acceleration Model. TEAM is the annual evaluation process for all school-based certified staff, as required by Tennessee state statute.

TVAAS Tennessee Value-Added Assessment System. TVAAS is a statistical model that seeks to measure the impact of teachers, schools, and districts on student academic growth. The Tennessee Department of Education contracts with the SAS Institute to complete the TVAAS calculations.

WRC Words Read Correctly. *AIMSweb* uses words read correctly as one part of its reading curriculum-based measurement assessment. This measure does not include all words attempted.

WPM Words Per Minute. *AIMSweb* uses words per minute as one part of its reading curriculum-based measurement assessment. This measure does include all words attempted.

EXECUTIVE SUMMARY

During a time when resources are increasingly scarce, while the expectations for academic performance continue to rise, it is imperative for the Knox County Schools (KCS) to understand the true value of every dollar. As a resource-constrained public school district, we must ensure that our investments in strategic initiatives are actually yielding the expected results and paying dividends to our students, their families, and the larger community. Thus, in 2012, we embarked on the first effort to define and measure the educational return on investment in several key areas.

The Return on Investment (ROI) Report was released in conjunction with the Board of Education's budget request for the fiscal year ending 2013 (FY13). At that time, the KCS proposed a five-year financial plan that would have ultimately resulted in a $35 million increase in operational funding above natural revenue growth. Though the Knox County Commission did not approve the full proposal, the funding body did agree to an increase of $7 million annually to support specific investment areas. These investment areas are the focus of this report, *2014 Educational Return on Investment – 2012-13 Program Evaluation.*

The information and recommendations contained herein rely primarily on the program evaluation and analysis conducted by the Department of Research, Evaluation and Assessment in collaboration with project leaders in the Curriculum and Instruction area. However, this report also includes analyses resulting from the *Smarter School Spending Initiative* sponsored by the Bill and Melinda Gates Foundation. As one of four demonstration districts nationwide, this *Initiative* enabled the KCS to partner with The Parthenon Group, a leading management consulting firm, towards the end of completing a deep analysis of district expenditures to help develop a six-year strategic finance plan. This work was also supported by Education Resource Strategies. As such, we were also able to leverage both qualitative survey data and quantitative student outcome data from the *Smarter School Spending* efforts as a complement to our program evaluation work. Moreover, the technical assistance of The Parthenon Group contributed to some of the recommendations highlighted in this report.

This report includes three sections, constructed to meet the varying needs of our diverse audience, by presenting an increasing depth of analysis and programmatic details:

1) **The executive summary, which is a broad overview of the programs evaluated and the most compelling themes and considerations that have emerged from our work.**
2) **The management reports, which provide detailed information about each of the programs and investment analysis, as well as our major findings and recommendations.**
3) **The technical reports, which describe the evaluation process for each program in terms of data collection, methodology, and the results of our statistical analyses.**

The *2014 Educational Return on Investment* (E-ROI) report includes three sections, constructed to meet the varying needs of our diverse audience, by presenting an increasing depth of analysis and programmatic details:

1) The **executive summary**, which is a broad overview of the programs evaluated and the most compelling themes and considerations that have emerged from our work.
2) The **management reports**, which provide detailed information about each of the programs and investment analysis, as well as our major findings and recommendations.
3) The **technical reports**, which describe the evaluation process for each program in terms of data collection, methodology, and the results of our statistical analyses.

The initiatives included in 2014 E-ROI report include the following:

Initiative	Description
Community Schools	This initiative is comprised of expanded after-school services in partnership with public agencies and non-profit providers. Our review analyzed the impact of the Community Schools on student attendance, behavior, and academic growth at three elementary schools.
Teacher Support	This initiative encompasses the work of instructional coaches and lead teachers. Instructional coaches supported teachers in individual learning cycles and professional learning communities. Lead teachers supported instruction through TEAM post-conference feedback. Our evaluation focused on observation and TVAAS results for teachers receiving coaching support.
Tutoring	This initiative involves three tutorial programs targeted at three different grade levels: All Star (elementary); EXPLORE (middle); and ACT (high school). Our evaluation analyzed student results on TCAP assessments in elementary schools, and the specific exams as mentioned in middle and high school.
Intervention	This initiative is comprised of the materials, support, and personnel involved in the delivery of intervention services. We evaluated the efficacy of Voyager Passport, the district's chosen intervention program. We reviewed the 15 elementary schools that also incorporated instructional coaching for intervention solely focused on first-grade teachers and students. The additional elementary reading support review centered on instructional assistants hired specifically to provide intervention services. The summer bridge pilot focused on rising sixth graders who were targeted for support to close academic gaps before entering middle school; this program was modeled on a similar effort for rising high school freshman. All of our analyses concentrated on how these initiatives impacted student growth on SAT-10 and TCAP assessments.
Enrichment	This initiative includes activities that were designed to provide STEM-related extension opportunities for students who may be already meeting or exceeding high academic expectations. Schools determined how to spend district allocations for materials and events. This area of review also included the Fine Arts Summer Camp and expanded participation in Robotics competitions.
Magnet	This initiative consists of resources to support eight magnet programs towards the goal of developing a strong portfolio of schools that will both increase educational opportunity for all students and help drive instructional excellence. Our analysis included a review of marketing and recruitment efforts and resulting student participation rates.

Several operational themes emerged from our program evaluation and investment analysis that we believe are the critical attributes for future planning and implementation:

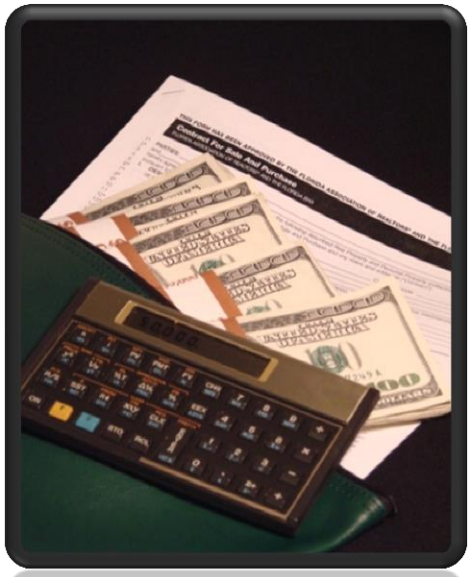
- **Learning from the "Bright Spots."** Almost without exception, there were school locations or target populations that greatly outperformed both peers in the program and in comparison control groups. The district must formalize its effort to build a knowledge base of learning from these schools. Developing *standards of practice* derived from successes in our district can greatly accelerate our ability to scale-up those successes.
  - *Community Schools* – Norwood Elementary students participating in the program experienced higher academic gains than their peers.
  - *ILC Support* – Based on the change in TVAAS Index over a two-year period, there was evidence that novice teachers and veteran teachers benefited the most from individual coaching support, as compared to mid-career educators.
  - *ACT Tutoring* – Halls High School students who received ACT tutoring had an average composite score 1.5 points higher than their peer group. Furthermore, over 64% of tutored students earned a composite score of 21 versus 54% of their peer group.
  - *First Grade Intervention* – Dogwood Elementary students who received intervention support through this initiative exhibited mean growth nearly 10 scale score points more than their comparison group.
- **Collaboration and Partnership.** The strategic efforts that showed the most promise were those which enabled deep partnership and collaboration. When community partnerships were engaged and/or schools had access to dedicated resources with high levels of expertise, students benefited.
  - *Community Schools and First Grade Intervention* – The collaboration between the district, the Great Schools Partnership, the United Way, and other community organizations enabled quality service delivery for students and families in both of these initiatives.
  - *PLC Support* – Instructional coaches in TEAM schools helped grade and subject teams achieve increased results for students. The collaboration of teacher teams with dedicated support from effective instructional coaches helped drive these results.
- **Timeliness and Intensity of Supports.** The initiatives that had a greater impact on student academic progress provided on-going support which continued throughout the school year and the assessment period. Currently, there is a tendency to remove supports after some formative measures show evidence of student progress. The intensity of support in terms of staffing ratios to support teachers or students is another barrier to maintaining sufficient effort. Yet, it is clear that to sustain results and build a strong foundation from which students and teachers continue to grow, these supports must be sustained for longer periods and at higher levels of intensity.
  - *EXPLORE Tutoring* – Tutoring for the exam was provided to 7th graders during the spring semester. After summer break, students returned to school to take the exam the following October. The lag between the support and the exam may have negatively impacted results.
  - *ILC and PLC Support (Coaching)* – The evidence from surveys indicated that at those schools where the coach-to-teacher ratio was 1:20 or less, teachers reported stronger perceptions of instructional support. The same was true of teacher perceptions of instructional support at TAP schools, which have master and mentor teachers in addition to instructional coaches.
  - *Summer Bridge* – This six-week intervention program provided targeted support for students the summer before their transition to middle or high school. Students were taught exclusively

by highly effective teachers with level 5 TVAAS scores. There is early evidence that the program participants were able to close skill gaps, at rates higher than their peers not enrolled in the bridge program.

- **Quality of Data Collection.** In our efforts to create a student-centered, data-driven culture, we must integrate systems to collect high quality data that reflects the work we are performing. We should not develop onerous reporting mechanisms that distract from our core work. Instead, we must leverage technology and design processes that allow student results to be recorded seamlessly in the course of delivering instruction or support.
  - *Community Schools* – The program evaluation for this initiative was limited due to the absence of data related to parent engagement or participation. Moreover, reliable data on discipline referrals was also lacking, as is the case in many elementary schools.
  - *Early Literacy (Voyager Intervention)* – Reporting for Voyager requires manual data entry. The quality of the program evaluation was affected by a lack of information such as the specific individual delivering the intervention services and the frequency of updates.
- **Fidelity of Implementation.** This issue was highlighted in the 2012 ROI report, and it continues to be a challenge in this program evaluation cycle. In a large district with 4,500 certified employees and over 900 instructional assistants, it is difficult to adequately monitor and support strategic instructional initiatives. The district has resolved to increase resources to schools; however, that choice has often come at the expense of being able to supply personnel who are able to help develop capacity and build collective efficacy in school-based staff.
  - *Additional Elementary Reading Support (Instructional Assistants)* – The district was able to hire instructional assistants (IAs) to deliver reading intervention services. However, teachers and principals agreed, based on survey responses, that IAs were less effective than teachers in delivering reading intervention services and student outcome data seemed to validate this conclusion. There are few resources available to invest in training and oversight to help instructional assistants improve their capacity to support student learning needs.
  - *Lead Teachers* – Though principals acknowledged the benefit of lead teachers in completing the evaluation process, in survey responses, classroom teachers did not express full confidence in the quality of feedback and reliability of the observations that their peers conducted. There is inadequate support for lead teachers to help them refine and improve their post-conference coaching skills.
- **Continuous Improvement and Implementation Progress Monitoring.** In order to achieve the high levels of fidelity noted above, structures and processes must be established to evaluate progress in real-time. The district should develop "input metrics" that are crafted to help staff determine if an initiative is proceeding as intended. The monitoring of such information can help implementation teams make mid-course corrections, as necessary, to ensure optimal outcomes.
  - *PLC Support* – The quality of SMART goals and efficacy of PLC teams varied widely across the district. Instructional coaches who may have needed more on-site coaching themselves generally had limited access to content supervisors for such support.
  - *Early Literacy (Voyager Intervention)* – Though we all recognize the importance of intervention for struggling students, there are few metrics to confirm service delivery as designed or to determine what adjustments are necessary in real-time. In many cases, this may be a significant barrier to greater student success in literacy.

INTRODUCTION

The Department of Research, Evaluation, and Assessment, in the Knox County Schools' Office of Accountability, published the inaugural Return on Investment (ROI) Report in 2012. (See Appendix 1: 2012 ROI Report Executive Summary.) The ROI report sought to link the goals of the school district's strategic improvement plan to resource allocation. In particular, the 2012 ROI analyzed the following:



1. Current funding sources and allocation practices
2. Expenditures versus student performance outcomes
3. Present return on investment for major district initiatives.

The 2012 ROI report also provided a comparison study of other school districts with similar demographics but better outcomes. There were several findings, which centered on the following:

- how funds are spent,
- the funding structure with regard to the Basic Education Program, the state funding formula, and
- operational themes related to instructional time, student expectations, teacher support, and data-driven culture.

The 2012 ROI report thoroughly reviewed the KCS funding structure and the implementation of the strategic plan. As such, this report will focus more narrowly on program evaluation, with investment analysis data that details the associated expenditures. The program evaluation includes those which were specifically funded by an additional $7 million investment in the FY13. (See Appendix 2: $7MM Investment Summary.)

In May 2013, the KCS was selected as one of four demonstration sites for the *Smarter School Spending Initiative* sponsored by the Bill & Melinda Gates Foundation. (See Appendix 3: Smarter School Spending Overview.) As a result of this selection, we were afforded the unique opportunity to receive technical assistance from The Parthenon Group and Education Resource Strategies (ERS) to review our strategic resource allocation practices. This work aligned well with our current program evaluation and ROI efforts, as well as the development of our next five-year strategic plan. The analysis of Parthenon and ERS largely confirmed that the district's overall resource allocation was quite modest versus national benchmark data. Moreover, the largest proportion of those resources is focused on school-based staff, leaving a central office function that may be under-resourced in reviewing data from comparison districts. (See Appendix 4: ERS/Parthenon Analysis – Overall Resource Allocation.)

As articulated in *Excellence for All Children*, the KCS 2009 strategic plan, we strive to advance a student-centered, data-driven culture:

> *Data will not be used to punish, but rather Knox County Schools' personnel will be expected to use data to inform decision-making, to analyze effectiveness, to reflect on educational progress, and to plan for the future. Possessing data is not the end goal, but an important*

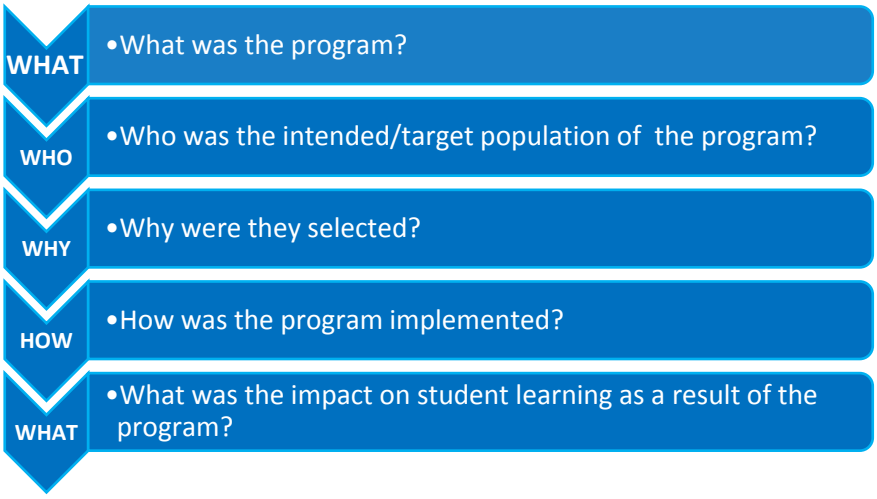
first step toward using that data to generate knowledge, and ultimately, to facilitate appropriate and informed action.

It is in this spirit that the REA team conducted our analysis and authored the *2014 Educational Return on Investment: 2012-2013 Program Evaluation*.

Why Evaluate Programs?

Our district must determine educational return on investment (E-ROI), such that we may maximize our impact on student learning outcomes. Understanding educational ROI enables district leaders and Board of Education members to make strategic decisions about budget priorities as we navigate resource constraints. Program evaluation is a foundational component for determining educational ROI and a necessary first step towards strategic resource allocation.

Program Evaluation Framework



Thus, we aim to disprove the old adage that districts are "data rich" and "information poor." Rather than guessing or hoping for the best, our discipline towards program evaluation and educational ROI will allow us to develop and foster a student-centered, data-driven culture. This is a culture in which all members of the district understand, apply and manage data as a means to support our efforts to improve student outcomes and achieve our ambitious goal of *Excellence for All Children.*

Typical District		Educational ROI Focused District
Line item budgets	*VS.*	Program budgets
Separate budgets for separate funding sources		Consolidated budgets
School attendance data		Program participation
State test scores		Student growth data
Data analysis focuses on student outcomes		Analysis incorporates outcomes AND cost
Roll forward budget		Strategic abandonment and investment process

Source: District Management Council 2013

MANAGEMENT REPORTS

The following section contains the Management Reports of each of the programs the REA evaluated. These Management Reports offer information about the programs, a brief investment analysis, and the findings and recommendations related to each program evaluation. These management reports are not technical and do not provide the details of our statistical analysis. Additional data about methodology or specific results can be found in the Technical Reports.

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1. Community Schools

Overview

The Knox County Schools launched the community school concept at Pond Gap Elementary school in 2011. That project was overseen through a partnership between the school and the College of Education at the University of Tennessee, which also provided funding. In 2012, the concept was expanded to three additional schools: Green Magnet Elementary, Lonsdale Elementary, and Norwood Elementary. The program evaluation was limited to these three expansion schools.

Community Schools is a strategy that aligns schools and community resources to provide services that meet the social, physical, cognitive, and economic needs of both students and their families. In particular, it provides enhanced learning opportunities for students and their families via tutoring and mentoring; family engagement activities; health, mental and social services; and early childhood development. This strategy also helps increase cooperation between schools and partners, as well as between teachers and parents. It is one component of Goal 3, "Engaged Parents and Community," in the KCS five-year strategic plan, *Excellence for All Children*, adopted in 2009.

The short-term benefits of a successful Community School include prepared and school-ready children with consistent attendance, engaged families, increased family access to health and social services, and an overall enhanced school environment.

The objectives of the program include:

- Delivering additional resources to students and their families to promote social-emotional health
- Providing extended learning opportunities for students and families
- Fostering positive attitudes about school as a strategy for raising achievement
- Building capacity for continued partnerships with the community in improving the overall academic success of students (i.e. students graduate ready for college, careers, and productive citizenship)
- Developing relationships between schools, families and partners of the community in supporting education

Community Schools provide services for students that extend beyond the traditional school scope. The program aims to strengthen family and school relations with these targeted, comprehensive services. The community partners provide support to parents and students at the school site to enhance the overall community well-being. The activities available to students and their families are open to the entire school. They include academic and social programs, as well as access to off-site services within the community. The school-based activities include, but are not limited to, the following:

Student Services	Family Services and Classes
• Academic tutoring • Mentoring • Enrichment classes	• Dinner served nightly • Finance courses • Résumé-writing and interview skills courses • Computer skills courses • GED and ELL (English Language Learners) courses

These agencies highlighted below were the primary partners to support the three new community school programs.

School	Community Partner Agency
Green Magnet	YMCA
Lonsdale Elementary	Project GRAD
Norwood Elementary	Great Schools Partnership

In addition, medical, dental, and mental health providers offered their services. Fine arts organizations, church and religious organizations, and the University of Tennessee have also provided support to the Community Schools program.

Investment Analysis

We originally budgeted $500,000 from general purpose funds to spend on Community Schools in fiscal year (FY) 2013. These funds were to provide after-school services, as well as support a resource coordinator to oversee the project. The actual expenditures were about 27% of the overall budget. The project leaders determined that it was not necessary to hire a coordinator immediately, as there was some capacity within the schools and in the Student Support Services department to oversee the programs at four schools in FY2013. Moreover, because of supplemental funding from existing resources, the expansion effort only relied upon a portion of the general purpose funding allocated.

The student count includes only those students deemed "high-risk" for the purposes of the program evaluation. There were, however, students informally participating in various Community Schools activities at these three locations beyond those highlighted in the evaluation.

Initiative	FY13 Budget		FY13 Actual Expenditures	# of High Risk Students	Cost Per Student
	Other	Early Literacy			
Expansion to 3 schools	$435,000	$ -	$133,486	243	$549
Resource Coordinator	$65,000	$ -	$ -	0	$ -
COMMUNITY SCHOOLS	**$500,000**	**$ -**	**$133,486**	**243**	**$549**

Findings

When the program was developed, the following progress indicators were identified as ways to assess effectiveness: (a) student attendance; (b) discipline referrals; (c) academic achievement and growth; and (d) parental engagement.

While we were able to collect data on the first three indicators, parental participation records were not gathered or reported uniformly amongst the three schools. With regard to discipline referrals, each participating school recorded incidents differently. Lonsdale Elementary preferred in-house records for certain types of disciplinary actions, while Green Magnet and Norwood Elementary uploaded all of their discipline data to the electronic student information system (to which the REA has access). So, there is a clear data limitation with regard to comparing the data across schools. Thus, our evaluation focused primarily on attendance and student performance.

While the entire school was engaged in some Community Schools activities, we have followed 246 students at the three schools who actively participated in the after-school programs throughout the year and were evaluated in the interim reports. We will be considering these same students for this report. We designated these 246 as "high-risk" students and their peers as "non-high-risk" students.

We evaluated the effect of the Community Schools program by comparing the performance of these two categories of students. We had baseline attendance data for almost 80% of the high-risk students. We had two years of academic data for approximately 144 students, such that we could use the academic growth information to evaluate the program impact on those students.

Our general findings are as follows:

1) There was no significant difference in absences or discipline referrals between the high-risk and non-high-risk students.
2) Regarding attendance rates, Green Magnet had the most improvement in its high-risk students among the three schools.
    a. It should be noted that the differences in attendance between the high-risk and the non-high-risk groups may be due in part to a selection bias.

3) The high-risk students performed better in the reading/language arts and math sections of the TCAP overall, with variations within the three schools.
4) Regarding academic growth, Norwood Elementary had the most improvement in its high-risk students of the three schools.
5) If we applied grades to changes in NCEs, they would be as follows:

	Community School Student?			
	No (Non-High-Risk)		Yes (High-Risk)	
	RLA	Math	RLA	Math
Green Elementary	B	D	F	A
Lonsdale Elementary	D	A	A	B
Norwood Elementary	B	A	A	A
Total	C	A	B	A

Recommendations

Moving forward, it will be important to continue monitoring this program, as many of the benefits to the school community, students, and their families will accumulate over the longer term.

In addition to those outcome-related recommendations, the REA also supports evaluative changes to the Community Schools program as well.

1) Develop a standard method to collect data on parent and family engagement in the Community School activities to help assess whether outreach and participation in the program is effective.
2) Request or require schools to upload their disciplinary referrals to the student information system in a standard fashion to yield data that is easily accessible and comparable.
3) Conduct qualitative follow-up at the schools, such as a formal program review, to ascertain implementation specifics and nuances. This is particularly important to complete at schools that performed better than their peer group, in order that we might be able to replicate what is working well at those schools.
4) Develop additional program indicators with school stakeholders and the community partners to enhance the overall evaluation of the Community Schools program.

2. Teacher Support

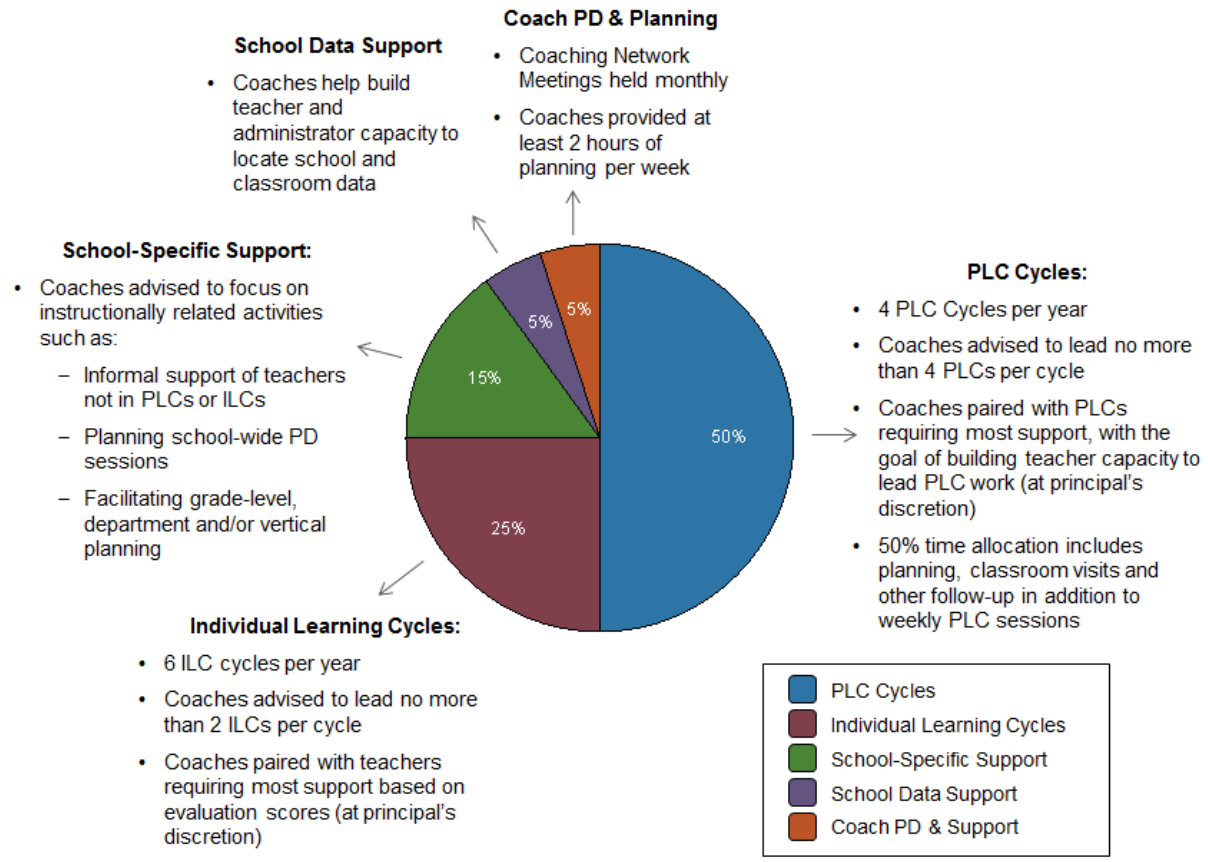
Introduction

In an effort to develop and retain "Effective Educators," as articulated in Goal 2 of the KCS strategic plan, both instructional coaches and lead teachers are roles designed to offer teachers professional support. The management reports that follow are organized based on three elements of support: (1) individual learning cycle (ILC) support and (2) professional learning communities (PLC) support, both delivered by instructional coaches, and (3) lead teacher support. In the 2012-13 school year, there were 136 Instructional Coaches and 226 Lead Teachers working in schools across the district.

The Knox County Schools' instructional coaching model was modified and re-launched in the 2012-13 school year based on peer-reviewed research which shows that job-embedded professional development has a significant impact on teaching and learning. In previous years, coaches were often tasked with items that were not necessarily "coaching" in nature, like coordinating textbook orders, budgeting, or performing administrative duties. The coaching model was revamped in an effort to focus coaches on instructionally related activities, such as conducting small group student interventions or helping teachers with the instructional shifts required to teach the Common Core State Standards.

The vast majority of coaches specialize in either literacy or numeracy, with two system-wide coaches to support science and social studies. Coaches facilitate PLCs and ILCs, provide support to school administrators and teachers, and attend monthly Coaches Network professional development workshops. The coaches are supervised through the Professional Development office, and principals of the schools to which they are assigned contribute to their evaluation as well.

The following graphic provides a visual summary of the KCS coaching model:



Source: KCS Coaching Model as depicted by The Parthenon Group 2013

The Lead Teacher role was introduced in 2011 to help provide a new formal teacher leadership opportunity while supporting the TEAM evaluation process. Lead teachers provide instructional support to their peer teachers primarily through the feedback they give during observation post-conferences.

Investment Analysis

A few adjustments were made to the teacher support budget to ensure the most efficient use of funding:

- Based on the requests from schools for 105 additional lead teachers in FY2013 above and beyond the 126 positions funded in FY2012, the Lead Teacher line item was decreased from $630,000 to $426,000.
- In addition, the Lead Teacher Pilot targeted for elementary schools was not logistically feasible using part-time teachers, based on feedback from elementary principals. Thus, the $496,000 budget was redistributed to fund coaching positions.
- In total, $700,000 was reallocated to the instructional coaching line item. This increase funded 10 additional positions:

- Six instructional coaches including one elementary generalist, one middle school gifted and talented (GT) coach, two secondary literacy coaches, and two secondary numeracy coaches.
- The remaining four positions were filled as one master teacher and three district lead teachers, who supported lead teachers system-wide.

Thus, 105 additional lead teacher positions and 35 additional coaching positions were funded in these line items. Of the 35 positions, 20 coaches were focused on elementary (early literacy).

Overall, the spending for teacher support was approximately 93% of the budgeted amount. The actual expenditures for lead teachers was less than budgeted, as 126 lead teacher supplements were paid from the Innovation Acceleration Fund, a state grant, in FY2013. The lead teacher expenditures include only the $2,500 supplement and resulting payroll taxes paid from the general operating fund.

All instructional coaching positions were hired as budgeted and paid for from the general operating fund. It should be noted that this represents only a portion of the 134 instructional coaches in the district. The overall funding allocated towards instructional coaching in FY2013 was approximately $6.0 million, with the balance of coaches funded via federal programs including, Title I, Title II, and Title III. There were also coaches funded via the district's Race to the Top state allocation. Only about 40% of instructional coaching expenditures are from general purpose funds.

The cost for teacher support is represented as a "per teacher" expenditure since the staffing ratios are typically driven by the number of teachers or certified staff at the location versus student counts. In the case of coaches, they were typically allocated per school and program, which is why the range of coach to teacher ratio spanned from 1:9 to 1:200. The number of teachers supported by lead teachers represents all teachers in TEAM schools only. Instructional coaching supports teachers in all 89 schools in the district.

Note: Our program evaluation did not include $500,000 allocated to Professional Development and $350,000 allocated to High School Position restoration, both of which were included in the original $7 million budget.

Initiative	FY13 Budget		FY13 Actual Expenditures	# of Teachers	Cost per Teacher
	Other	Early Literacy			
Lead Teachers	$426,000	$ -	$224,174	3,468	$65
Instructional Coaches	$1,035,000	$1,540,000	$2,566,922	4,370	$649
TEACHER SUPPORT	**$1,461,000**	**$1,540,000**	**$2,791,096**	**4,370**	**$714**

2.2 ILC Overview

Instructional coaches are deployed throughout the district to provide school-based professional development for KCS teachers. One of the key components of this service to teachers is individual learning cycles – ILCs. An ILC is an intensive, one-on-one coaching experience that is designed to provide targeted, differentiated support to individual teachers. ILCs are meant to address the "refinement areas" for teachers as identified under the TEAM rubric. ILCs also provide classroom support and debriefs.

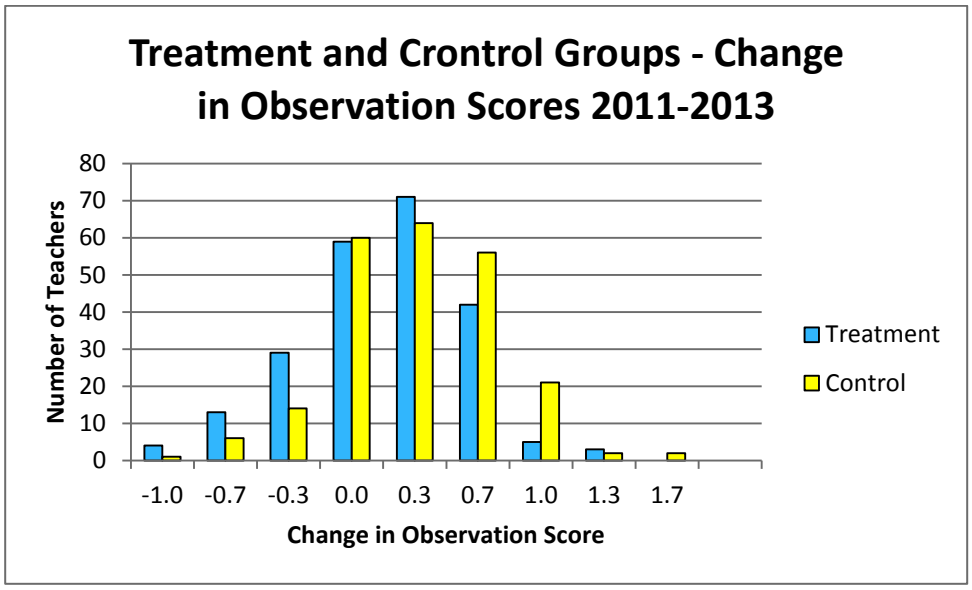
The goal of ILCs is to improve the quality of teaching to increase student learning and thus, student performance. ILCs are implemented with individual teachers and are aligned to a specific focus area. Peer-reviewed research shows that individuals learn more when they are enabled to study a specific topic over time—which is why there is a single focus for ILCs. The participating teacher's focus area may be identified by the teacher, the principal, the instructional coach, and/or collectively through multiple data sources, such as student achievement or TEAM data. The goal is to support teachers through a partnership between the coach and the teacher. ILCs facilitate teacher growth and development in conjunction with both the TEAM and TAP evaluation systems.

The ILC process begins with the teacher and coach collaborating to develop an ILC plan. The coach provides support and feedback to the teacher during the plan implementation over a six-to-nine week cycle. The ILCs are coordinated with the teacher's formal observation process, such that teachers typically receive this support prior to beginning the evaluation process. In turn, the teacher should be able to demonstrate growth on the TEAM observation rubric.

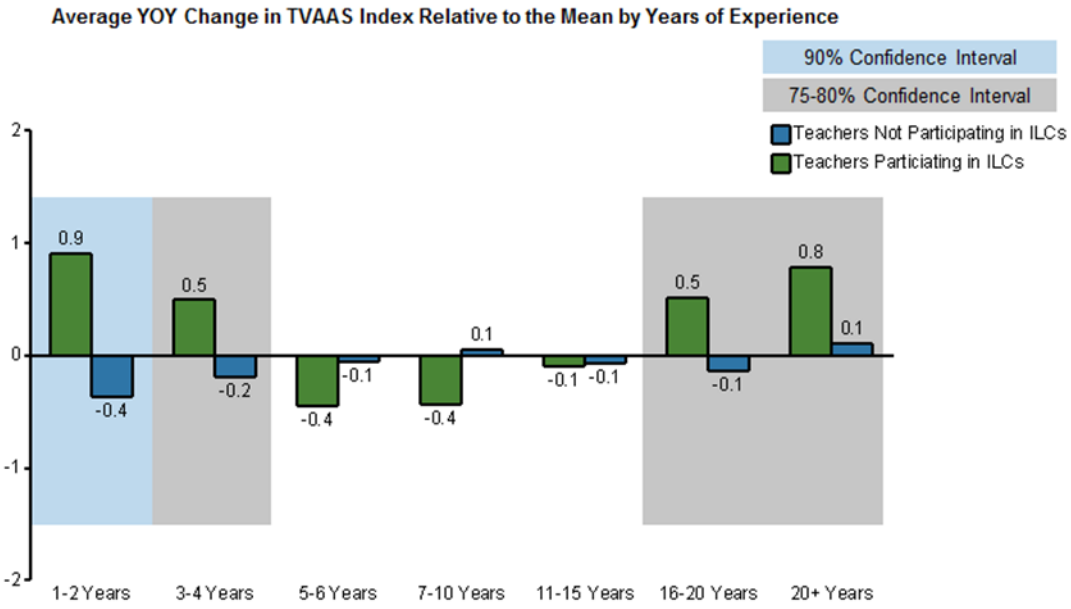
Findings

In order to evaluate the effect of ILCs on teacher performance, we reviewed TEAM and TAP observation scores and TVAAS results. In particular, we wanted to determine if observation scores improved if a teacher participated in multiple ILCs. Additionally, we wanted to determine if there was a difference in student outcomes due to ILC participation. We created a control group of teachers with similar years of service, prior observation results, and TVAAS indices to compare to the treatment group (those teachers who were in ILCs). There were 226 teachers each in both the control and treatment groups.

1) The control group, which did not participate in ILCs, improved their observation scores at a faster rate than those in the treatment group that did participate in ILCs. Teachers enrolled in three ILCs, on average, scored below their school's average observation score.



2) However, teachers who participated in ILCs, increased their mean change in TVAAS index from 2011-2012 to 2012-2013 as compared to the control group. (See Appendix 5: Parthenon Analysis – Instructional Coaching.)
3) Based on Parthenon analysis, teachers with less than 3 years of experience and teachers with greater than 15 years of experience seemed to benefit the most from participation in ILCs. It should be noted that we could not control for years of service and prior TVAAS index concurrently, due to extremely small sample sizes. The results below do not include controlling for prior TVAAS performance, only years of service.



# of Teachers in ILCs	17	16	10	14	14	17	15
# of Teachers Not in ILCs	43	92	96	132	117	72	144

Source: The Parthenon Group 2013

Note: Analysis includes TVAAS index for Math and ELA only; Years of experience are based on original hire date in the district. (Source: The Parthenon Group analysis)

In addition to the REA analysis, both qualitative survey and quantitative outcome analysis (as noted above) were conducted by Parthenon. (See Appendix 5: Parthenon Analysis – Instructional Coaching.)

4) Survey data indicated that implementation of ILCs was largely compliant with district guidelines, in terms of duration and contact between the teacher and the coach. Sixty percent of teachers reported meeting with their coach weekly.
5) Survey data indicated that ILC coaching was rated lower on quality measures. Less than 30% of teachers reported that ILC coaches completed a formative assessment or created a plan for continued learning.
6) Survey data shows that over 40% of teachers who participated in ILCs or coach-led PLCs indicated that the coaching support they received had a meaningful impact on their professional practice.

Though the analysis of the teacher effect outcome data was not always statistically significant, there is some evidence that teachers in the treatment group fared better than the control group. This suggests that teachers are learning and benefitting from ILCs.

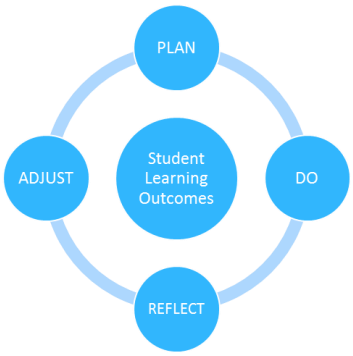
Recommendations

While it appears that some gains were made as a result of ILC participation, all the results are not conclusive as they were not statistically significant. Learning from these findings, there are several considerations for the coaching model as it relates to ILCs:

1) It may be that the type of support provided to teachers should be diversified—since participation in multiple individual learning cycles seemed to correlate to a continuing decline in observation scores. However, it may be that those teachers in multiple cycles are also those who struggle the most.
2) The district may wish to consider targeting ILC support towards less experienced and very seasoned teachers, as they seemed to benefit the most. Some other type of support may need to be designed to support teachers who are mid-career, such as peer-mentoring or direct support of administrators.
3) Continued analysis of outcome data will be necessary to assess the true impact of ILCs and garner more conclusive results.
4) Creating and using qualitative metrics of success and program indicators, particularly teacher perception measures, may help provide a broader evaluation of the ILC as a treatment program.
5) An analysis of how a teacher is referred to an ILC (self-selected versus principal-recommended) may yield additional information about the effectiveness of ILCs.
6) Survey data from coaches indicates that they need more support and training around working with low-performing teachers and leading ILCs. This may include *Cognitive Coaching*™ strategies and other methods of supporting reflective practice.

2.3 PLC Overview

One of the major components of the instructional coaching model is to help facilitate and lead professional learning communities (PLCs). PLCs are an opportunity for teachers to collaborate, engage in job-embedded learning based on state standards, and monitor student progress. PLCs are part of the continuous instructional improvement cycle represented by the adjacent graphic.



In order to maximize relevance and utility, the participants of a PLC are often grouped based on the grade or subject area they teach. PLCs support teachers with Common Core, literacy instruction, curriculum content, and TEAM.

PLC cycles provide a six-to-nine week focus in a specific content area to maximize shared knowledge, resources, and skills. They are led by coaches as well as school-level staff. Coaches are charged to help develop teacher capacity to lead PLCs. As such teachers may further develop leadership skills and master the content through their preparation for the sessions.

Generally, the process within a PLC cycle is to create a nine-week instructional plan, implement the plan, analyze the results (student assessment results, for example), and to adjust instruction based on those results. One feature of the coaching model—and an element of our PLC program evaluation—is SMART goals. SMART goals are *s*pecific, *m*easurable, *a*ttainable, *r*elevant, and *t*ime-bound student learning goals that are used to promote increased academic performance. Setting SMART goals helps teachers and coaches create and implement focused PLC cycles. (See Appendix 6: PLC SMART Goal Examples.)

Findings

We used the self-reported SMART goal outcomes to link the impact of coach-led PLC cycles on student performance. Additionally, we reviewed the TVAAS performance of the grade and/or subject combination of the PLC team. The PLC SMART goals were reported by individual schools, grade levels, and content area (math, science, etc.). Thus, we were able to identify the corresponding 2012-2013 TVAAS growth index by grade level and subject area as a performance measure. Though both TEAM and TAP schools conducted PLC cycles, TAP schools also completed "cluster" sessions above and beyond the PLC work. As we will discuss, this additional cluster work in TAP schools may have impacted the results of the comparisons between coach-led PLC teams and those that had no coaching support. (See Appendix 5: Parthenon Analysis – Instructional Coaching.)

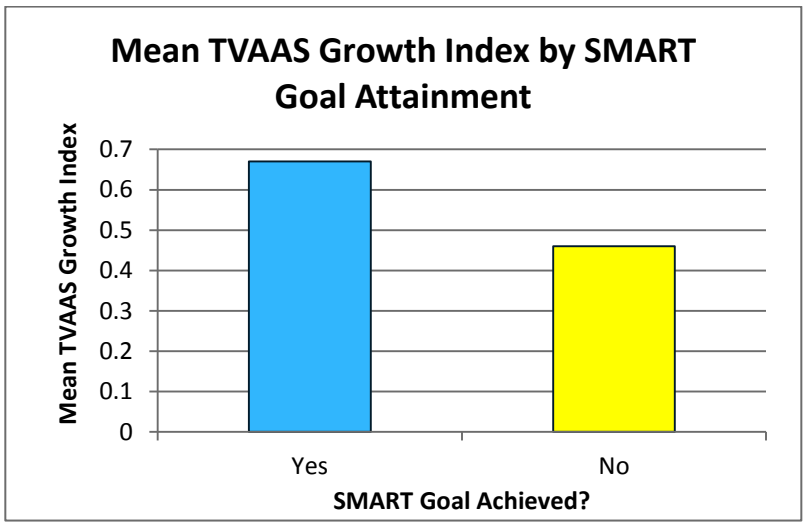
There were over 900 SMART goals developed and reported over the 2012-13 school year but not all of them had complete data, particularly as to whether the goal was attained or still in progress. Thus, the REA evaluation included approximately 600 SMART goals with complete data compiled from 72 schools, containing roughly 70% of the data from TEAM schools.

There was great variability in the SMART goals, both in terms of the goal content and the assessment method of attaining each goal. The rigor of the SMART goals also varied widely across the district, as

some seemed to set very high expectations for student performance while others were less challenging. Some goals were written very narrowly while others were broad.

There were several notable findings of our program evaluation:

1) While the average TVAAS growth index for the schools that met their SMART goals was higher than schools that did not meet their goals, the difference was not statistically significant. See the chart below.
    a. When comparing SMART goal attainment, TEAM schools that achieved a higher percentage of their SMART goals also had a higher TVAAS growth index.



2) The measureable impact of coach-led PLC cycles on teacher effectiveness was inconclusive, particularly when controlling for starting performance levels of the PLC teams and focusing on math and English.
    a. In TEAM schools, PLCs led by a coach exhibited greater TVAAS index gains than PLCs not led by a coach, but the difference is not statistically significant.
    b. Controlling for starting performance level, coaching support appears to have the greatest impact on Level 1 PLC groups, though the result is not statistically significant.
3) Survey data indicated that implementation was largely compliant with district guidelines, though overall the implementation was mixed.
    a. Seventy-five percent of teachers surveyed reported meeting with their PLC coach at least every other week.
    b. The typical length of a PLC cycle is six weeks, though it could go up to nine weeks depending on the content area, coach, or school.
4) Survey data also showed that there was some concern about the quality of PLCs. Teachers reported a lack of alignment between the support coaches provided and the TEAM/TAP observation process.
5) Survey data indicated that principals' perceptions of PLC cycles were positive, particularly in comparison to ILCs.

Recommendations

Based on our findings, there are several recommendations and considerations related to PLCs and SMART goals:

1) The wide variation in SMART goal quality, content, and rigor indicates a need for additional support for coaches around SMART goal development and purpose.
2) The record-keeping process for SMART goals did result in a sizable amount of missing data. For improved program evaluation, the district needs to improve this data collection process. Canvas, the new learning management system, may be a more effective tracking method.
3) The data collection process after PLCs have been conducted should also include a list of the teachers who participated in the PLC cycle and how long it lasted.

Survey data gathered by the Parthenon Group resulted in additional recommendations to improve the implementation of the coaching model:

4) The overall quality and impact of PLCs based upon teacher perception indicates inconsistent implementation across the district. Continued monitoring and support toward helping teachers and coaches understand PLC process is a must.
5) The district should increase the overall level of support and feedback provided to coaches from the central office supervisors as noted above.
6) To improve the impact on teacher practice, the district should create stronger linkages between coaching support and the TEAM observation process. This closer connection between observation and coaching support seems to lead to more favorable results and teacher perception in TAP schools. (See Appendix 8: Parthenon Analysis – Instructional TAP Model.)
7) As noted above, coach-led PLCs in TAP schools did not outperform PLC teams that were not supported by a coach. This may be an indication that the "cluster" meetings in TAP schools are an effective support mechanism even in the absence of coaches. The district should consider the role of coaches in TAP towards their highest and best use.
8) Currently, coach-to-teacher ratios range from 1:9 to 1:200. Teacher survey data indicates stronger perceptions of coaching impacts when coaching ratios were 1:20 or smaller. The district needs to ensure that coaches have sufficient time to dedicate to the highest impact activities by increasing the density of coaches, thereby improving the coach to teacher ratio.

2.4 Lead Teacher Overview

Lead teachers maintain classroom teaching duties while they work with administrators to conduct formal TEAM observations. As such, they must participate in all required evaluation training and must pass the assessment to become certified TEAM observers. Principals may also engage Lead teachers to facilitate and lead PLC sessions to support the use of research-based teaching and learning strategies. Lead teachers may carry a full or reduced course load to make time for additional observation duties. Most lead teachers complete 10 – 15 observations annually, using their planning periods and/or substitute teachers to backfill their classes to complete the process.

Lead teachers deliver instructional support and coaching to peers through classroom observations within the TEAM framework. Thus, they must demonstrate teaching effectiveness and leadership abilities. Some principals also include lead teachers in other instructional leadership tasks, such as planning and leading staff development, especially pertaining to the TEAM rubric.

In summary, lead teachers help improve classroom teaching by observing, coaching, and evaluating teacher performance using the TEAM instructional rubric. To that end, lead teachers conduct pre and post- observation conferences with teachers to provide specific and actionable feedback. In so doing, they assist teachers in using student work to identify student learning trends, monitor and modify instruction, and increase student achievement.

Findings

There were 226 lead teachers in the district during the 2012-13 school year. Over half of the lead teachers were in elementary schools, while the remaining half was split between middle (20%) and high schools (30%). In 2012-2013, the lead teachers completed 35% of all observations conducted in the district (excluding TAP schools). In some schools, between 50-75% of observations were conducted by lead teachers, with Mooreland Heights Elementary school having the greatest proportion at 75%. (Please note that at Mooreland Heights the Arts360 coordinator was also a lead teacher, and, as such, completed more observations than typical at other schools.) The schools in the district, generally, are in compliance with state and district guidelines for conducting the observation process.

The following findings come from the REA analysis as well as results of the Parthenon evaluation of lead teachers. (See Appendix 7: Parthenon Analysis – Lead Teachers and TEAM Evaluation.)

1) There was a notable discrepancy between principal and teacher perceptions of the observation rubric and process, which may account for some of the implementation challenges indicated.
    a. Teacher survey data indicated that the quality of feedback provided through the TEAM post-conferences was mixed.
        i. Survey data from teachers showed that lead teachers were perceived to be somewhat less effective in conducting the observation process.
    b. Eighty-one percent of principals indicated that the observation rubric and process is a valuable tool for impacting teacher effectiveness, though only 20% of teachers felt that the observation process had a meaningful impact on their professional growth.
2) Implementation of the observation process varied across the district in terms of inter-rater reliability and quality of feedback.

3) There is a small, statistically significant relationship between schools that implemented TEAM with greater fidelity (as measured by the distribution of individual indicator scoring and outlier data) and the TVAAS index gains demonstrated by teachers at those schools.

Recommendations

Lead teachers clearly helped the district meet the demands of the annual teacher evaluation process. The perception data from principals suggested this was a good thing; while teachers did not feel as strongly about the quality of the feedback provided by lead teachers.

There are a few key things we can glean from this analysis:

1) Increasing inter-rater reliability must continue to be a goal within the observation process. The district should explore if this may be achieved through replicating structures found in TAP schools, such as weekly calibration sessions including all observers, and regular review of observation trends. (See Appendix 8: Parthenon Analysis – TAP Model.)
2) Ensuring lead teachers are properly trained and certified in the TEAM system is necessary and should be done before the formal evaluation process begins. The district might also consider introducing a "mid-year" TEAM certification refresher.
3) The district should continue to emphasize the post-conference feedback process and provide additional training and support to improve the quality of the feedback that lead teachers offer to their peers.
4) Administrators should clearly communicate the importance of the observation process towards improving teacher practice and work to bridge the gap between the intended outcomes of lead teacher support and the perceptions of classroom teachers at their schools.
5) To improve teacher perceptions, schools should provide on-going building-level support to teachers help them understand the TEAM rubric, including detailed review sessions and implementation workshops at the start of and throughout every school year.

3. Tutoring

Introduction

Providing more instructional time stems from Goal 1, "Focus on the Student," in the KCS five-year strategic plan. In an effort to improve student achievement, additional academic support was offered to students below a certain performance threshold. Additionally, the previous Return on Investment report found that time matters: the amount of time students are meaningfully engaged in learning is directly proportional to academic outcomes. Therefore, extended learning opportunities were made available to struggling students.

The elementary tutoring program was called *All Star* Tutoring; tutoring at the middle school level was focused on the *EXPLORE* exam; and *ACT* Tutoring was offered at the high school level. The following reports detail the structure and results of each of these tutoring programs.

Investment Analysis

The tutoring programs were budgeted to include both stipends for the teachers as well as transportation for students who stayed after school to receive these services. In total, the actual expenditures were approximately 75% of the budgeted amount. The variance is primarily related to lower transportation costs than anticipated, as some students were able to secure rides home by means other than district-provided buses.

The number of students served reflects those we included in the program evaluation. This represents actual student participation as reported by the project leaders.

Initiative	FY13 Budget		FY13 Actual Expenditures	# of Students	Cost Per Student
	Other	Early Literacy			
All-Star Tutoring (Elementary Schools)	$ 311,113	$ -	$ 239,191	860	$ 278
EXPLORE Tutoring (Middle Schools)	$ 120,187	$ -	$ 88,540	283	$ 313
ACT Tutoring (High Schools)	$ 68,700	$ -	$ 40,700	307	$ 133
MORE INSTRUCTIONAL TIME	**$ 500,000**	**$ -**	**$ 368,431**	**1,450**	**$ 254**

3.2 All Star Overview

All Star Tutoring is an after-school program for students in grades 3 through 5 conducted by certified teachers. Knox County Schools implemented the All-Star after-school tutoring program in 2012-2013 in an effort to improve student performance as measured by elementary TCAP results. Twenty-two schools participated in the program, listed in the table below. The tutoring program began in October 2012 for all of the participating schools except Green Magnet, Norwood, Pond Gap, and Sarah Moore Green—those schools began their program in November. The tutoring program ended in March 2013.

All Star Tutoring: Participating Schools (Elementary)	
• Adrian Burnett	• Halls
• Amherst	• Lonsdale
• Ball Camp	• Maynard
• Bearden	• New Hopewell
• Beaumont	• Norwood
• Belle Morris	• Pond Gap
• Brickey-McCloud	• Powell
• Christenberry	• Ritta
• Copper Ridge	• Sarah Moore Greene
• East Knox	• Sterchi
• Green Magnet	• West Hills

This program offered 25-minute tutoring sessions twice a week for 21 weeks. Students were provided an additional 1.5 hours of instruction in both reading and math.

Findings

The All Star tutoring program was designed to increase and promote student growth and achievement. School teams were able to use their own discretion in selecting students to enroll in the tutoring program. As such, we were not able to identify a set of common criteria driving student enrollment in the tutoring program.

In order to see how well students responded to the tutoring, math and reading results were analyzed separately. The analysis was also extended to the school level in an attempt to pinpoint localized successes. Enrollment varied by month, with the average monthly enrollment at 860 students. The highest month of enrollment was over 900 students, while the lowest month had 753 students. Of those almost 900 students, we had two years of TCAP data for 633 students in grades 4 and 5 to analyze for the program evaluation.

We created a control group from a pool of randomly selected students at the participating schools who had the same levels of success on their 2011-2012 TCAP assessments (as measured by NCEs) as the tutored students. NCE scores essentially place students along an equal-interval scale. The outcome indicator for the analysis was the 2012-2013 TCAP exam score, which is scaled from the percent of correct responses on the TCAP assessment.

While there were not statistically significant and conclusive results from the TCAP data, some students in the All Star tutoring may have benefitted from participation in the program. The results are detailed below:

1) In reviewing the RLA test results, there was not a statistically significant difference between the TCAP exam scores of the overall control and treatment groups, though there were localized successes at three of the participating 22 schools. Similarly, there were a few schools in which the control group had a statistically higher mean score in RLA than the tutored students. See the table below.

School	Tutored 2012-2013 TCAP Exam Score	Control 2012-2013 TCAP Exam Score	Result: RLA
Adrian Burnett Elementary	81.36	75.29	Tutored Group Performed Better
Amherst Elementary	80.52	79.63	No Difference
Ball Camp Elementary	81.31	77.21	No Difference
Bearden Elementary	83.91	81.74	No Difference
Beaumont Elementary	77.6	80.47	No Difference
Belle Morris Elementary	81.05	79.78	No Difference
Brickey-McCloud Elementary	79.06	84.24	Control Group Performed Better
Christenberry Elementary	82.95	75	Tutored Group Performed Better
Copper Ridge Elementary	78.67	83.56	No Difference
East Knox County Elementary	76.95	77.59	No Difference
Green Elementary	69.13	77.38	No Difference
Halls Elementary	75.9	83.87	Control Group Performed Better
Lonsdale Elementary	70.78	79.63	Control Group Performed Better
Maynard Elementary	79.38	75.57	No Difference
New Hopewell Elementary	78.5	81.71	No Difference
Norwood Elementary	77	77.17	No Difference
Pond Gap Elementary	81.68	78.33	No Difference
Powell Elementary	84.16	81.78	No Difference
Ritta Elementary	78.71	80.45	No Difference
Sarah Moore Greene Elementary	79.96	73.36	Tutored Group Performed Better
Sterchi Elementary	83.27	83.45	No Difference
West Hills Elementary	77.5	77.21	No Difference
District	**79.48**	**79.51**	**No Difference**

2) The math test results were similar. The treatment group had a slightly higher mean TCAP exam score than the control group, though not statistically significant. Again, there were pockets of

success at certain schools, as well as a few schools where the control group outperformed the treatment group.

   a. Lower performing students who participated in the treatment generally performed better than students who were not enrolled (in terms of TCAP exam score). However, at the higher end of the student-performance spectrum, students who did not participate in the tutoring program out-performed their tutored peers.

3) All Star tutoring support did not lead to statistically significant increases in mean student TCAP exam scores as measured by the fourth and fifth grade TCAP, although there were pockets of success at individual schools within the program.

   a. The individual schools in which the tutored group performed better than the control group based on RLA TCAP exam scores were Adrian Burnett, Christenberry, and Sarah Moore Greene Elementary schools.
   b. The individual schools in which the tutored group performed better than the control group based on Math TCAP exam scores were Adrian Burnett, Powell Elementary, and Sarah Moore Greene Elementary Schools.

Ultimately, the All Star program, as implemented, had pockets of success in individual schools despite the absence of statistically significant increases in mean student TCAP exam scores.

Recommendations

Though the academic outcomes resulting from All Star tutoring program were not universally compelling, there were some success stories. The district's ability to learn more about the characteristics of the successful schools will be important to adjust the program moving forward. Thus, our recommendations towards this end are as follows:

1) Qualitative follow-up on implementation and strategies is necessary to gain insight on how and why the program worked better in the schools that excelled or worse in those schools where non-tutored students out-performed those in tutoring. The project leader contributed additional reflections about the program and its implementation.

   a. Most sites used the proposed three-rotation structure throughout the program (25 minutes each for reading, math, and technology). The challenge with the rotation structure was that some students needed more time with reading instead of math or vice versa and it was difficult to provide that extra help.
   b. Schools may need to find ways to leverage technology to supplement rotation schedules for students who only need support in one particular subject.
   c. Tutors may benefit from additional training to increase service alignment with Common Core and PARCC expectations in both reading and math.

2) Schools may need to consider targeting a specific group of students for tutoring. The positive learning impact was not maintained for students performing at an incoming NCE level higher than approximately 55. Thus, these higher performing students may not benefit from the tutoring programs.
3) Our analysis did not control for differences in the quality of instruction in the tutoring sessions themselves. Schools should seek to reserve the tutoring roles for the most highly effective teachers.

4) Community agencies provide tutoring for a subset of students at some schools included in this analysis. Future program evaluations should include an examination of the potential effects of these community-based tutoring programs in comparison to the district efforts.
5) Developing metrics of success with school administrators and content supervisors may help shape the direction of the program in terms of implementation and evaluation. Given the limited outcome data available to the REA, having additional sources of data would be useful for future program evaluations.

3.3 EXPLORE Overview

Preparing students for college and careers starts well before high school. One of the ways the Knox County Schools gauges student college and career-readiness is the EXPLORE exam, which is administered to eighth grade students. EXPLORE is a national assessment based on content areas of high school and post-secondary education, including English, math, reading, and science. These subject areas represent the courses in which students most commonly enroll in their first year of college. The assessment, developed by ACT, is intended to gauge college and career readiness of students by determining the probability of student success in college-credit courses. According to research from ACT, students who meet or exceed benchmarks on the EXPLORE assessment have at least a 50% chance of earning a passing grade in the same subject course after high school graduation. Thus, the EXPLORE assessment is a tool for schools to evaluate students' early progress toward college.

In the 2012-2013 school year, an EXPLORE tutoring program was implemented in an effort to increase the number of students who met the district benchmark on the assessment (a composite score of 17 or higher). There were seven middle schools who piloted the EXPLORE tutoring program: Bearden, Halls, Northwest, Powell, South-Doyle, Vine, and Whittle Springs. Almost 300 students participated in the program.

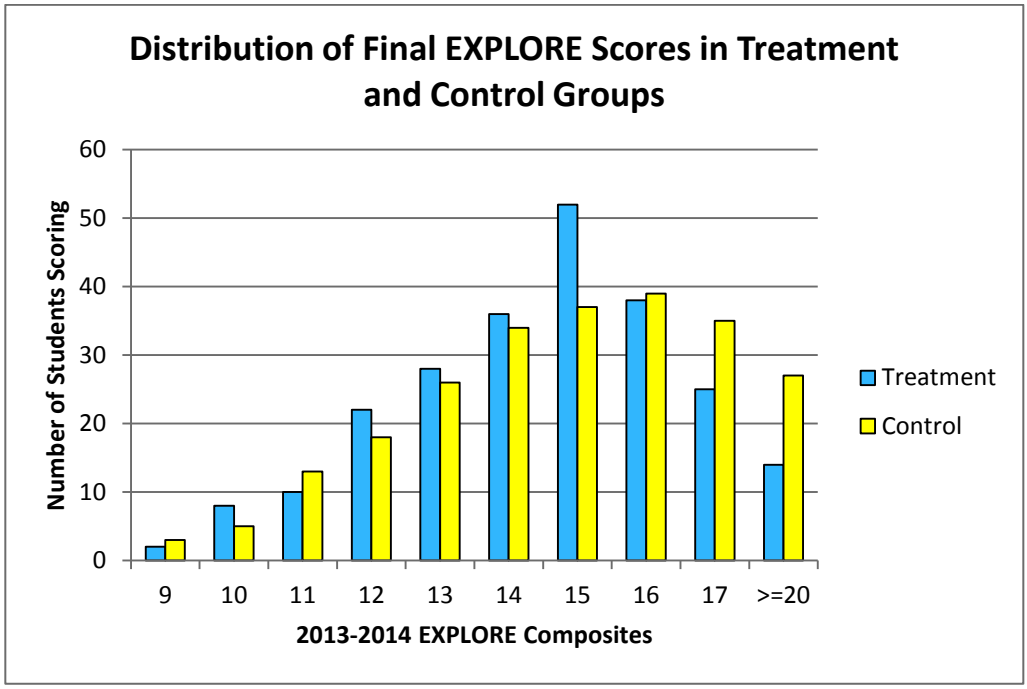
Findings

The REA findings are based on analysis of the tutoring program using the EXPLORE composite scores of students who participated in the program. There were 283 students enrolled in the EXPLORE tutoring program. The number of students included in our program evaluation was 196, due to testing data availability.

The notable findings resulting from this analysis are as follows:

1) Overall, there was no statistically significant increase in the mean EXPLORE composite scores of students in the tutoring program (the treatment group) when compared to students who were not in the tutoring program (the control group).
2) However, Halls and Powell Middle Schools exhibited a mean EXPLORE composite that was higher (statistically significant) for their tutored students when compared to their control group. This may be because the students enrolled at those two schools had higher predicted EXPLORE scores than the balance of tutored students at the district level.
3) The control group, as a whole, had a higher percentage of students reaching the EXPLORE benchmark score of 17.

The figure below shows the distribution of EXPLORE composite scores for both the treatment (tutored) and control (non-tutored) students in the participating middle schools.



Recommendations

The EXPLORE tutoring program evaluation did not find a significant impact on student performance on the mean composite score. There are a few areas of consideration with regard to understanding and improving their results:

1) The considerable amount of time that elapsed between tutoring and the administration of the test should be reconsidered. The tutoring program ended in May 2013 and students did not take the exam until October 2013. The district should consider changing the dates for the tutoring or offering some type of refresher course to students closer to the date of the exam.
2) Future analysis should use the newly available EXPLORE/TVAAS predictions to provide a more accurate match between tutored and control students than predictions based on Discovery Education Assessments. Discovery Education Assessments results explained only 70% of the variation in EXPLORE results.
3) A review of the KCS curriculum and its alignment to the skills and content included on the EXPLORE assessment may reveal gaps that the tutors can focus on to strengthen the effectiveness of the tutoring program.

3.4 ACT Overview

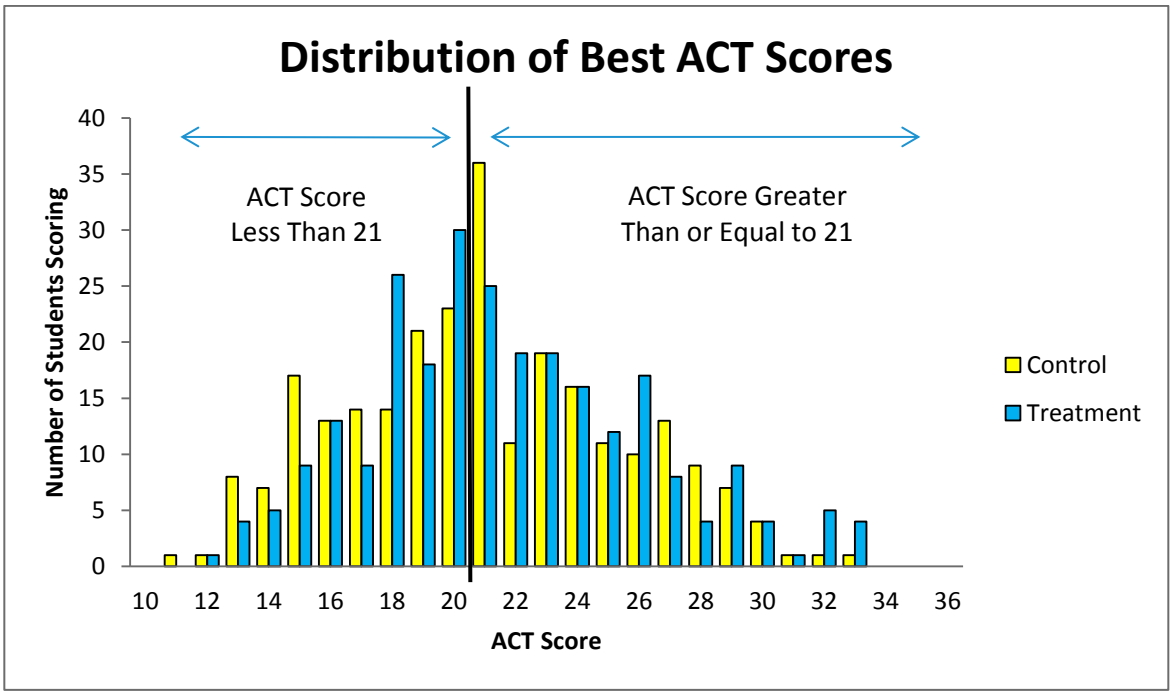
The ACT test is a national benchmark for college and career readiness, and as such, these results serve as a key performance metric in Knox County's strategic plan to help gauge quality and rigor of instruction in the district. A pilot program in 2012-2013 was instituted at a select group of Knox County high schools to provide targeted tutoring around ACT test-taking strategies. The schools involved in the pilot were Carter High, Central High, Halls High, Karns High and Powell High. The overall goal of the program was to increase the number of students meeting the ACT composite score benchmark (21).

Proper preparation for the ACT empowers students by opening doors to college as higher ACT scores lead to higher admissions rates and additional scholarship opportunities.

Findings

Our program evaluation focused on the predicted ACT percentile, as the TVAAS model generates a predicted percentile for students. Using that data, tutored students were matched to their predicted state percentile on the ACT for this program evaluation. A control group (students who did not participate in the ACT tutoring) was created from a pool of students at the same schools with same distribution of predicted ACT percentiles. The evaluation included a final analysis of the student's best ACT score on record. There were just over 300 students enrolled in the program. We were able to include 258 in our program evaluation since we had prediction data for those students.

Students enrolled in the tutoring program exhibited higher mean ACT composite scores when compared to their peers who did not participate. The results were especially positive in light of their implications on KCS students' college readiness.



1) Across the district, students in the tutoring program performed better on their ACT than students in the control group who did not receive tutoring.
    a. There was a statistically significant difference between the mean ACT score of the tutored group and the control group.
    b. The mean ACT score was higher at most locations that piloted the tutoring program than other high schools in the district.
2) At the school level, students who were tutored had a higher mean ACT score than their non-tutored peers at three of the five participating schools (Central, Halls, and Karns High Schools). In the remaining two schools, there was no statistically significant difference between the two groups.

3) The control group had more students scoring at the lower end of the ACT scale (17 and below) and the treatment group had more students scoring at the higher end (29 and higher).
    a. The control group had more students with an actual ACT score of exactly 21, but overall the treatment group had more students scoring 21 or above than the control group.
4) The tutoring program was most successful at Halls High School.
    a. Students who participated in ACT tutoring at Halls earned a mean composite score 1.5 points higher than their peers in the control group, which was statistically significant at the 95% confidence interval. Moreover, almost 10% more students in the tutored group at Halls High scored a 21 or above, which was statistically significant at the 89% confidence interval.

Recommendations

The ACT tutoring program succeeded in its goal of improving the mean ACT composite score of students enrolled in the program. There are a few recommendations to consider in light of its success:

1) Although there were overall gains, a root-cause analysis of implementation discrepancies may be warranted to understand why there were differences in the magnitude of those gains between schools.
2) Halls High School performed exceptionally well out of all the participating schools. It is worth analyzing this school as a "bright spot" to gather best practices and implementation strategies for the other schools with the program.
3) Deeper analysis may be conducted regarding the growth of tutored students on specific subject area tests to identify potential gaps in the core instructional program with regard to content covered on the ACT exam.
4) Due to the program's mostly successful results, expanding the ACT tutoring program to additional high schools may be a next step to consider. Moreover, the success of the ACT tutoring may lead the district to consider investing more resources toward this type of support, as it is such an important gateway for students in terms of college and career access.

4. Intervention

Introduction

Goal 1, "Focus on the Student," from the 2009 KCS five-year strategic plan has been a catalyst for the district to commit greater resources towards implementing various intervention programs. Voyager is the district-provided intervention tool for elementary grades, upon which several of our intervention program evaluations are based. There is broad usage of Voyager, as roughly 85% of elementary principals and 90% of elementary teachers reported using Voyager in grades 1-5. In addition to our work with Voyager, the REA team also reviewed the summer bridge program for eighth grade students, as well as the use of learning centers in two KCS high schools. These two programs were designed to help struggling students reach the milestones necessary for high school matriculation and graduation. The following analyses detail our work regarding the effectiveness of intervention strategies in helping to improve student academic outcomes.

Investment Analysis

The intervention programs were budgeted to support both personnel expenditures and materials. The overall spending for intervention support in FY2013 was 66% of the budgeted amount.

- The variance for additional elementary reading (AERS) and first grade intervention support were a result of personnel costs being below that which was anticipated based on average historical costs. The AERS line item funded 20 instructional assistant positions, while the first grade intervention program supported an early literacy coach at each of five expansion schools.
- Many district schools already had materials to support Voyager intervention, so the cost for materials was significantly less than budgeted. Voyager supplies are $29 per student based on the most recent vendor quote. This is in-line with the budgeted amount given the student count for interventions.
- The summer bridge spending included transportation and teacher stipends.
- The high school learning center expenditures were allocated to the two schools directly to upgrade materials, computers, and personnel support. Thus, the expenditure is represented as 100% of the allocation.

Student counts encompass those who benefitted from the additional supports and were part of the program evaluation.

- The AERS student counts includes only those students provided intervention services by the instructional assistants who were hired through this funding.
- The student count for early literacy materials includes all students receiving intervention services, though their materials may have been purchased prior to FY2013.
- The summer bridge pilot includes actual student participants.
- The high school learning centers student count includes only those students scheduled for courses in the learning center. However, other students had access to these resources before or after school.
- The first grade intervention student count includes the all first grade students in the five expansion schools.

Initiative	FY13 Budget		FY13 Actual Expenditures	# of Students	Cost Per Student
	Other	Early Literacy			
Additional Elementary Reading Support	$ -	$ 440,000	$ 371,000	611	$ 607
Early Literacy Materials (Voyager)	$ -	$ 200,000	$ 44,904	7,813	$ 6
Summer Bridge Pilot for 6th Grade	$ 100,000	$ -	$ 48,440	90	$ 538
High School Learning Centers	$ 49,000	$ -	$ 49,000	223	$ 220
1st Grade Intervention	$ -	$ 390,000	$ 269,314	1,388	$ 194
INTERVENTION	**$ 149,000**	**$ 1,030,000**	**$ 782,658**	**10,125**	**$ 77**

4.2 Early Literacy Overview

Voyager Passport is the reading intervention program provided through district resources. Nearly all of our 49 elementary schools participated in this intervention. Students receiving the intervention support participated in an additional 30 minutes of reading instruction. Students were chosen primarily based upon AIMSweb CBM data. Students in grades one to five who scored between the 11th and the 25th percentiles were the target population for this support. Classroom teachers and instructional assistants were typically the staff members facilitating the intervention work for students. We compared students who were enrolled in the Voyager program to their peers (district wide and at their individual schools) who were not in the program to complete our evaluation.

Findings

We leveraged perception data collected via survey by Parthenon to supplement our evaluation of Voyager. (See Appendix 9: Parthenon Analysis – Elementary Intervention and Voyager.) Perceptions of Voyager are mixed. While principals perceive the program to be very effective, our results, as well as teacher perceptions, suggest otherwise. In addition to quantitative student results, there were also several findings about how and by whom the program was implemented. Our analysis included 8,305 first and second graders, 3,979 third graders, and 7,607 fourth and fifth graders.

Only 37% (2,074) of the students who were in Voyager had a CBM result in the targeted 11th to 25th CBM percentiles, while 685 students who were in this targeted range did not participate in the intervention, based on the data we collected. (See table below for full distribution.)

		Band Name									
		Above Target CBM		Below Target CBM		No Fall CBM		Target CBM		Total	
		Count	Row N%	Count	Row N%	Count	Row N%	Count	Row N%	Count	Row N%
Voyager Student	No	12041	84.1%	810	5.7%	785	5.5%	685	4.8%	14321	100%
	Yes	2003	36.0%	794	14.3%	699	12.5%	2074	37.2%	5570	100%
	Total	14044	70.6%	1604	5.0%	1484	7.5%	2759	13.9%	19891	100%

Because of the loose correlation between CBM results and TCAP performance, we found that 123 students in the targeted range on CBM actually earned a previous reading/language arts NCE of 50 or greater. This means that about 16% of the students in the Voyager intervention for remediation had performed in the top half of all of the students in the state.

1) The results indicate that Voyager students *in the targeted CBM band* exhibited statistically significant growth in grades one, two, four, and five while also exhibiting a non-significant decline in grade three. Moreover, the Voyager students had a higher growth than the non-Voyager students, though not statistically significant.
2) When Voyager and non-Voyager students were compared to one another as a whole group, the growth was statistically equivalent in grades four and five. In grades one through three, the non-Voyager students grew significantly better than their Voyager peers. This is the exact opposite of the results we would have expected. This finding potentially indicates that not only did Voyager not help these students when compared to their peers; the time spent outside of regular instruction may have actually had a harmful effect on their mean scores. Again, it should be noted that 63% of the students included in the overall Voyager analysis were not in the group targeted for the intervention based on CBM results.

In terms of the effectiveness of the Voyager intervention, the Parthenon Group survey data also revealed several findings.

3) There is some difference between principals and teachers in perceptions of fidelity of implementation – principals generally rate fidelity of implementation higher than teachers.
4) Teacher and principals also have differing perceptions of Voyager impact: over 50% of principals believe that Voyager has a strong impact on student achievement, but only a quarter of surveyed teachers share this view.
5) Overall, principals generally rate the fidelity of implementation higher than teachers. Both teachers and principals rated "implementation by knowledgeable instructors" as the weakest of the all the implementation factors about which they were asked.

Recommendations

Given some of these surprising results, it is important for the various stakeholders (district curriculum leaders, principals, the Office of Accountability, teachers, and coaches) to decide collaboratively what the metrics of success are for this literacy intervention program and work to ensure fidelity of

implementation. As such, the recommendations regarding determining the efficacy of the Voyager program are as follows:

1) We recommend prioritizing which students should receive intervention supports by judiciously examining multiple indicators that would warrant such support. Our evaluation determined that there were many students placed in Voyager with performance characteristics well beyond the program's intended design. At the same time, there were over 600 students who should have been receiving Voyager intervention support who were not, according to the targeted CBM range.
    a. We recommend also using data from the TCAP and K-2 assessment to help determine student placement in interventions. The CBM data can be a supplement and/or substitute if the TCAP and K-2 assessment scores are not available.
2) Voyager implementation data must be carefully collected and recorded. The program evaluation may be limited by the consistency and accuracy of the data entered into the Passport management system. School leaders should work to ensure that student information is tracked carefully. Moreover, the district should explore opportunities to record intervention data in student information systems and/or our district learning management system.
3) Feedback from teachers and school leaders in survey data indicated that scheduling for interventions is quite a challenge to the fidelity of implementation. The district should develop and offer supports to principals around optimal scheduling scenarios.
4) Stakeholders need to come to an agreement on a set of valid metrics to determine the viability of the Voyager intervention program. Many instructional leaders in the district believe Voyager to be an effective program, notwithstanding the results of this program evaluation. It may be there are other performance indicators not captured by TCAP and TVAAS to validate that perception. However, we must systematically measure those indicators to determine if such is the case.
5) The district should consider investigating other invention programs, as well as developing structures to monitor the fidelity of implementation of our intervention services. These results seem to indicate that we are not helping students to improve their reading ability at a level that would be reflected in their summative assessment results and lead to improved RLA scores. The state-mandated transition to the Response to Instruction and Intervention (RTI^2) guidelines in 2014-15 presents an opportunity to revamp our elementary intervention delivery model.

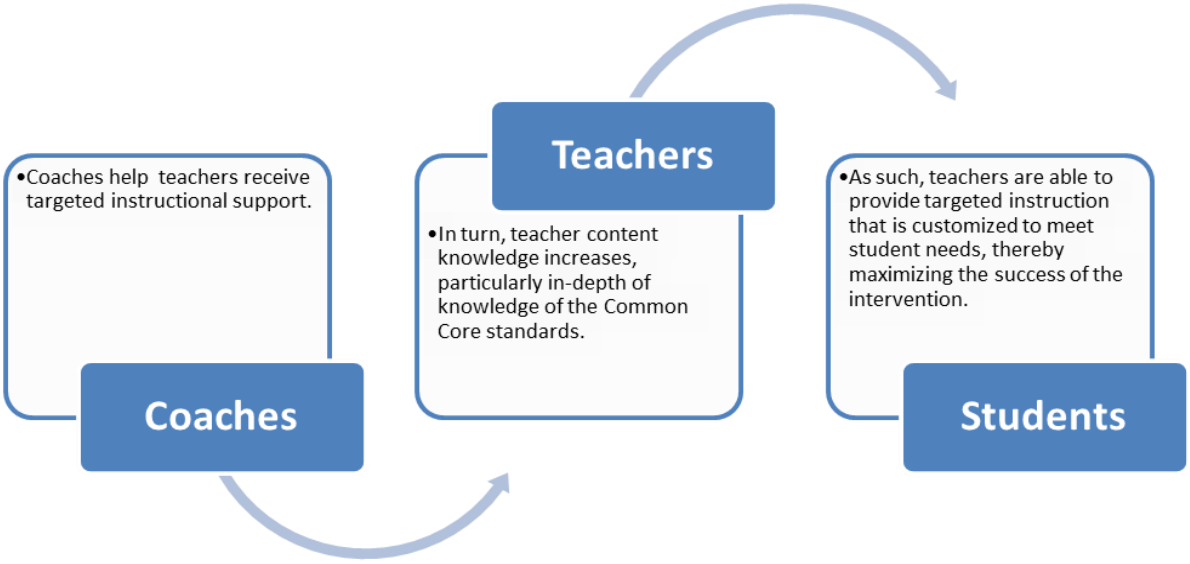
4.3 First Grade Intervention Overview

In an effort to improve literacy in early grades, additional funds were made available to schools in the form of elementary literacy consultants and coaches. Specifically, fifteen schools were assigned a full-time literacy coach, who focused solely on students and teachers in first grade. These schools were selected based upon previous results on the Kindergarten Literacy Assessment and the first grade AIMSweb (CBM) Assessment. The program goal was to improve student performance as evidenced by results on SAT10 (K – 2) assessments in reading and math.

Literacy coaches and first grade teachers attended monthly professional development sessions. Moreover, coaches provided daily support to teachers and students. An Early Literacy Consultant provided oversight for the 15 schools and coaches. Thus, the first grade literacy grant utilized a three-

pronged framework consisting of coaches, teachers, and the elementary literacy consultant. Each prong had related but disparate roles. In addition to typical coaching duties described in the *Teacher Support* section of this report, early literacy instructional coaches monitored the implementation and fidelity of interventions. First grade teachers collaborated with coaches to engage parents as partners in literacy. Finally, the early literacy consultant supported the coaches by reviewing professional development plans and helping to develop effective instructional strategies.

The early literacy grant was based upon a logic model designed as follows:



Through this model of learning, literacy coaches and consultants collaborated with 81 first grade teachers to reach 1,500 students at the following elementary schools: Adrian Burnett, Beaumont, Cedar Bluff, Christenberry, Dogwood, East Knox, Green, Inskip, Lonsdale, Mount Olive, Norwood, Sarah Moore Greene, Spring Hill, Sunnyview, and West Haven.

Findings

The metrics used to evaluate the program include academic growth of the students at the participating schools, a comparison to schools with similar predicted results, and matched-pair analysis of students with similar characteristics within and outside of the program. Our notable findings are as follows:

1) First grade students at the intervention schools exhibited significant growth on the reading portion of the SAT 10 exam; though this fact is tempered by the evidence that the student results at the participating schools were not statistically different from student results at the comparison schools.
2) Students at eleven of the fifteen schools outperformed their TVAAS predictions. Moreover, students at two of the remaining four schools were within one scale score point of their predicted scores.
3) Eight of the schools had statistically significant positive growth. Two schools had statistically significant negative growth.
4) Our analyses show that the comparison schools experienced a higher mean growth in student results than did the early literacy grant schools, though this was not a statistically significant

difference.

5) The matched-pair analysis between early literacy grant and non-early literacy grant students revealed that there was no statistically significant difference between the two groups.
6) Ten of the 15 schools experienced mean growth rates for their students that were better than the means at the comparison schools, though most were not statistically significant.
    a. However, most impressively, Dogwood Elementary first-grade students had a mean increase of 9.8 scale score points more than their comparison students.

The table below is color-coded to show the growth difference between intervention school students compared to non-intervention school students. The dark red and green (Cedar Bluff, Beaumont, and Dogwood, respectively) indicate a statistically significant difference.

School	Count	Mean School Student Growth	Comparison Student Growth	Difference
Adrian Burnett Elementary	77	9.1	5.4	3.7
Beaumont Elementary	73	7.9	.9	6.9
Cedar Bluff Elementary	152	-6.3	11.3	-17.6
Christenberry Elementary	57	-1.4	2.7	-4.2
Dogwood Elementary	82	8.3	-1.5	9.8
East Knox County Elementary	69	1.5	4.3	-2.8
Green Elementary	29	-7.6	2.7	-10.3
Inskip Elementary	64	10.2	7.2	3.0
Lonsdale Elementary	50	5.8	4.0	1.9
Mount Olive Elementary	44	6.4	1.9	4.5
Norwood Elementary	65	10.5	7.0	3.4
Sarah Moore Greene Elementary	50	1.8	4.6	-2.8
Spring Hill Elementary	54	10.1	3.3	6.8
Sunnyview Primary	83	6.6	3.7	2.9
West Haven Elementary	47	11.7	9.7	2.0
Total	996	4.5	5.0	-0.5

Recommendations

Finding ways to improve student literacy is critical to improving student outcomes. The following are some recommendations related to the first grade intervention program.

1) It should be noted that the K-2 assessment data is only one type of quantitative measure. The program evaluation used this measure because we were able to leverage student predicted scores from the TVAAS model. As noted earlier, additional metrics of success may be beneficial in providing a more nuanced evaluation of the intervention program. Future investigations can attempt to relate the K-2 assessment results with the other assessment results.

2) Further qualitative research should include investigations of the schools with large or significant positive or negative growth in an attempt to understand the root causes of these results, particularly formal reviews of the program at Dogwood and Cedar Bluff. Continued study of the program is warranted since the majority of participating schools did experience growth that exceeded the TVAAS prediction.
    a. One notable difference at Cedar Bluff was the number of students (and teachers) in first grade. There results may be a function of "coaching density" as one first grade coach was supporting twice the number of teachers at this school.
3) As we noted in the Tutoring program analysis, there are differences in the quality of instruction in the regular classroom which may impact or mask the effect intervention supports. Our analysis did not control for differences in the quality of classroom instruction between students in the intervention schools and the comparison schools.

4.4 Additional Elementary Reading Support Intervention Overview

The early literacy intervention budget included funds to increase the number of instructional assistants (IAs) to support improved reading outcomes. Twenty schools were provided with an instructional assistant specifically to help facilitate the Voyager Passport intervention with designated students in grades three to five. This analysis is a smaller version of the *Early Literacy* report with a focus on the students supported by the Additional Elementary Reading Support (AERS) interventionists. These IAs provided 30 minutes of intensive reading intervention using Voyager, a research-based program.

The IAs received training in an effort to implement the program with fidelity. The IAs received a full day of training upon being hired. Additional training was offered, though not required, halfway through the school year. IAs also had access to an online course provided by Voyager on the *VPORT* website, which ranged from 8-10 hours.

The reading CBM (R-CBM) assessment was administered in September 2012. Students in grades 1-5 scoring between the 11th - 25th percentiles were placed in an intervention small group for 30 minutes of additional reading instruction. The small groups ranged in size, usually from four to seven students per group. Student progress was monitored every two weeks using probes from the Voyager Passport curriculum. Progress monitoring data was entered into the VPORT system. Additional AIMSweb (CBM) assessments were administered in January and May.

The following 20 schools participated in the AERS intervention:

AERS Participating Schools	
• Adrian Burnett	• Gibbs
• Amherst	• Green
• Ball Camp	• Halls
• Blue Grass	• Inskip
• Bonny Kate	• Karns
• Chilhowee	• Norwood
• Christenberry	• Pond Gap
• Copper Ridge	• Sarah Moore Greene
• Dogwood	• Spring Hill
• Fountain City	• West Haven

Findings

Students included in the program evaluation were differentiated as AERS students. The 20 intervention assistants hired specifically for this program kept rosters of their AERS students, tracking attendance and R-CBM performance. The comparison between the two groups, AERS students and non-AERS students, provides information about how well the intervention worked. Student growth was measured differently by grade level. TCAP predicted scale scores were used in grade three, while NCEs were used in grades four and five.

There were roughly 611 students in the treatment group from the twenty schools. After eliminating students who did not have a predicted score, who moved to a non-AERS school, or who were not listed on the Voyager Passport data file, there 494 students remaining with a complete data set. We were able to link the data of 198 third graders who were both Voyager and AERS students. Among our fourth and fifth graders, we had 296 students in our data set.

We have several findings related to the intervention program results as well as its implementation:

1) In grades four and five, where NCE scores were used to assess progress, the mean of the students in the intervention was significantly greater than predicted and twice as large as non-AERS students. (While twice as large, the gain was not statistically significantly in comparison to the peer group.) A matched-pair design comparing demographically equivalent students confirmed these results.
2) In grades 4 and 5, Pond Gap and West Haven led the way by exhibiting significant growth for their AERS students.
3) Student progress in grade 3 was measured by predicted achievement scale scores. Students in the intervention exhibited statistically significant losses both as compared to their predicted means and compared to demographically equivalent students in the control group. This trend was evident at many individual schools in addition to the group as a whole.
4) The predicted scores of AERS students are significantly below their non-AERS peers.
    a. The AERS students in grades 4 and 5 had previously performed much lower than their peers, but they grew at a faster rate. This indicates that this intervention was helpful in closing the reading gap in fourth and fifth grades. It is also evidence that AERS students were those in the target population of underperforming students.
    b. For third grade, the non-AERS students exhibited a small, but not significant, gain of 0.34 of a scale score point, while our treatment group, the AERS students, exhibited a significant 5.35 mean scale score *loss*. Thus, the AERS students in third grade did not appear to benefit from this support at all.

The following table summarizes the reading growth among AERS students in grade 3, which are representative of the results for the overall evaluation.

	Predicted Score	Observed Score	Growth	
	Mean	Mean	Mean	Count
Adrian Burnett Elementary	743.3	725.8	-17.5	13
Amherst Elementary	742.4	736.2	-6.2	5
Ball Camp Elementary	735.3	732.3	-3.1	12
Blue Grass Elementary	751.8	751.2	-0.7	6
Bonny Kate Elementary	742.3	730.3	-12.0	3
Chilhowee Intermediate	736.8	739.8	2.9	16
Christenberry Elementary	735.3	743.5	8.2	13
Copper Ridge Elementary	735.1	730.4	-4.8	8
Dogwood Elementary	744.0	739.4	-4.6	7
Fountain City Elementary	N/A	N/A	N/A	N/A
Gibbs Elementary	745.3	737.3	-8.2	6
Green Elementary	727.1	710.3	-16.9	16
Halls Elementary	743.1	730.3	-12.8	12
Inskip Elementary	743.8	745.9	2.1	20
Karns Elementary	N/A	N/A	N/A	N/A
Norwood Elementary	718.4	707.8	-10.6	13
Pond Gap Elementary	731.7	724.6	-7.1	10
Sarah Moore Greene Elementary	730.0	720.9	-9.1	9
Spring Hill Elementary	737.6	741.7	4.1	11
West Haven Elementary	729.8	722.5	-7.4	18
Total	736.1	730.8	-5.4	198

In terms of instructional intervention assistants (IAs) and implementation of the program, our program evaluation and the Parthenon Group survey data revealed several findings. (See Appendix 10: Parthenon Analysis – Instructional Assistants.)

5) Principal survey data showed that there is not a consistent way in which IAs were deployed across the district or within the schools.
6) On average, 30% of IAs' time is spent on Voyager specifically, with 50% of their time overall spent on intervention programs in general.
7) Survey data indicated both principals and teachers believe there is an opportunity to provide greater training of instructional assistants.
8) Principals and teachers reported different experiences in terms of who is delivering Voyager intervention to participating students.
    a. Survey data revealed that Voyager instruction was delivered by multiple types of staff across the schools including: instructional assistants; other teachers in the building; the student's classroom teacher; literacy coaches; and special education instructional assistants. There were also occasions where other adults in the building, such as interns and support staff, facilitated the intervention for students.
    b. General education instructional assistants were responsible for over half of Voyager implementation, but the reported mix of other adults responsible varied depending on who was asked.

9) Instructional assistants, though used regularly for the purposes of delivering Voyager, were perceived as less effective than coaches and classroom teachers.

Recommendations

As the district endeavors to improve outcomes for students and invest its resources wisely, there are a few recommendations to consider.

1) Further qualitative investigation at individual schools should be pursued to ascertain why the results are so different (and disappointing) at the third grade level.
2) Both teachers and principals indicated that instructional assistants were not as effective in delivering intervention supports. Yet, unlike the analysis in the general Early Literacy overview, it is clear that AERS students did meet the criteria for targeted support based on CBM and prior TCAP performance. The district should consider if it is wise to continue to rely so heavily on instructional assistants to provide intervention services to students who are struggling the most.
3) Alternately, the district must provide instructional assistants with the appropriate training to execute these intervention programs due to their substantial participation in delivering intervention services. Moreover, district leaders should better define the role of these assistants such that they can focus on instructional activities and build their expertise if they are going to be the primary resource for intervention delivery.
4) Data on intervention implementation was not always available and thus, instructional assistants could not be linked to student outcomes in a useful way. As such, Voyager implementation data must be carefully collected and recorded. The program evaluation may be limited by the consistency and accuracy of the data entered into the VPORT management system. School leaders should work to ensure that student information is tracked carefully. Furthermore, the district should explore opportunities to record intervention data in student information systems and/or our district learning management system.

4.5 Summer Bridge Overview

The Knox County Schools Summer Bridge program was originally designed as an intervention for rising high school freshman that were identified by early warning flags based on attendance, grades, and TCAP assessment results. The intent of the program was to provide a "bridge" between middle and high school to get potentially off-track students back on-track. The traditional focus of the six to eight week summer bridge was to re-teach Reading/English Language Arts (R/ELA), math, and study skills.

In 2012-2013, the Summer Bridge program was expanded to include rising 6th graders to bridge between elementary and middle schools. The expanded Summer Bridge pilot involved students who would be attending two different Knox County middle schools (Northwest and Whittle Springs). The initial selection of students for the expanded Summer Bridge program was based solely on TCAP results and included only students who performed at the basic or below basic level in third and fourth grade in reading, math, social studies, or science. Student selection from 15 elementary schools was based on the number of subjects in which a student had failed to reach proficiency and who were zoned to attend Northwest or Whittle Springs for middle school.

The Summer Bridge was held from June 3 through July 16, 2013 from 8:30 am until 11:30 am. Only highly effective teachers with Level 5 TVAAS and summative scores were selected to teach in the program. Additionally, content-specific training was provided to the selected teachers prior to the beginning of the program. The schedule was designed so that the students would have one hour of math (*Moving with Math*), one hour of literacy (*Read 180*), and one hour of study skills/science each day. Fridays were "Science Days" in the lab where students focused on the completion of a science-based learning task.

The Summer Bridge program differed from the regular summer school program because it was extremely targeted to allow teachers to provide a more rigorous, individualized learning program. The goal was to enable students to demonstrate growth toward mastery of the essential concepts in reading/language arts, mathematics and study skills that are necessary for success in middle school.

Findings

Please note: The data to properly evaluate the pilot summer bridge program for rising 6th graders will not be available until 2013-2014 summative data is released from the state. As such, we analyzed data from the high school summer bridge program, upon which the 6th grade model is based (a proof-of-concept analysis).

There were 90 students enrolled in the rising high school freshman summer bridge program, with 45 students each at Northwest and Whittle Springs Middle Schools. There were three classes of 15 students each. We reviewed student performance from two time periods, from grade 7 to 8, which we considered to be pre-treatment, and from grade 7 to 9, which we considered to be post-treatment. The measurements included NCE scores based on 7th grade TCAP results in RLA and Math and state percentiles on English and Algebra I end-of-course (EOC) exams. We also created a control group with a similar distribution of test performance in order to compare their performance to the treatment group.

1) There is evidence that the high school summer bridge program had its intended effect of getting students back on track with their academic peers.
    a. Comparing the change between 7th to 8th grade and 7th to 9th grade, the mean change in RLA NCE improved after students participated in the summer bridge program.
2) Based on a comparison of EOC results in English and Math, summer bridge students exhibited consistent performance when compared to their non-bridge peers (control group).
3) Gains can be seen in the NCE data in both of the subject areas (reading and math), and there is some evidence that bridge students are increasing math NCEs at a faster rate than their peers. In the pre-treatment period, bridge students grew more slowly than their peers in the control group. However, post-treatment, the bridge students performed as well as their control peers, with no statistically significant difference between the two groups. (See the table below.)

Percent of Students Exhibiting an Increase in Math NCE				
	Control	**Treatment**	**Treatment minus Control**	**p-value**
From 7th to 8th (pre-treatment)	73%	59%	-14%	0.0003
From 7th to 9th (post-treatment)	60%	58%	-2%	0.7294

Because data for rising 6th grade students who attended the summer bridge program will not be available until 2013-2014 summative data is released from the state, we used data from the Scholastic Reading Inventory (SRI) and Scholastic Math Inventory (SMI) pre and post-tests as proxies. The results are promising but will be validated once 2014 TCAP results are available.

4) Twenty percent of the rising 6th graders who attended the summer bridge exhibited one year of growth as measured by SRI lexiles.
5) Forty percent of the rising 6th graders who attended the summer bridge exhibited at least one year of growth as measured by SMI lexiles.

Recommendations

The Summer Bridge program appears to help identified students close achievement gaps in comparison to their academic peers. There are some key considerations to ensure continued and greater success of the program:

1) The district should examine why students in the lowest math quintile performed worse than their non-bridge peers in order to identify strategies to improve the program impact for students in that performance level.
2) The REA team will need to conduct future analysis using the summative data from the 2013-2014 school year to confirm initial results.
    a. If the program continues to have positive results, the district should consider expansion to additional students or schools.
    b. If expanded, replicating the program from the pilot schools will be important to ensure fidelity and, consequently, similar results.

4.6 High School Learning Centers Overview

Learning Centers represent an opportunity for students to complete unearned credits, learn software skills, create résumés, and work with the teaching staff to increase graduation rates. The centers are actually computer labs that students use for intervention and enrichment in high schools. They are staffed with teaching assistants and/or teachers who work with students who are scheduled to attend or those who are referred to the center as needed. Students may also use the online learning tool, Odyssey, to earn new credits or recover attempted credits. In the 2012-2013 school year, two high schools were chosen to expand their learning centers, Gibbs and Carter. The expansion aimed to:

- Upgrade existing Learning Center staff to certified teachers or add additional staff.
- Expand the Learning Center's capacity through additional computers, new software, or other equipment for students to use for the following purposes:
    - Research for courses and homework help
    - Completion of Odyssey coursework
    - Access to grades and homework assignments
- Add a tutoring component that may utilize peer tutors, parent and community volunteers, and/or college students.

All of these investments aimed to help struggling students succeed before failing a course and recover additional credits to improve their chances of graduating.

Findings

Based on scheduling and course listing, we developed a list of students at Gibbs and Carter High enrolled in the Learning Center, though other students may also access additional services. There were 223 students enrolled in Learning Center courses in 2012-13. We were able track the number of credits recovered in 2012-2013. We compared this number to the number of recovered credits via the Learning Center in both schools for the 2011-12 school year. There was no data available in the scheduling system about any tutoring assistance, though participating schools reported that a certified teacher, teaching assistant, and peer tutors were on hand for students to use as needed.

1) The number of recovery credits received in 2012-2013 slightly decreased from the number received in the previous year.
   a) It should be noted that the district also updated its guidelines regarding recovery credit attainment in the 2012-13 school year. As such, it is difficult to draw meaningful conclusions in comparing the data between the two years.

Number of Recovery Credits		
	2011-2012	2012-2013
Carter High	31	17
Gibbs High	72	76
Total	**103**	**93**

Recommendations

It was difficult to draw conclusive findings about the Learning Centers. As such, our recommendations focus on discovering more useful information sources about the program.

1) Moving forward, collecting additional information about which students are using the learning center, in addition to scheduling data, would be useful in ascertaining the benefits received. Developing a better method of tracking student information and the types of credit earned is also important for future program evaluations of the learning centers.
2) We should investigate the ability of the scheduling system to track how many classes students attempt to pass a course in the Learning Center and/or track that information via the learning management system, Canvas, such that the REA team could retrieve this information.
3) A qualitative review of how students are engaged with the learning centers and the impact on graduation and post-secondary options may also be a useful component for future evaluations of the program. In a similar vein, student perception data regarding the staff support in the Learning Centers may also inform the program evaluation.

5. Enrichment Programs

Overview

There were a few programs included in the Enrichment budget that provided services to students, though they did not track individual student participation. As such, the following is a qualitative description of these efforts that does not present any quantitative findings based on student academic outcomes. However, the value of these programs was intended for students performing at or above district goals and was to be used to provide extension opportunities for these students.

Enhanced Learning

Schools were asked to submit proposals detailing how they would allocate $3,000 to supplement learning opportunities for students. (See Appendix 11: Enrichment Allocation Proposals.) This supplement was available to all elementary and secondary schools. Any school that applied was awarded the grant money, provided their plans were in alignment with the intended goals. These goals entailed providing enhanced learning opportunities – including STEM activities beyond traditional coursework, academic competitions, clubs, and other activities to encourage academic exploration. The funds typically supported activities and events that took place between January and May 2013. The table below highlights a few of the school endeavors that were funded by the supplemental learning dollars. A total of 63 schools applied for and received the enhanced learning grant money.

Sample Projects Funded by the Supplemental Learning Grants

School Level	Projects
Elementary	Robotics Camp
	News Broadcast Student Team
	Science Family Fun Night
	Portable Technology Studio
	Family Reading Night
Middle	Science Bowl Competition
	Rocket Supplies
	Robotics Kits
	Science and Math Olympiad
	Video Club
	Technology Student Association fees
High	Community Garden
	Math Club
	Outdoor Club
	Robotics Club
	State National History Day Project

Fine Arts

Another enrichment program included the Fine Arts summer camp. The camp was conducted during the month of June 2013 at Sarah Moore Greene and Green Magnet elementary schools. Almost 100 students in grades one through five participated in various activities that centered on weekly themes of different continents (Africa, Asia, South America, and North America). The classes each day were art, music, physical education, and dance. The program lasted four weeks. There was also an international taste-testing event sponsored by School Nutrition Services and a parent education program component. Teachers received training and classroom stipends to purchase materials.

Just under $32,000 was spent on the Fine Arts summer camp.

Fine Arts Summer Camp 2012-2013	
Item	**Cost**
Teacher Stipends (8 x $2,300)	$ 18,400
Site Coordinators (2 x $2,800)	$ 5,600
Nurse	$ 1,400
Equipment & Supplies	$ 2,000
Technology	$ 3,360
Training	$ 100
International Food	$ 1,000
Total	**$ 31,860**

Robotics

High schools were afforded the opportunity to establish a FIRST Robotics competition team. FIRST Robotics is a national program that encourages students to learn about science and technology through the practical application of building a robot. Both schools and students were self-selected for this program in that they applied to the competition and for the district funds to participate. The table below shows the number of students in each team.

School	Students
Farragut High School	27
Gibbs High School	17
Halls High School	11
Hardin Valley Academy	43
L & N STEM Academy	42
South-Doyle High School	22
West High School	5

All of the robotics teams participated in the Smoky Mountain Regional FIRST Robotics Competition in March 2013. Hardin Valley Academy and Halls High School both won at the regional competition and advanced to the FIRST Robotics National Championship in St. Louis, Missouri. The championship had four divisions of 100 teams each. Hardin Valley Academy placed 10th in its division and Halls High finished in 100th in the same division. The Hardin Valley Academy team (the RoHAWKtics) also won the National Additive Manufacturing Innovation Institute First Place award for significant use of three-dimensional printing to solve advanced design and manufacturing challenges.

Investment Analysis

The budgeted amounts in this area were structured as allocations to schools to support the initiative. As such, expenditure from the general purpose fund is represented as 100% of the budgeted amount, as the dollars were forwarded to schools to spend based on proposals or budgets they submitted. The enhanced learning opportunities were $3,000 grants to individual schools in FY2013. The FIRST Robotics line item was allocated to support and expand our district participation by providing half of the total cost per team or $7,500 to each of eight school teams. A detailed breakdown of the expenditures for the fine arts summer academy was provided in the overview.

The student counts represent the student participation as reported by the project leaders. For the enhanced learning opportunities, the total student count represents all students in the designated schools.

Initiative	FY13 Budget		FY13 Actual Expenditures	# of Students	Cost Per Student
	Other	Early Literacy			
Enhanced learning opportunities	$ 264,000	$ -	$ 264,000	50,130	$ 5
Fine Arts summer academies	$ 32,000	$ -	$ 31,860	97	$ 330
FIRST Robotics Teams	$ 60,000	$ -	$ 60,000	167	$ 359
ENRICHMENT	**$ 356,000**	**$ -**	**$ 355,860**	**50,394**	**$ 7**

Note: STEMSpark Hub activities were not included in this program evaluation. As such, the $94,000 included for STEM activities in the original $7 million budget is not included in this budget summary for enrichment.

Recommendations

The enrichment programs did provide enhanced learning opportunities for students as intended. Recommendations programs are as follows:

1) The district may consider a centralized project account to provide coordinated resources for schools interested in funding enhanced learning opportunities.
2) The Fine Arts Summer Camp was a complement to the Summer Boost Academy programming at Sarah Moore Greene, which was a component of its School Improvement Grant. This was a successful collaboration and should be considered for continuation in the summer 2014.
3) The FIRST Robotics competition was a hands-on learning experience from which student were able to apply learning across multiple disciplines. The district should seek to expand this experience to all high schools.

6. Magnet Programs

Overview

An additional $65,000 was allocated to each of the eight magnet schools and programs in the district as part of the $7 million budget initiative. These funds were designated to increase the rigor of magnet programs and the resulting number of out-of-zone students transferring to the magnet programs.

Knox County Schools Magnet Schools & Programs	
• Beaumont Elementary – Honors and Fine Arts • Green Magnet Elementary – STEAM • Sarah Moore Greene Elementary – Technology • Vine Middle – STEAM	• Austin-East – Performing Arts • L&N – STEM Academy • Fulton High – *FulCom* Communications Program • West High – International Baccalaureate (IB) Program

As part of the funding, each school submitted a budget outlining their investments and a marketing plan detailing their efforts to recruit and retain students. Each school and program also monitored the recruitment efforts by logging calls, visits, open house sessions, and similar events.

Investment Analysis

The budgeted amounts in this area were structured as allocations to schools to support the initiative. As such, expenditures from the general purpose fund are represented as 100% of the budgeted amount. Most schools chose to use the allocation to purchase equipment and materials to enhance their magnet programming. In addition, funds were used for marketing and promotion to recruit students.

The student counts represent total enrollment at the whole-school magnet programs: Austin-East, L&N, Vine, Green and Sarah Moore Greene. The other programs are school-within-a-school models. As such, the student counts at Beaumont, Fulton, and West represent only those students who are enrolled in the magnet program.

Initiative	FY13 Budget		FY13 Actual Expenditures	# of Students	Cost Per Student
	Other	Early Literacy			
Austin-East Performing Arts	$ 65,000	$ -	$ 65,000	535	$ 121
Fulton Communications	$ 65,000	$ -	$ 65,000	34	$ 1,912
L&N STEM Academy	$ 65,000	$ -	$ 65,000	330	$ 197
West IB	$ 65,000	$ -	$ 65,000	53	$ 1,226
Vine STEAM	$ 65,000	$ -	$ 65,000	335	$ 194
Beaumont Honors/Fine Arts	$ 65,000	$ -	$ 65,000	67	$ 970
Green STEAM	$ 65,000	$ -	$ 65,000	297	$ 219
Sarah Moore Greene – Technology	$ 65,000	$ -	$ 65,000	622	$ 105
MAGNET	**$ 520,000**	**$ -**	**$ 520,000**	**2,273**	**$ 229**

Findings

The following table outlines a sample of goals and outcomes facilitated by the additional magnet funding.

Magnet School/Program	Goal	Outcome
Beaumont Elementary	Increase enrollment in Kindergarten and first grade honors classrooms by 10 students	Number of total applicants increased from 54 to 89 students, with an increase of eight actual transfers that were granted and accepted.
Green Magnet Elementary	Increase out-of-zone enrollment in Kindergarten and first grade	Number of official out-of-zone transfers increased by five students.
	Increase STEAM resources and curriculum support in content areas	Increased engineering and reading materials, increased resources in design lab, increased technology and resources on the math lab, and provided K-2 teachers with curriculum resources for reading integration.
Sarah Moore Greene Elementary	Increase out-of-zone enrollment by 10 students	Approved and accepted 27 magnet transfers.
Vine Middle	Enhance Magnet programming	In an effort to enhance the rigor of the magnet programming, the school was reconstituted in the 2012-2013 school year. Additionally, the magnet program was revamped and transitioned to a STEAM program.
Austin-East High	Increase in daily instructional time in magnet performing and visual arts classes	Increased student access to magnet programming by an additional 30 minutes per day.
	Increase magnet class offerings for Austin-East students	Enrollment for magnet offerings increased from 200 to 425.
L&N STEM Academy	Provide professional development for teachers to remain on the cutting edge through conferences and after-school workshops	Attendance at after-school workshops led by the technology coordinator and assistant principal increased.
	Increase innovative use of technologies associated with iPad and/or 1:1 deployment through the staffing of a technology coordinator	Technology coordinator worked with 100% of the STEM teachers on implementing and working with 1:1 models and innovative use of technology.
FulCom Program (Fulton High)	Increase freshman Magnet cohort by 30%	Increased freshman magnet cohort by 35%.
	Increase magnet cohort performance on state assessments	Percent of proficiency of the magnet cohort was higher than their school peers in Biology I, English I, and Algebra I.
International Baccalaureate (IB) Program (West High)	Increase number of transfer applications by 20, from 60 to 80 applications	Increased number of applications by 25.
	Increase number of IB exams	Increased from 52 exams to 330.

In addition to increasing the rigor of magnet programs, the magnet funding was also meant to increase the number of students transferring to schools outside their school zone for a magnet program. There has been a slight decrease in the number of out-of-zone transfers over the last two school years. However, as the table below shows the count of requested transfers and approved transfers have improved over the last three years for the districts magnet programs. Data for 2013-2014 is based on mid-year enrollment.

	2012-2013				2013-2014			
School	Requested Transfers	Approved Transfers	Out-of-zone Capacity	Percent Approved	Requested Transfers	Approved Transfers	Out-of-zone Capacity	Percent Approved
Beaumont	108	67	73	92%	133	75	73	103%
Green Magnet	9	11	180	6%	20	20	180	11%
Sarah Moore Greene	24	24	45	53%	39	35	45	78%
Vine Middle	40	40	35	114%	31	31	35	89%
Austin-East	15	16	100	16%	12	11	100	11%
L&N STEM	297	224	191	117%	298	245	245	100%
Communications (Fulton High)	28	34	45	76%	36	34	45	76%
IB Program (West High)	49	53	75	71%	52	49	75	65%
Total	**570**	**469**	**744**	**63%**	**621**	**500**	**744**	**67%**

Please note, when a school has more accepted students than were requested (for example, Green Magnet Academy in 2012-2013), it is likely due to students who were placed there based on not being accepted at their first requested school.

Recommendations

The program supervisor reflected on the magnet activities in 2012-2013 in developing the following recommendations:

1) The schools that set very specific goals and then aligned their resources with those goals achieved their intended outcomes (FulCom, Green Magnet, and L&N STEM). Schools that outlined broad goals had a more difficult time achieving them.
    a. Establishing metrics of success may help magnet programs support district aspirations to increase curricular rigor.
    b. The magnet supervisor will continue to work with schools to write specific SMART goals in order to more closely align their resources to achieve those outcomes.
2) While the magnet schools and programs had extensive documentation of their marketing and recruitment efforts, the documentation varied from program to program. For evaluation purposes, it would be beneficial to develop a standard methodology for all of the magnet schools and programs in order to accurately collect data and compare results.
3) The magnet programs need focused effort and support to increase student outreach and recruitment. The district should consider adding resources to specifically design and implement a strategic recruitment plan to increase magnet enrollment.

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TECHNICAL REPORTS

The following section contains the technical reports of each of the programs the REA evaluated. These technical reports offer brief descriptions of the programs, plus detailed information about the methodology used for the program evaluations. The results of our statistical analyses are presented with conclusions and considerations for future research. These reports are intended for those readers who wish to understand how and why we reached the conclusions we did for each program. We also provided enough detail for any readers who want to duplicate our studies as well. Any questions about the methodology or results should be forwarded to the department at REA@knoxschools.org.

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7. Community Schools

Community Schools is a strategy that aligns schools and community resources to provide services that meet the social, physical, cognitive, and economic needs of both students and families. In particular, it provides enhanced learning opportunities for students and their families via tutoring and mentoring; family engagement activities; health, mental and social services; and early childhood development. This strategy also helps increase linkages between schools and partners and teachers and parents. It is one component of the "engaged community and parents" goal in the KCS strategic plan, *Excellence for All Children*, adopted in 2009.

Methodology

While the entire schools were engaged with some community school activities, we have followed 246 students who actively participated in the after-school programs throughout the year and were evaluated in the interim reports. We will be considering these same students for this report. We will designate these 246 as high-risk students and their peers as non-high-risk students.

A logic model was created concerning how the initiative would be assessed for interim reports and for this summative report. It was determined that the following indicators would be used:

- Student attendance
- Parental engagement
- Discipline referrals
- Academic achievement
- Academic growth

The data from the model will be measured in two ways. As the high-risk students are subsets of the schools, we will measure the high-risk students against their peers. We will also measure the high-risk students against themselves where baseline data is available. As there is no baseline or comparison data for parental engagement, it will not be included in this study. For any statistical test, a p-value of less than .05 ($p < .05$) will be considered statistically significant as it will indicate that the probability of a result that extreme happening by chance would be less than one out of twenty.

Results: Student Attendance

Students who were not enrolled for the entire 175 days of the school year had their absences prorated to be out of 175. We did not consider students who were enrolled for fewer than 20 days to avoid skewing the results. While the number of students in each group is different, the distribution of absences between high-risk students and non-high-risk is very similar in shape. These are presented in figure 7.1.

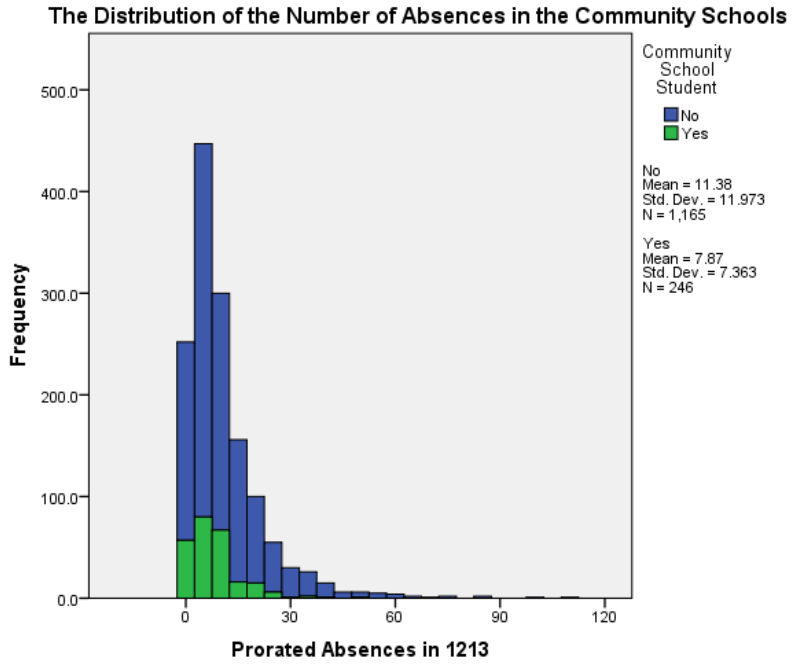

Figure 7.1: The Distribution of the Number of Prorated Absences in the Community Schools

We subjected the number of prorated absences between high-risk students and their peers using a two-sample t-test for each of the schools and for the aggregate of the schools. The results of these tests can be found in table 7.1 below.

Table 7.1: Two-sample t-tests on the Number of Prorated Absences in the Community Schools

	Community School Student					
	No		Yes		Difference	The probability of a difference this extreme happening by chance
School	Mean	Count	Mean	Count	Mean	(p-value)
Green	12.8	295	10.0	57	2.9	.042
Lonsdale	10.2	319	5.7	93	4.5	.000
Norwood	11.3	551	8.7	96	2.5	.007
Total	11.4	1165	7.9	246	3.5	.000

There is a significant difference between the number of absences for the two groups at each school and for the schools combined. High-risk students have fewer mean prorated absences. Since students did not become high-risk students through a random process, it is possible that this difference may be due to a selection bias.

We were able to gather baseline attendance data for 193 of our 246 high-risk students as well as for 695 of our 1165 comparison students. We subtracted the baseline data from the current year in order that a negative number would represent a decrease in the number of absences from year to year. The distribution of the change in absences is represented in figure 7.2.

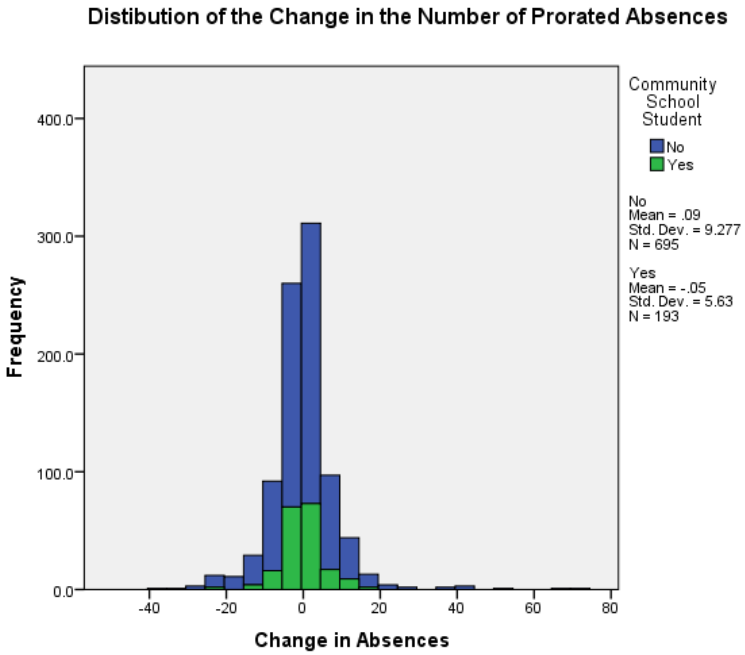

Figure 7.2: The Distribution of the Change in the Number of Prorated Absences in the Community Schools

The general shapes of the two groups are still the same, but this time they each are centered near zero. This indicates that the number of students with decreased absences is basically balanced by students with increased absences.

Table 7.2: Two-sample t-tests on the Change in the Number of Prorated Absences in the Community Schools

	Community School Student					
	No		Yes		Difference	The probability of a difference this extreme happening by chance
School	Mean	Count	Mean	Count	Mean	(p-value)
Green	.25	179	.53	38	.28	.891
Lonsdale	-.80	198	-.49	76	.31	.735
Norwood	.55	318	.10	79	-.45	.588
Total	.09	695	-.05	193	-.13	.802

In the end there was not much difference in the means at the schools individually or in the aggregate. The high-risk students averaged one twentieth of a day fewer absences while their peers averaged about a tenth of a day absence more. Hypothesis testing indicates that there is essentially no difference in the mean changes in the number of absences for the two groups. We must therefore conclude that the difference between the mean prorated absences of the two groups is due to the selection of the students for the program and not due to the program itself.

Results: Discipline Referrals

It turned out that discipline referrals are not the most robust of metrics in the early grades. Some schools opt to maintain non-suspensions in-house though their own information systems. Of our three schools, Lonsdale Elementary followed this practice and only maintained their suspension data in our student information system. We will first consider the average number of discipline referrals for each of the types of students in our study. Figure 7.3 represents the data graphically.

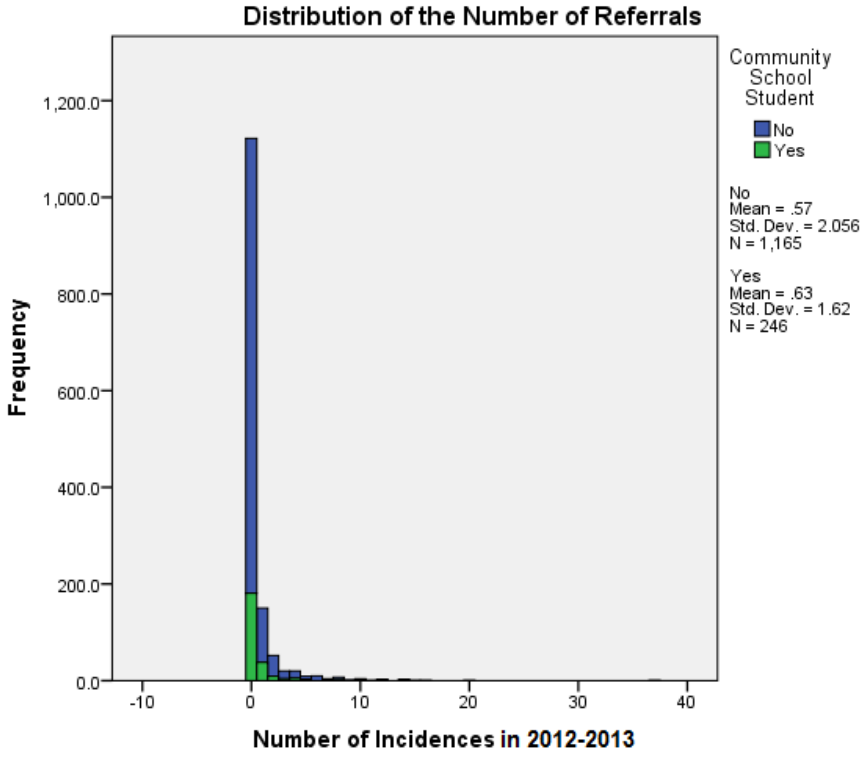

Figure 7.3: The Distribution of the Number of Office Referrals

The majority of students have no office referrals at all. Therefore the average numbers of referrals per student is very small. We computed these for each of the groups and conducted a two-sample t-test on the mean number of referrals. The high-risk students had a higher average number of referrals at each school, but not significantly so at any school or in the aggregate. The results are available in table 7.3.

Table 7.3: Two-sample t-tests on the Mean Number of Office Referrals

	Community School Student					
	No		Yes		Difference	The probability of a difference this extreme happening by chance
School	Mean	Count	Mean	Count	Mean	(p-value)
Green	.60	295	.91	57	0.32	0.14
Lonsdale	.05	319	.09	93	0.04	0.273
Norwood	.85	551	1.00	96	0.15	0.619
Total	.57	1165	.63	246	0.07	0.637

As was the case with absences, we were able to concentrate on students who had a discipline record for two years in an effort to see if the high-risk students had a change in their mean number of discipline referrals. This turns out to be a much smaller population of students as represented in figure 7.4.

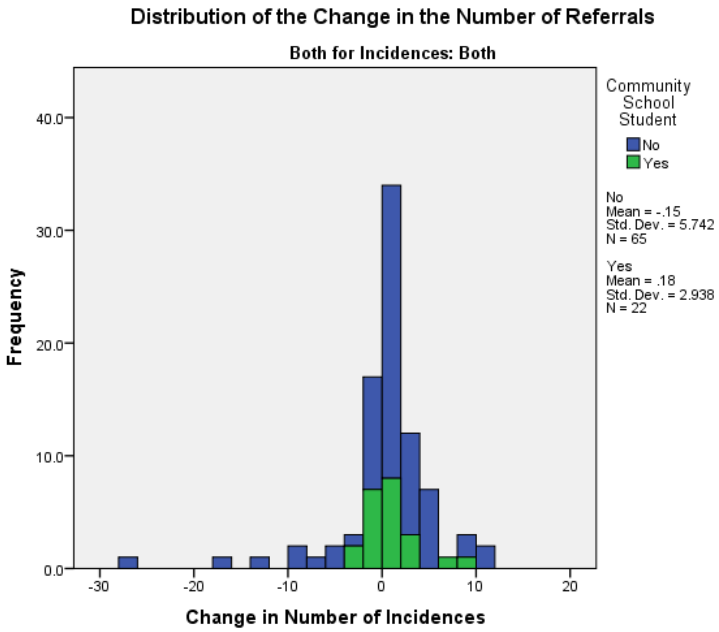

Figure 7.4: The Distribution of the Change in the Number of Office Referrals

When we break this down by school we find that the high-risk students with two years of referrals at Green decreased by almost one referral per student while it increased by more than one referral per student for the non-high-risk students. Yet, the counts are small enough to keep this from being a significant difference in the mean number of referrals at Green. While the situations differ at the other schools, neither of them, nor the aggregate showed a significant difference in the means of the two groups.

Table 7.4: Two-sample t-tests on the Mean of the Change in the Number of Office Referrals

	Community School Student					
	No		Yes		Difference	The probability of a difference this extreme happening by chance
School	Mean	Count	Mean	Count	Mean	(p-value)
Green	1.05	22	-.86	7	-1.90	0.062
Lonsdale	-1.50	6	-.50	2	1.00	0.728
Norwood	-0.65	37	.85	13	1.49	0.464
Total	-.15	65	.18	22	0.34	0.794

Results: Academic Achievement

We examined the difference between the high-risk students who did not take part in the after-school activities by first looking at each group's performance on the TCAP exams in Reading/Language Arts and Math. We were able to gather proficiency levels for 144 community students and 373 non-community students. For RLA, the non-high-risk students had a higher percentage of students who were proficient or advanced at each of the three schools. The difference was statistically significant at Green, Norwood and overall. We used a chi-squared test with one degree of freedom to do our hypothesis testing. When we tested the two groups on their math results, the only significant difference was at Green where the non-high risk students continued to perform better. The community students performed better at Lonsdale and Norwood, but not in a significant fashion. The achievement results can be found in table 7.5.

Table 7.5: Percent Proficient or Advanced in RLA and Math along with Chi-Squared Results

School	Reading/Language Arts				Math			
	Proficient or Advanced		Difference	p	Proficient or Advanced		Difference	p
	Non-Community School Students	Community School Students			Non-Community School Students	Community School Students		
Green Elementary	28.0%	8.8%	-19.2%	0.013	27.0%	8.8%	-18.2%	0.017
Lonsdale Elementary	20.8%	13.6%	-7.2%	0.242	22.8%	27.3%	4.5%	0.477
Norwood Elementary	34.3%	21.2%	-13.1%	0.025	36.6%	39.4%	2.8%	0.686
Total	29.0%	16.0%	-13.0%	0.001	30.3%	28.5%	-1.8%	0.600

Table 7.5 included all students who took the examinations. There were two test categories for the exams, achievement and modified. We were not provided with Normal Curve Equivalent scores (NCEs) for the modified students, but we do have this scale variable for those who took the achievement tests. We were able to perform t-tests for these students. These results can be found in tables 7.6 and 7.7.

Table 7.6: Two-sample t-tests on the RLA Normal Curve Equivalents

School	Community School Student					The probability of a difference this extreme happening by chance
	No		Yes		Difference	
	Mean	Count	Mean	Count	Mean	(p-value)
Green Elementary	37.29	79	28.83	30	-8.46	0.049
Lonsdale Elementary	37.57	95	35.74	38	-1.83	0.628
Norwood Elementary	43.27	172	40.32	66	-2.95	0.290
Total	40.34	346	36.45	134	-3.89	0.068

Table 7.7: Two-sample t-tests on the Math Normal Curve Equivalents

School	Community School Student					The probability of a difference this extreme happening by chance (p-value)
	No		Yes		Difference	
	Mean	Count	Mean	Count	Mean	
Green Elementary	40.18	79	35.00	30	-5.18	0.223
Lonsdale Elementary	40.54	95	42.34	38	1.80	0.609
Norwood Elementary	48.68	173	49.48	66	0.80	0.756
Total	44.51	347	44.22	134	-0.29	0.875

None of the results vary in direction for these tests on our subset of students, but the values of p are larger using this test. Only RLA at Green has a p-value less than our .05 threshold for significance.

The results for this section carry the same caveat that we saw with the initial attendance and discipline data. They may be subject to a selection bias. For this reason we will finish by looking at student growth.

Results: Academic Growth

We will use each student as their own control in this section. We will use the previous year's performance levels and NCEs as the baselines and evaluate growth on those.

The results in Reading/Language Arts can be found in table 7.8. Overall the results are mixed. The only area of significance was at Green where the community school student's performance was worse than that of their peers. Norwood has the best looking results for the high-risk students where the percentage of students who regressed in their proficiency level was smaller while the percentage of students who stayed the same or improved was higher. When all of the schools are combined the total percentage of high-risk students regressing is smaller than their peers, but the percentage of high-risk students improving is also smaller than their peers. Overall, the percentages of the student's directional change are not statistically significant when a chi-squared test is applied.

Table 7.8: Directional Change in Proficiency in RLA with Chi-Squared Results

School	Change in Reading/ Language Arts Performance Level	Community School Student					The probability of a difference this extreme happening by chance (p-value)
		No		Yes		Difference	
		Percent	Count	Percent	Count	Percent	
Green Elementary	Worse	9.1%	5	23.8%	5	14.7%	0.016
	Same	60.0%	33	66.7%	14	6.7%	
	Better	30.9%	17	9.5%	2	-21.4%	
Lonsdale Elementary	Worse	11.6%	8	6.3%	2	-5.3%	0.505
	Same	72.5%	50	81.3%	26	8.8%	
	Better	15.9%	11	12.5%	4	-3.4%	
Norwood Elementary	Worse	15.5%	15	6.8%	3	-8.6%	0.278
	Same	69.1%	67	75.0%	33	5.9%	
	Better	15.5%	15	18.2%	8	2.7%	
Total	Worse	12.7%	28	10.3%	10	-2.4%	0.292
	Same	67.9%	150	75.3%	73	7.4%	
	Better	19.5%	43	14.4%	14	-5.0%	

The examination of the directional changes in proficiency for math can be found in table 7.9. Once again, the results are not statistically significant, but are encouraging. Overall, the percentage of high-risk students who regressed in their proficiency level was smaller while the percentage of community students who improved their proficiency level was higher than it was for their peers.

Table 7.9: Directional Change in Proficiency in Math with Chi-Squared Results

School	Change in Math Performance Level	Community School Student					The probability of a difference this extreme happening by chance (p-value)
		No		Yes		Difference	
		Percent	Count	Percent	Count	Percent	
Green Elementary	Worse	25.9%	15	38.1%	8	12.2%	0.371
	Same	56.9%	33	42.9%	9	-14.0%	
	Better	17.2%	10	19.0%	4	1.8%	
Lonsdale Elementary	Worse	30.4%	21	31.3%	10	0.8%	0.959
	Same	49.3%	34	46.9%	15	-2.4%	
	Better	20.3%	14	21.9%	7	1.6%	
Norwood Elementary	Worse	20.6%	20	11.4%	5	-9.3%	0.269
	Same	61.9%	60	65.9%	29	4.1%	
	Better	17.5%	17	22.7%	10	5.2%	
Total	Worse	25.0%	56	23.7%	23	-1.3%	0.694
	Same	56.7%	127	54.6%	53	-2.1%	
	Better	18.3%	41	21.6%	21	3.3%	

Our examination using NCEs returned essentially the same results we saw with the proficiency levels. The only significant difference occurred at Green Elementary where the non-high-risk students outperformed their peers in Reading/Language Arts. Norwood was the closest to experiencing statistically significant gains in each subject for the high-risk students over their peers with p-values near one tenth. The overall results indicate that the high-risk students outgained their peers by .77 of an NCE in RLA and by 2.2 NCEs in math. The results for each subject can be seen in tables 7.10 and 7.11.

Table 7.10: Change in NCE in RLA with Two-sample t-test Results

School	Community School Student					The probability of a difference this extreme happening by chance (p-value)
	No		Yes		Difference	
	Mean	Count	Mean	Count	Mean	
Green Elementary	1.24	41	-7.94	17	-9.19	.007
Lonsdale Elementary	-0.76	63	1.79	28	2.55	.400
Norwood Elementary	0.71	91	4.20	44	3.49	.093
Total	0.35	195	1.12	89	0.77	.618

Table 7.11: Change in NCE in Math with Two-sample t-test Results

School	Community School Student					The probability of a difference this extreme happening by chance (p-value)
	No		Yes		Difference	
	Mean	Count	Mean	Count	Mean	
Green Elementary	-0.95	41	2.59	17	3.54	.333
Lonsdale Elementary	2.62	63	1.50	28	-1.12	.693
Norwood Elementary	4.59	91	8.14	44	3.54	.116
Total	2.79	195	4.99	89	2.20	.170

Conclusions and Considerations

We considered the differences between the high-risk students and their peers on a variety of measures. While there were some significant differences between the groups, we could not be sure that it was not due to a potential selection bias. We therefore concentrated on the change in measures where each student provided their own baseline data.

We saw no significant difference in the mean change in the prorated number of absences for the two groups, nor for the mean change in the average number of office referrals, although Green Elementary with p = .062 experienced almost a two referral difference between the two groups.

We considered the academic change data by proficiency level and by mean NCE for Reading/Language Arts and Mathematics. None of the aggregates was statistically significant, but the high-risk students performed better in each of the subjects. The individual schools varied in how their

high-risk students performed. Norwood Elementary high-risk students averaged about 3.5 NCEs better than their peers on both subjects. Lonsdale Elementary high-risk students performed better than their peers by an average of 2.55 NCEs in RLA, but were an average of 1.12 NCEs behind their peers in math growth. Green Elementary was the opposite in that the high-risk students mean growth was better than their peers in math but worse in RLA. If we were to use the state's grading scale for this one year's growth it would look like table 7.12 below.

Table 7.12: Grades Applied to Changes in NCE

	Community School Student?			
	No		Yes	
	RLA	Math	RLA	Math
Green Elementary	B	D	F	A
Lonsdale Elementary	D	A	A	B
Norwood Elementary	B	A	A	A
Total	C	A	B	A

Using this representation, the high-risk students had better grades in four cells, the same grades in two cells and worse grades in two cells.

Future evaluations should probably focus primarily on academic growth as the data is obtainable and not subject to any selection bias. The attendance data remains a reasonable measure, but until there is more uniformity on discipline reporting, it should probably be used only anecdotally.

Qualitative follow-ups would be appropriate, especially at Norwood Elementary for academic improvement and Green Elementary for attendance improvement.

8. ILC: Individual Learning Cycle

Instructional coaches were strictly tasked with providing school-based, job-embedded professional development for a community of teachers. Key instruction coaching responsibilities included facilitating individual learning cycles (ILCs) with the overall goal of raising the quality of teaching leading to improved outcomes for students. The following analysis focuses on the impact ILCs had upon teacher observation scores and TVAAS results.

Methodology: Hypothesis Testing on ILCs and Observation Score

Schools provided a roster of teachers who participated in ILC cycles during the 2012-2013 academic year. Schools also indicated the number of cycles that each teacher underwent. Due to implementation differences in TAP and TEAM schools, only TEAM schools were included in the ILC analysis.

Teachers who were in an ILC (the treatment group) were matched with a control group of teachers that were not in an ILC but had similar years of service and similar 2011-2012 classroom observation results (control group). Hypothesis testing on these groups of teachers was done to determine if observers' perceptions of the treatment group's instruction had changed. The null hypothesis for this test was that the mean change in observation scores from 2011-2012 to 2012-2013 were not different for the treatment and control groups. The distribution of distances from the teachers' school's 2011-2012 mean observation score can be found in figure 8.1.

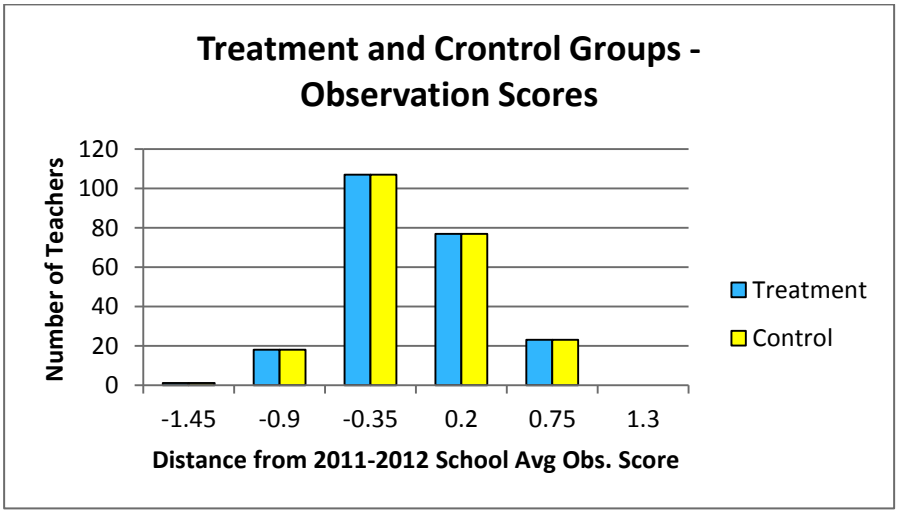

Figure 8.1: Observation Score Distributions

A paired t-test was done on teachers' observation scores to determine if the number of PLC cycles in which a teacher was enrolled led to differences in observation scores from one year to the next. The null hypothesis that was tested in the paired t-test was that the mean distance between the teachers' observation scores and the building average were no different before and after an ILC.

Methodology: Hypothesis Testing for ILCs and TVAAS

An analysis was also done to determine if student outcomes were different for the treatment group and control group. The control group was created from a pool of teachers that were not in an ILC but

had similar years of service and similar TVAAS indices in 2011-2012. An estimated TVAAS composite index was created from RLA/English and Math/Algebra gains and standard errors (using SAS calculation procedures). A delta TVAAS index was calculated as the estimated TVAAS composite index from 2012-2013 minus the estimated TVAAS composite index from 2011-2012. Hypothesis testing on the delta TVAAS was conducted to determine if student outcomes were different between the treatment and control groups. The null hypothesis for this test was that the delta TVAAS indices from 2011-2012 to 2012-2013 were no different for the treatment and control groups. The distributions on 2011-2012 estimated TVAAS composite index for both the treatment group and the control group can be found in figure 8.2.

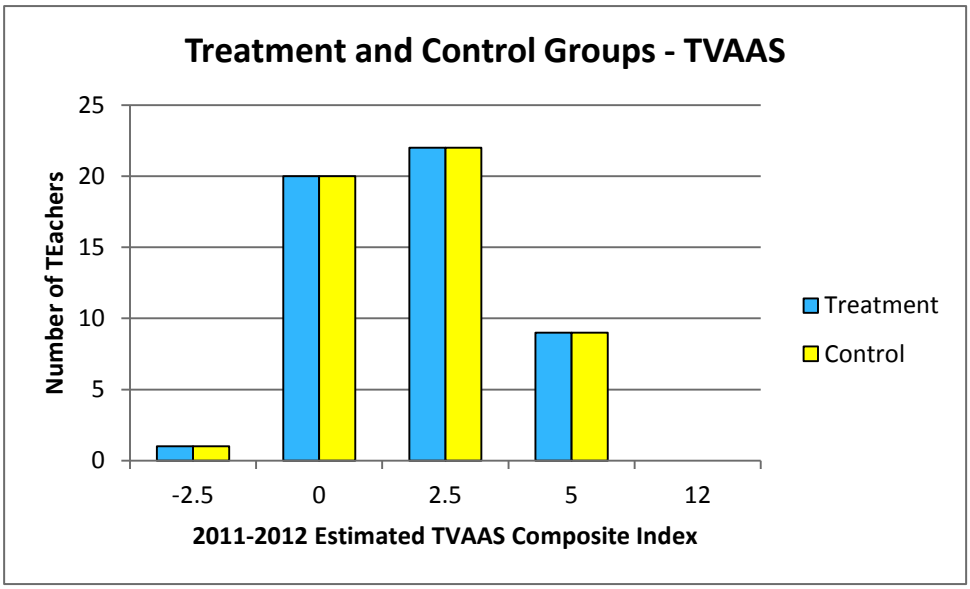

Figure 8.2: TVAAS distributions for Treatment and Control Groups

Results: Hypothesis Testing on ILCs and Observation Scores

The raw TEAM observation score (observations plus professionalism ratings) was difficult to use in the analysis because of school-to-school variation in the mean TEAM observation score. To remove the school-to-school variation in the TEAM observation score, the difference between a teacher's score and the mean TEAM score in each school (and in each year of study) was calculated. A delta was calculated as the difference between the teacher's score and the school's mean in 2013-2012 minus the difference between the teacher's score and the school's mean in 2011-2012. Table 8.1 and figure 8.1 both indicate that, on average, the control and treatment groups were below their school's average observation score in 2011-2012. Figure 8.3 and table 8.2 contain the results of the hypothesis testing on the change in observation score from 2011-2012 to 2012-2013.

Table 8.1: 2011-2012 Distance from Average Observation Score

Group Statistics					
Group		**N**	**Mean**	**Std. Deviation**	**Std. Error Mean**
Distance to Average 2011-2012	Treatment	226	-.3776	.42662	.02838
	Control	226	-.3112	.43352	.02884

Table 8.2: ILC Results – 2012-2013 Observation Scores

Group Statistics					
Group		N	Mean	Std. Deviation	Std. Error Mean
Delta	Treatment	226	-0.0002	0.43234	0.02876
	Control	226	0.1743	0.41472	0.02759

Independent Samples Test						
t-test for Equality of Means						
t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
					Lower	Upper
-4.38	449.223	0	-0.17456	0.03985	-0.25287	-0.09624

Table 8.2 indicates that the control group, on average, increased their observation score (from 2011-2012 to 2012-2013) by 0.17 points, whereas the treatment group, on average, did not increase their observation scores. The difference between the two means was statistically significant (alpha=0.05) which means we can reject the null hypothesis. There is a statistical difference between the change in observation score from one year to the next between teachers that were in ILCs and teachers that were not in ILCs. Teachers that were not in ILCs (but had similar previous year results) improved their observation score at a faster rate than teachers that were in an ILC. This is also represented graphically in figure 8.3.

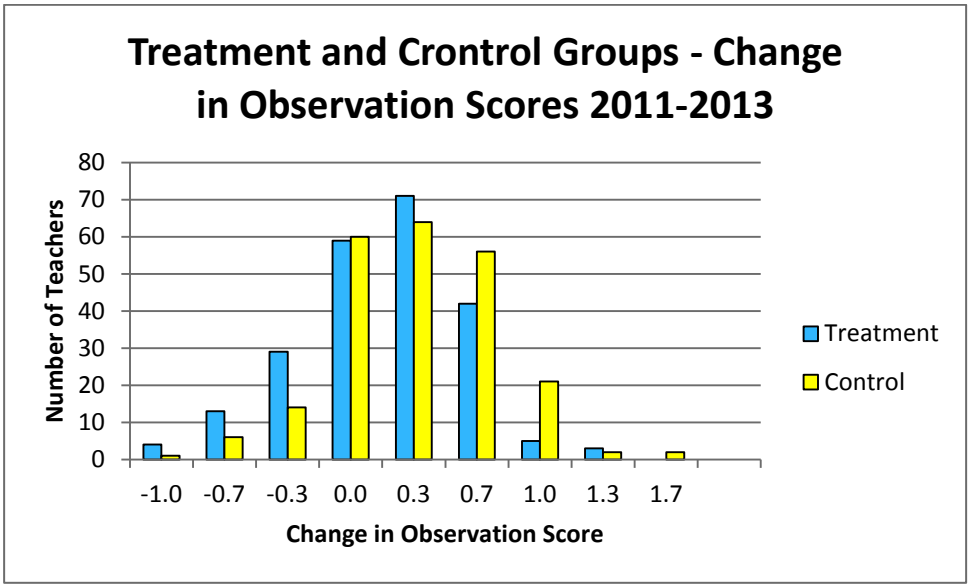

Figure 8.3: Change in Observation Scores

The ILC data was further decomposed by the number of ILC cycles attended. A paired two sample t-test was done to determine if the mean distance between the teachers' observation score and the school average was different in 2011-2012 than it was in 2012-2013 (for the same teachers). The null hypothesis for this test was that the mean distance between the teacher and the school average was no different in 2011-2012 than it was in 2012-2013. The results are in table 8.3.

Table 8.3: Results of Paired Two Sample t-test

	ILC Cycles		
	1	2	3
Mean Distance from 2011-2012 Building Average	-0.31	-0.60	-0.73
Mean Distance from 2012-2013 Building Average	-0.31	-0.49	-1.01
p-value (two tail)	0.94	0.21	0.04

The data in table 8.3 indicates that the mean distance from the school average is statistically different for teachers who were in three ILC cycles. Teachers who were enrolled in 3 ILC cycles, on average, scored further below the school average observation score in 2012-2013 than they did in 2011-2012

Results: Hypothesis Testing for ILCs and TVAAS

Table 8.4 and figure 8.4 contain the results from the analysis on the delta TVAAS index for both the treatment and control groups.

Table 8.4: Delta TVAAS Index Hypothesis Test Results

Group Statistics					
Group		N	Mean	Std. Deviation	Std. Error Mean
Delta TVAAS	Treatment	53	.0195	3.46603	.47610
	Control	53	-.8750	3.85166	.52907

Independent Samples Test							
t-test for Equality of Means							
	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
						Lower	Upper
Delta TVAAS	1.257	102.864	.212	.89451	.71174	-.51709	2.30611

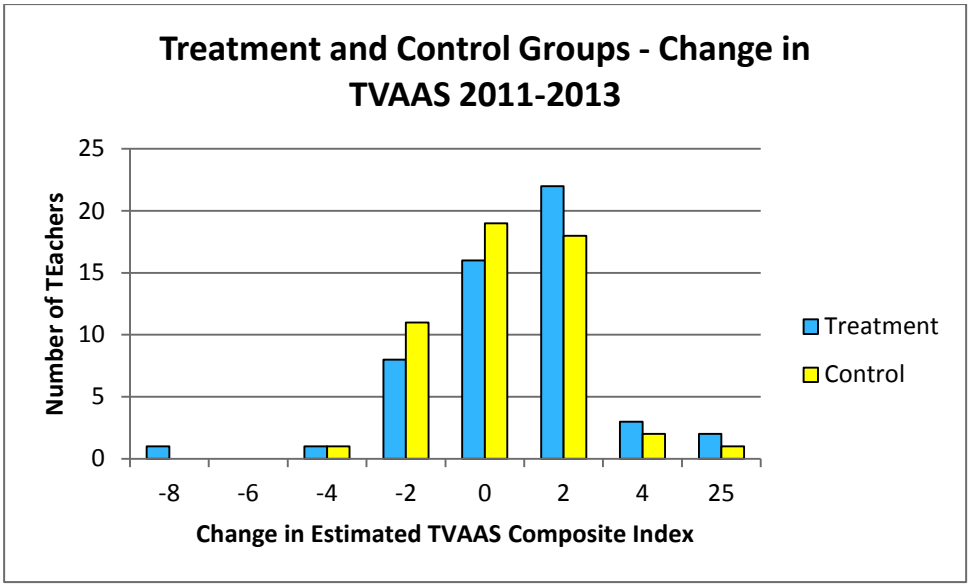

Figure 8.4: Change in Observation Scores

Even though there were no statistically significant differences in the change in TVAAS scores from one year to the next, the mean increase in the treatment group was higher than that of the control group. This may indicate that the "lessons" learned through the course of the ILC were starting to pay dividends.

Results indicate that the treatment group increased their mean change in TVAAS index from 2011-2012 to 2012-2013, whereas the control group decreased in mean TVAAS index in the same time periods. However, there was no statistical difference between the mean change in TVAAS index from 2011-2012 to 2012-2013 when the treatment and control groups were compared (alpha = 0.5).

Sample sizes were too small to do a pairwise analysis relating the number of ILC cycles to changes in TVAAS scores while controlling for years of service. Restrictions that individuals had to have two years of TVAAS data, be at a TEAM school, and be able to be matched limited the sizes of the samples for both the control and treatment groups in this analysis.

Conclusions and Considerations

The difficulty with interpretations of the results of this study hinges on the timing of the coaching cycles. Some teachers who were enrolled in a single ILC cycle were exposed to instructional coaching in the fall, while other teachers were not exposed to the instructional coaching until the second semester. There may have been insufficient time for new or refined classroom strategies to take hold and influence the outcome data that is being analyzed. A more complete analysis of those that underwent ILCs in 2012-2013 can be done once the 2013-2014 observation and TVAAS data is available.

Keeping this caveat in mind, there was no statistical evidence of increases in mean outcome data based on participation in an ILC. The mean observation scores for teachers who did not participate in an ILC increased at a higher, statistically significant, rate than teachers who participated in an ILC.

According to the data, the mean observation score for teachers enrolled in 3 ILC cycles fell further behind the school average than teachers that were enrolled in fewer cycles. This may indicate that teachers that were assigned this level of support may need a different type of support (such as the Intensive Assistance Program) to show improvement.

Although there were no statistically significant differences in the change in mean TVAAS scores from one year to the next, the mean increase in the treatment group was higher than that of the control group. This may indicate that the lessons learned through the course of the ILC were starting to pay dividends. The analysis should be repeated with outcome data from 2013-2014 to determine if any sustainable gains occurred.

9. PLC: Professional Learning Communities

Instructional coaches provide school-based, job-embedded professional development for a community of teachers in order to raise the quality of teaching and learning across a school and build collective leadership to improve outcomes for students. Instructional coaches typically model lessons; provide and interpret data with principals and faculty; facilitate PLC and ILC meetings; and help screen students for interventions, all by way of SMART goals. SMART stands for specific, measurable, attainable, relevant, and time-bound—these goals are used to promote performance measurement.

Methodology

SMART goals were set for each coach in coordination with supervisors. These goals were typically tied to PLCs by way of individual schools, grade levels, and content area. Goal attainment was recorded at the end of each PLC cycle and the data was then sorted by school, grade, and content area. Since there are no students directly tied to coaches, school results were used as a proxy outcome measure. In particular, for each participating school, we used the school's 2012-2013 TVAAS growth index by grade level and subject area as a measure of overall school performance. The growth index was calculated by dividing the school TVAAS gain (difference between last year and the current year's score) in the given grade and subject by its standard error. For example,

School	Grade	Subject	Growth Measure	Gain Std Error	Growth Index
Sample	Third	Science	1.8	0.2	1.8/0.2 = **9**
Sample	Third	Math	2.7	1.5	2.7/1.5 = **1.8**

Then, using that growth index, we matched it to the SMART goals within the school based on the grade and subject. This is reflected in the table below.

Elementary School	Grade	Subject	Growth Index	Smart Goal Achieved?
Sample School	Sixth	Science	1.9	Yes
Sample School	Sixth	Reading	6.7	No

We wanted to see if, at the school level, meeting SMART goals aligned with the TVAAS Growth Index. We used a t-test to see if the two groups performed differently—in this case, the two groups are based on "yes" and "no" answers for SMART goal attainment. The null hypothesis tested was that the mean TVAAS growth index was no different for the schools/grade/subject combination that achieved SMART goals and those that did not. The sample size was 604 SMART goals across 72 schools for the 2012-2013 school year.

In addition to an overall look at SMART goal attainment across all schools, we also separated TEAM and TAP schools and compared their mean TVAAS growth index using a t-test. The main reason for differentiating TEAM from TAP schools is that TAP schools have "clusters" that function much like PLCs.

Results: SMART Goals and TVAAS growth index across all participating schools

While the average TVAAS growth index for the schools that met their SMART goals was higher than those that did not meet their goals, the difference was not statistically significant.

The mean growth index for schools that met SMART goals within the grade/subject was 0.67, while that figure for the schools that did not meet their SMART goals was 0.46 (see figure 9.1). But, the t-test results in table 9.1 indicate that the difference between the two sets of schools is not statistically significant ($p > 0.05$).

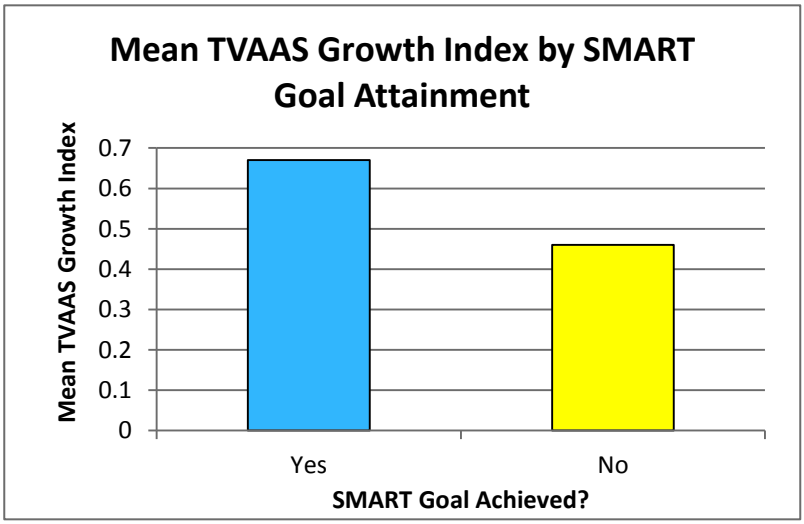

Figure 9.1: Mean TVAAS Growth Index by SMART Goal Attainment

Table 9.1: t-test Results for All Participating Schools

t-test for Equality of Means							
	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
						Lower	Upper
TVAAS Growth Index	0.772	604	0.441	0.2137139	0.2769258	-0.33014	0.75757

Results: TEAM and TAP Schools

Similar to results of the overall school population, TEAM schools that achieved SMART goals (by grade and content area) had a higher TVAAS growth index when compared to schools that had lower SMART goal attainment, as indicated in table 9.2. Incidentally, TEAM schools fared better on average than TAP schools in this secondary analysis.

Table 9.2: t-test Results for TEAM and TAP Schools

Group Statistics					
School Type	SMART Goal Attainment	N	TVAAS Growth Index Mean	Std. Deviation	Std. Error Mean
TAP	Yes	94	-0.28	3.043	0.314
	No	92	-0.01	3.111	0.324
TEAM	Yes	219	1.08	3.605	0.244
	No	201	0.68	3.378	0.238

Conclusions and Considerations

Due to the lack of statistically significant results, we cannot conclusively say that SMART goal attainment is tied to student learning outcomes. However, the lack of a significant relationship between school performance and SMART goal attainment may be partly due to a lack of robustness of SMART goals, as well as PLC implementation. As such, developing high quality SMART goals and ensuring fidelity of implementation in PLC sessions are concerns that the Professional Development Director is working to address and implement throughout the coaches network and in schools.

Looking forward, it will be more informative to have coaches tied to the teachers with whom they work the most because we can use teachers' individual TVAAS scores in the analysis, as well as school growth. Changes have been made to the collection form coaches use to track PLC and SMART goal data, which should permit teacher level TVAAS and SMART goal analysis, which can be used in addition to school-level analysis.

Developing high quality SMART goals and ensuring fidelity of implementation in PLC sessions are concerns that the Professional Development Director is working to address and implement throughout the coaches network and in schools. Looking forward, it will be more informative to have coaches tied to the teachers with whom they work the most. Changes have been made to the collection form coaches use to track PLC and SMART goal data, which should permit teacher level TVAAS and SMART goal analysis, which can be used in addition to school-level analysis.

10. Lead Teachers

Lead teachers provide instructional support and coaching, as well as rate classroom observations in conjunction with the TEAM formal evaluation process. Lead teachers plan and lead building level staff development, especially pertaining to the TEAM classroom observation rubric. They facilitate and lead PLC sessions to support the use of research-based teaching and learning strategies. Lead teachers are also tasked with helping analyze school-wide data, participating in the development of school improvement plans and SMART goals.

There were approximately 240 lead teachers in the district during the 2012-13 school year. Over half were in elementary schools, while the remaining half was split between middle (20%) and high schools (30%).

Methodology

Since one of the major goals in the coaching model is to increase the number of observations by a lead teacher, we simply took the number of observations per school and found the percent of observations done by a lead teacher. The results are in table 10.1.

Results: Observations by Lead Teachers

As a district, approximately 35% of observations were done by lead teachers. The goal for the 2012-2013 school year was set at 30%, so the district met its goal. Some schools had almost half of their observations conducted by lead teachers; Mooreland Heights topped all other schools with over 70% of observations in the building done by a lead teacher. (Please note that at Mooreland Heights the Arts360 coordinator was also a lead teacher, and, as such, completed more observations than typical at other schools.)

Table 10.1: Percent of Observations by a Lead Teacher

School Name	Percent of Observations by Lead Teacher
A.L. Lotts Elementary	34.8%
Adrian Burnett Elementary	30.0%
Amherst Elementary	38.0%
Ball Camp Elementary	64.4%
Bearden Elementary	46.7%
Bearden High	22.0%
Bearden Middle	37.0%
Beaumont Elementary/Magnet	30.6%
Blue Grass Elementary	46.0%
Bonny Kate Elementary	48.5%
Brickey McCloud Elementary	26.4%
Byington-Solway CTE Center	0.0%
Carter Elementary	39.7%
Cedar Bluff Elementary	45.1%
Cedar Bluff Middle	18.2%

School Name	Percent of Observations by Lead Teacher
Central High	38.4%
Chilhowee Intermediate	40.0%
Christenberry Elementary	41.1%
Copper Ridge Elementary	13.3%
Corryton Elementary	37.8%
Kelley Volunteer Academy	0.0%
Fair Garden	34.5%
Farragut High	41.2%
Farragut Intermediate	47.5%
Farragut Middle	40.7%
Farragut Primary	48.3%
Fountain City Elementary	12.5%
Ft. Sanders	0.0%
Fulton High	26.6%
Gap Creek Elementary	25.0%
Gibbs Elementary	35.6%
Gibbs High	38.7%
Green Magnet	40.3%
Gresham Middle	51.6%
Halls Elementary	61.9%
Halls High	54.2%
Halls Middle	43.6%
Hardin Valley Academy	39.6%
Hardin Valley Elementary	35.2%
Inskip Elementary	60.2%
Karns Elementary	21.7%
Karns High	57.1%
Karns Middle	36.5%
Knox Adaptive Education Center	22.9%
Knox Consolidated	1.3%
Knox County Adult High	0.0%
Knox County's Central Office	7.4%
Knox County Stem Academy	0.0%
Maynard Elementary	26.5%
Mooreland Heights Elementary	70.8%
Mt Olive Elementary	60.7%
New Hopewell Elementary	32.1%
North Knox Career and Tec	54.2%
Northshore Elementary	39.4%
Norwood Elementary	12.9%
Pleasant Ridge Elementary	13.8%
Powell Elementary	44.4%
Powell High	54.7%
Powell Middle	44.1%

School Name	Percent of Observations by Lead Teacher
Richard Yoakley	1.6%
Ridgedale Alternative	12.0%
Rocky Hill Elementary	42.7%
Sam E. Hill Family	36.7%
Sequoyah Elementary	43.5%
Shannondale Elementary	44.1%
South Knox Elementary	30.8%
Sterchi Elementary	40.3%
Sunnyview Primary	31.9%
West High	43.2%
West Hills Elementary	37.7%
West Valley Middle	41.8%
Whittle Springs Middle	21.5%
District	35.3%

It should be noted that TAP schools do not have lead teachers, and therefore, were excluded from the table above.

Conclusions and Considerations

While the goal to increase the number of observations by a lead teacher was met, did it achieve its intended outcome? Teacher survey data indicates that only 20% of teachers feel the observation process has a meaningful impact on their professional growth. Moving forward, our evaluation of lead teachers should include additional metrics and outcome data to analyze the effectiveness of the program. Proper training and certification in the TEAM system is also a critical component to ensure lead teacher effectiveness. There is a small, measurable relationship between schools that are implementing TEAM with greater fidelity and the TVAAS index gains demonstrated by teachers at those schools. Principal survey data indicates that the observation rubric and process is a valuable tool for impacting teacher effectiveness, though this perception has not necessarily trickled down to the teacher level.

11. All Star

All Star Tutoring is an after-school tutoring program for students in grades 3 through 5 with certified teachers. Knox County Schools implemented the All-Star after-school tutoring program in 2012-2013 in an effort to raise performance on elementary TCAP and SAT10 test results. The schools participating in the program were Adrian Burnett, Amherst, Ball Camp, Bearden, Beaumont, Belle Morris, Brickey-McCloud, Christenberry, Copper Ridge, East Knox, Green, Halls, Lonsdale, Maynard, New Hopewell, Norwood, Pond Gap, Powell, Ritta, Sarah Moore Greene, Sterchi, and West Hills Elementary Schools. Schools were directed to enroll students whom they felt were most likely to move from basic to proficient, but in practice, there was little consistency in the criteria driving student enrollment in the tutoring program. This program offered 25-minute tutoring sessions twice a week for 21 weeks. Students were provided an additional 1.5 hours of instruction in both reading and math.

The tutoring itself was centered on instruction in both Math and Reading and the two subject areas were analyzed separately. The aggregate data was analyzed to determine if All-star Tutoring, as a whole, was successful in meeting its program goals. The analysis was also extended to the school level to attempt to pinpoint localized successes.

Methodology

The analysis used multiple analysis methods to quantify the success of the program. The outcome data in the analysis was the 2012-2013 4^{th} and 5^{th} grade TCAP data. Only students who were in the 4^{th} and 5^{th} grade could be used for the analysis, as this was the subset of students who had test results in both 2011-2012 and 2012-2013. This was not ideal for the analysis, as the tutoring program targeted students beyond these grade levels.

Schools provided a roster of students that participated in the tutoring program. Students were screened to determine which individuals had test results from both 2011-2012 and 2012-2013. A control group was created from a pool of students at the same subset of schools who had the same distribution of 2011-2012 normal curve equivalents (NCEs). Control group students were randomly selected from the pool of available students to provide the same number of students with the same predicted score distribution in the control group compared to the tutored (treatment) group. The distribution of 2011-2012 subject specific NCEs for either group is available in figures 11.1 and 11.2.

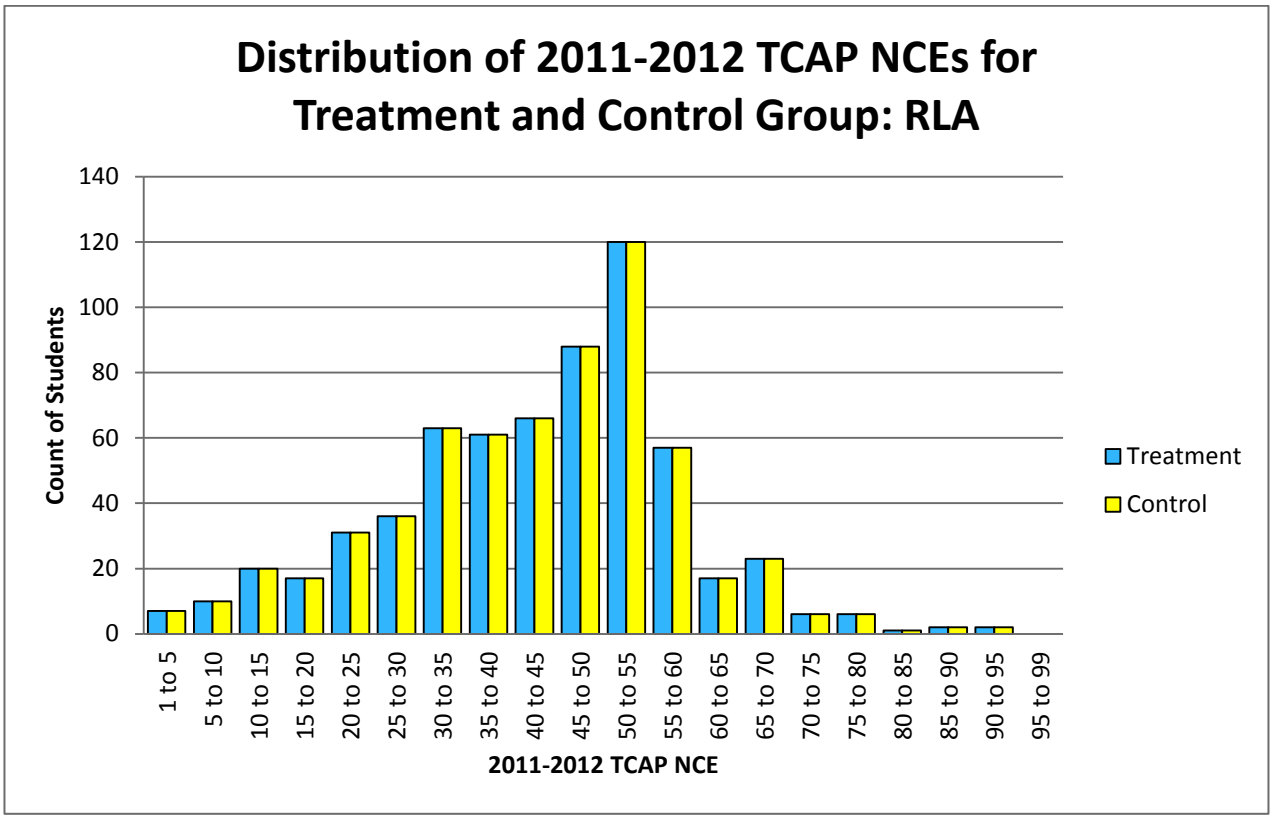

Figure 11.1: Distribution of 2011-2012 TCAP RLA NCEs

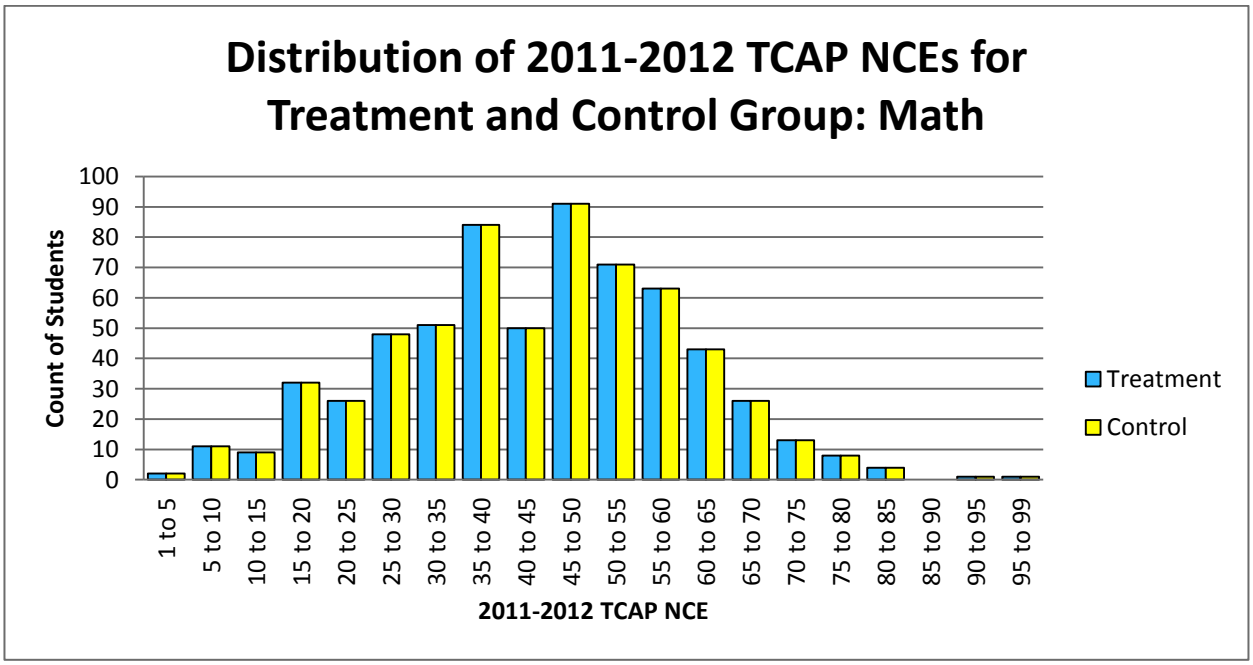

Figure 11.2: Distribution of 2011-2012 TCAP Math NCEs

As evident from figure 11.1, the program seemed to target students with mid to low RLA performance. Approximately 70% of students in the screened group fell between the 20th and 60th percentiles in 2011-2012 RLA TCAP results. The distribution of math NCEs was more normally distributed, with 55% of students between the 20th and 60th percentiles.

The final program analysis compared the distributions of 2012-2013 subject-specific NCEs to note any trends in the data between the control and treatment groups.

Methodology: Hypothesis test

Hypothesis testing was done to determine if there was a statistical difference in the subject specific mean TCAP exam scores of the treatment and control groups. The null hypothesis was that there was no difference between the mean TCAP exam score between the control and treatment groups.

Methodology: Chi-squared test

A chi-squared test was used to determine if more students increased proficiency levels in the control or treatment group. The null hypothesis was that there was no difference in the distribution of students moving through proficiency levels between the control and treatment groups.

Methodology: Linear Regression

Linear regression was also used to determine relative performance of the control and treatment groups at each NCE for each subject.

Results

The distributions of 2012-2013 subject specific TCAP exam scores for the treatment and control groups are contained in figures 11.3 and 11.4.

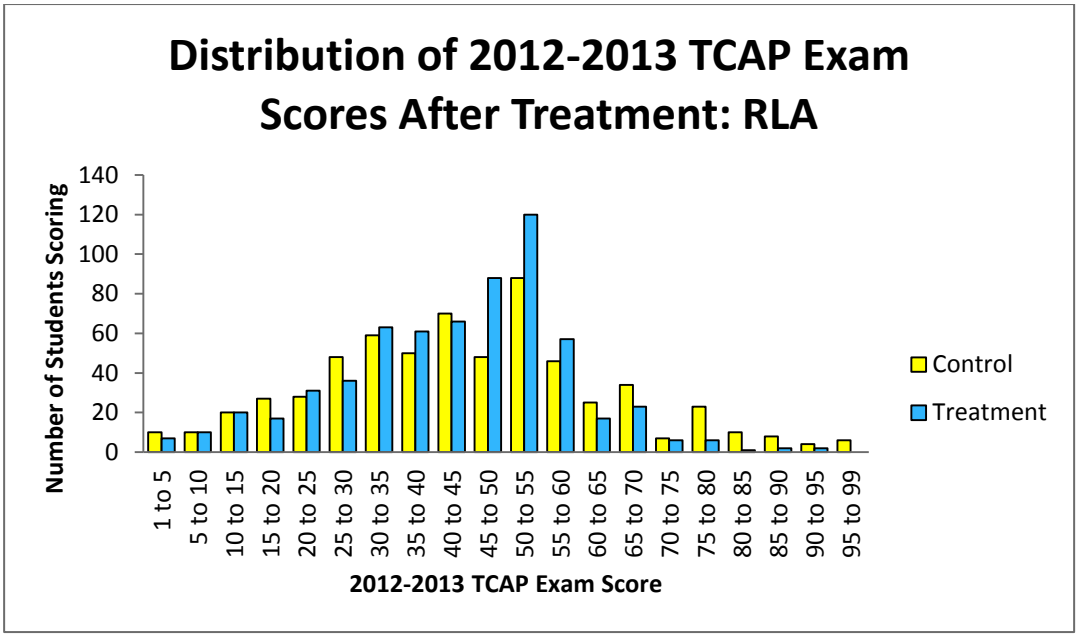

Figure 11.3: 2012-2013 RLA TCAP Exam Scores Distributions

Figure 11.3 indicates that the treatment group had fewer students' score in the lowest NCEs (1 to 30) and the highest NCEs (60-99). Tutored students concentrated in the 30-60 NCE range.

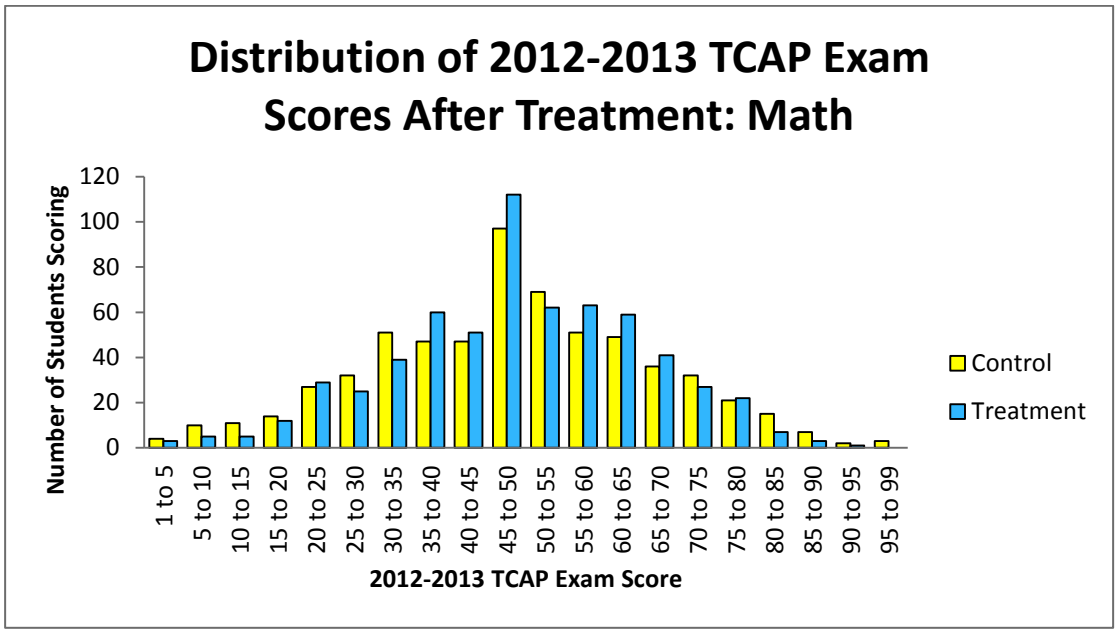

Figure 11.4: 2012-2013 Math NCE Distributions

Figure 11.4 shows the same trends for math. Tutored students concentrated in the 35 to 70 NCE range. The control group had more students at the low end (less than 35 NCE) and the high end (greater than 70 NCE) of the distribution.

Results: Hypothesis test on mean TCAP exam scores

Hypothesis testing on the mean TCAP exam scores for RLA and Math indicate that there is no statistical difference between the TCAP exam scores of the two groups. Table 11.1 contains the results for the hypothesis testing on RLA 2012-2013 TCAP Exam Scores (alpha = 0.05).

Table 11.1: RLA Hypothesis Testing Results

School	Tutored 2012-2013 TCAP Exam Score	Control 2012-2013 TCAP Exam Score	p-value	Result: RLA
Adrian Burnett Elementary	81.36	75.29	0.002	Tutored Group Performed Better
Amherst Elementary	80.52	79.63	0.662	No Difference
Ball Camp Elementary	81.31	77.21	0.176	No Difference
Bearden Elementary	83.91	81.74	0.398	No Difference
Beaumont Elementary	77.6	80.47	0.306	No Difference
Belle Morris Elementary	81.05	79.78	0.63	No Difference
Brickey-McCloud Elementary	79.06	84.24	0.004	Control Group Performed Better
Christenberry Elementary	82.95	75	0.003	Tutored Group Performed Better
Copper Ridge Elementary	78.67	83.56	0.114	No Difference
East Knox County Elementary	76.95	77.59	0.789	No Difference
Green Elementary	69.13	77.38	0.148	No Difference
Halls Elementary	75.9	83.87	0	Control Group Performed Better
Lonsdale Elementary	70.78	79.63	0.018	Control Group Performed Better
Maynard Elementary	79.38	75.57	0.149	No Difference
New Hopewell Elementary	78.5	81.71	0.419	No Difference
Norwood Elementary	77	77.17	0.95	No Difference
Pond Gap Elementary	81.68	78.33	0.248	No Difference
Powell Elementary	84.16	81.78	0.113	No Difference
Ritta Elementary	78.71	80.45	0.427	No Difference
Sarah Moore Greene Elementary	79.96	73.36	0.032	Tutored Group Performed Better
Sterchi Elementary	83.27	83.45	0.942	No Difference
West Hills Elementary	77.5	77.21	0.94	No Difference
District	79.48	79.51	0.968	No Difference

Localized successes could be found at Adrian Burnett, Christenberry, and Sarah Moore Greene. There were three locations (Brickey-McCloud, Halls, and Lonsdale) where the control group had a statistically higher mean TCAP exam score in RLA than students enrolled in the tutoring program. At the aggregate level, the control group had a slightly higher mean TCAP exam score average than the tutored students. The difference, however, was not statistically significant.

Table 11.2 contains the results for Hypothesis testing on 2012-2013 Math TCAP exam scores (alpha = 0.10).

Table 11.2: Math Hypothesis Testing Results

School	Tutored 2012-2013 TCAP Exam Score	Control 2012-2013 TCAP Exam Score	p value	Result: Math
Adrian Burnett Elementary	78.94	71.49	0.004	Tutored Group Performed Better
Amherst Elementary	76.89	74.71	0.469	No Difference
Ball Camp Elementary	78.06	77.83	0.945	No Difference
Bearden Elementary	77.59	77.18	0.928	No Difference
Beaumont Elementary	75.75	77.68	0.566	No Difference
Belle Morris Elementary	82.27	80.72	0.658	No Difference
Brickey-McCloud Elementary	76.26	84.59	0	Control Group Performed Better
Christenberry Elementary	84.71	79.53	0.085	No Difference
Copper Ridge Elementary	81.26	82.77	0.637	No Difference
East Knox County Elementary	76.55	72.79	0.338	No Difference
Green Elementary	67	71.42	0.399	No Difference
Halls Elementary	71.9	82.4	0	Control Group Performed Better
Lonsdale Elementary	71.47	71.35	0.976	No Difference
Maynard Elementary	75	72.78	0.743	No Difference
New Hopewell Elementary	79.03	86.33	0.038	Control Group Performed Better
Norwood Elementary	76.64	78.61	0.481	No Difference
Pond Gap Elementary	75.42	72.43	0.326	No Difference
Powell Elementary	83.96	77.2	0.001	Tutored Group Performed Better
Ritta Elementary	74.36	75.13	0.792	No Difference
Sarah Moore Greene Elementary	76.38	69.68	0.03	Tutored Group Performed Better
Sterchi Elementary	86.53	91.22	0.023	Control Group Performed Better
West Hills Elementary	76.3	75.19	0.825	No Difference
District	77.92	77.03	0.196	No Difference

Localized successes could be found at Adrian Burnett, Christenberry, Powell and Sarah Moore Greene. There were four locations (Brickey-McCloud, Halls, New Hopewell and Sterchi) where statistically the control group had a higher mean TCAP exam score in Math than students enrolled in the tutoring program. At the aggregate level, the treatment group had a slightly higher mean TCAP exam score average than the control. The difference, however, was not statistically significant.

Results: Chi-squared test on proficiency levels

A chi-squared test was performed to determine if either group of students were moving through proficiency levels at a different rate than the other. Results are contained in tables 11.3 and 11.4.

Table 11.3: Student Counts by Performance Levels: RLA, Control

		2011-2012 RLA Levels: Control			
		Below Basic	Basic	Proficient	Advanced
2012-2013 RLA Levels (# of Students)	Below Basic	40	36		
	Basic	28	275	27	
	Proficient	4	111	84	1
	Advanced	1	6	16	4

Table 11.4: Student Counts by Performance Levels: RLA, Treatment

		2011-2012 RLA Levels: Treatment			
		Below Basic	Basic	Proficient	Advanced
2012-2013 RLA Levels (# of Students)	Below Basic	28	24	1	
	Basic	37	315	35	
	Proficient	2	104	74	5
	Advanced		2	6	

Table 11.5: Student Counts by Performance Levels: Math, Control

		2011-2012 Math Level: Control			
		Below Basic	Basic	Proficient	Advanced
2012-2013 Math Levels (# of Students)	Below Basic	70	61	2	
	Basic	28	225	43	
	Proficient	2	80	78	8
	Advanced		10	23	4

Table 11.6: Student Counts by Performance Levels: Math, Treatment

		2011-2012 Math Levels: Treatment			
		Below Basic	Basic	Proficient	Advanced
2012-2013 Math Levels (# of Students)	Below Basic	41	56	2	
	Basic	41	237	58	
	Proficient	3	84	79	7
	Advanced		14	7	5

Chi-squared tests compared the distribution of students increasing in performance levels (the sum of students shaded in green), remaining steady in performance level (the sum of the students shaded in yellow), and regressing in performance levels (the students shaded in red). For both RLA and Math, there was no statistical difference between the distributions of students changing performance levels (p-values of 0.69 and 0.46 and for RLA and Math respectively).

Results: Linear regression

The TCAP exam scores were plotted against 2011-2012 NCE to analyze trends in the data. The subject specific regressions are available in figures 11.5 and 11.6.

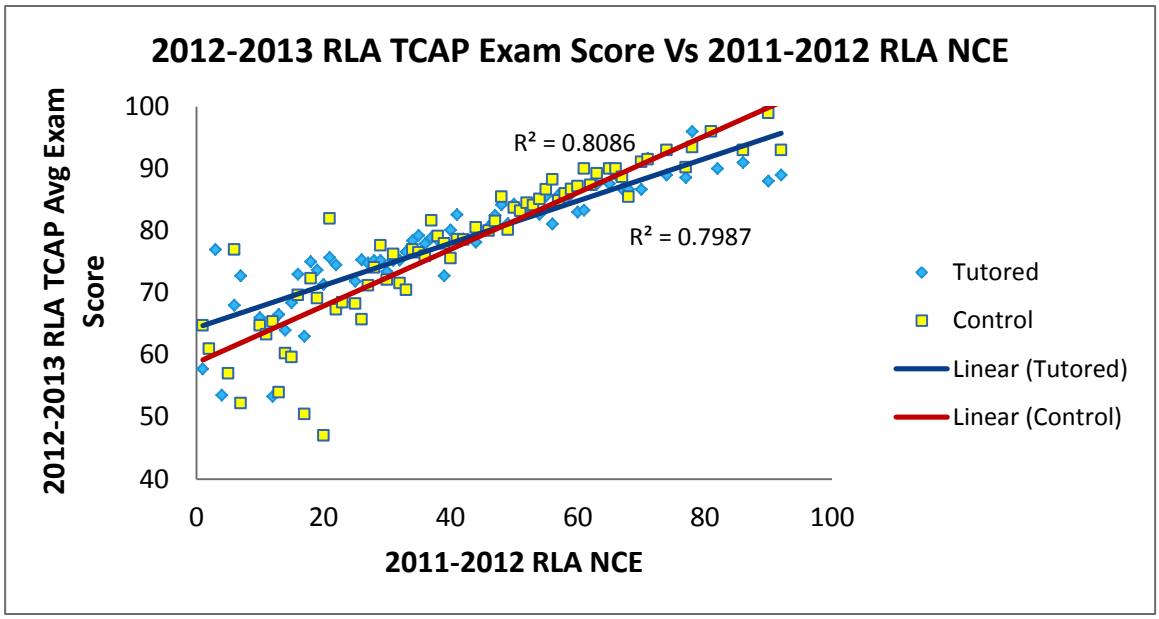

Figure 11.5: 2012-2013 TCAP Exam Score versus 2011-2012 NCE: RLA

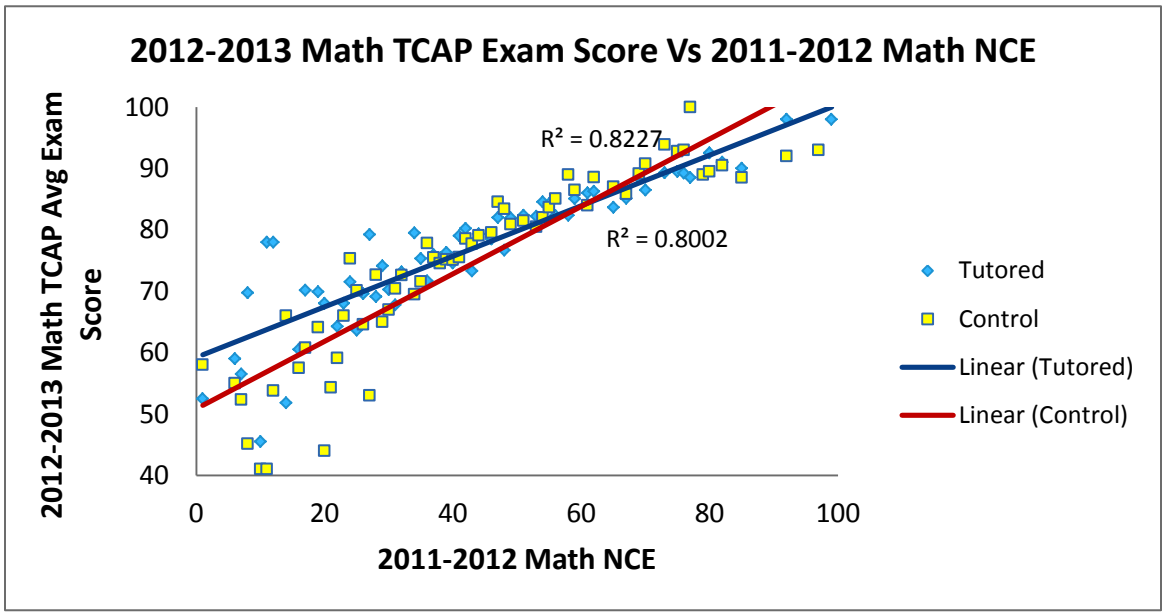

Figure 11.6: 2012-2013 TCAP Exam Score versus 2011-2012 NCE: Math

The trend lines in figures 11.5 and 11.6 seem to indicate that lower performing students who participated in the tutoring program generally performed better than students who were not enrolled in tutoring (in terms of TCAP exam score). However, at the upper end of the data, the students who were not in tutoring out-performed the students that were enrolled in tutoring. The cross-over point varies by subject. Students with a 2011-2012 RLA NCE in the 1-50 range seemed to benefit from the RLA component of the tutoring program. Students with a 2011-2012 Math NCE in the 1-60 range

seemed to benefit from the math components of the tutoring program. The results of the regression of the TCAP exam scores validated the trends seen in the 2012-2013 NCE distributions.

Conclusions and Considerations

The All Star Tutoring program, as implemented in 2012-2013, did not lead to statistical increases in mean student TCAP exam scores as measured on the 4th and 5th grade TVAAS.

Despite this, there were some localized successes with the program. Adrian Burnett, Christenberry, Powell and Sarah Moore Greene exhibited higher mean TCAP exam scores for students that were enrolled in their tutoring program over students that were not. Qualitative study of these programs is warranted to determine the root causes of their success.

Conversely, qualitative study of the tutoring program at Brickey-McCloud and Halls Elementary is warranted to determine why students who were not enrolled in tutoring had higher mean TCAP exam scores than the students who were enrolled in tutoring. Coupling the results of this analysis with the root cause analysis to determine the successes in the schools above can create more robust guide to successful implementation of the tutoring program.

Despite not leading to any statistical increases in mean student TCAP exam scores, there were localized successes with the tutoring program at three of the schools.

Although the mean TCAP exam score was not statistically different, it does appear that students at lower incoming NCEs benefited from the tutoring program. These students generally earned higher scale scores than peers who were not enrolled in tutoring. Those increases, however, were not maintained at incoming NCE levels higher than approximately 55. It appeared that most increases in the lower NCE ranges were offset by relative decreases at the higher NCEs, preventing the mean TCAP exam score of the tutoring students to be statistically different than that of the control group. The increases for the tutored group of students also appear not to have been substantial enough to cause a relative increase in movement through TCAP performance levels.

The analysis of the 2013-2014 tutoring program will be more complete. Starting in 2013-2014, grades 1-3 will be able to be included in the analysis, as these grades will have baseline NCEs available from the previous year. Testing of these grades began in 2012-2013.

12. EXPLORE Tutoring

The EXPLORE test is a national assessment based on the subject areas of high school and post-secondary education (English, Math, Reading and Science) that is administered to 8th grade students in Knox County. The EXPLORE assessment is the first national assessment to serve as an indicator of college readiness. Knox County Schools implemented an EXPLORE tutoring program in 2012-2013 in an effort to increase the number of students scoring a 17 on the assessment (which is considered a district benchmark for college readiness on the EXPLORE assessment). The schools participating in the program were Bearden, Halls, Northwest, Powell, South-Doyle, Vine, and Whittle Springs Middle Schools.

The tutoring program spanned the test window for the EXPLORE assessment. Because of this, the students that were enrolled in the tutoring program were 7th grade students who would not be taking the EXPLORE assessment until October 2013. A model was constructed to predict EXPLORE results from formative assessment data (Discovery Education Assessment, test 3). The ultimate validation of the program will not occur until 2013-2014 EXPLORE results are returned.

Methodology

The first step in the analysis was to create a linear model that could predict EXPLORE results from formative Discovery Education (DE) data. A linear model was created from 2011-2012 DE Test 1 data. The model using DE test 1 data was developed to provide principals with a prediction of which students were already on track to score at or above a scale score of 17. The prediction model was generated using linear regression with DE Math and Reading normal curve equivalents (NCEs) as independent variables, and the mean of the 2011-2012 EXPLORE section scale scores as the dependent variable. The results of the linear regressions are available in table 12.1.\

Table 12.1: Linear Regression Models

Prediction Model	Model F	Model Sig.	Model R^2	Model Parameters (Coefficients)		
				Constant	RLA NCE	Math NCE
Basis - DE Test 1	4707.493	0.000	0.729	6.749	0.088	0.067

The results of the linear regression indicate that 73% of the variation in EXPLORE scores can be described by the model. The model was therefore considered acceptable for predicting EXPLORE outcomes from DE Reading and Math NCEs.

Principals at the participating schools were provided a roster of all students at their school and their predicted EXPLORE score based on DE test 1. From this roster, the principals selected students for tutoring. Generally, students who were closest to a predicted composite scale score of 17 were chosen for the tutoring program. A control group was then created to which the outcome data from the treatment (tutored) students would be compared. The control group was selected from students at the same set of schools. Students in the control group had the same distribution of predicted

EXPLORE composites based on the DE test 1 model. The distribution of the predicted EXPLORE composites for both the treatment and control groups is available in figure 12.1.

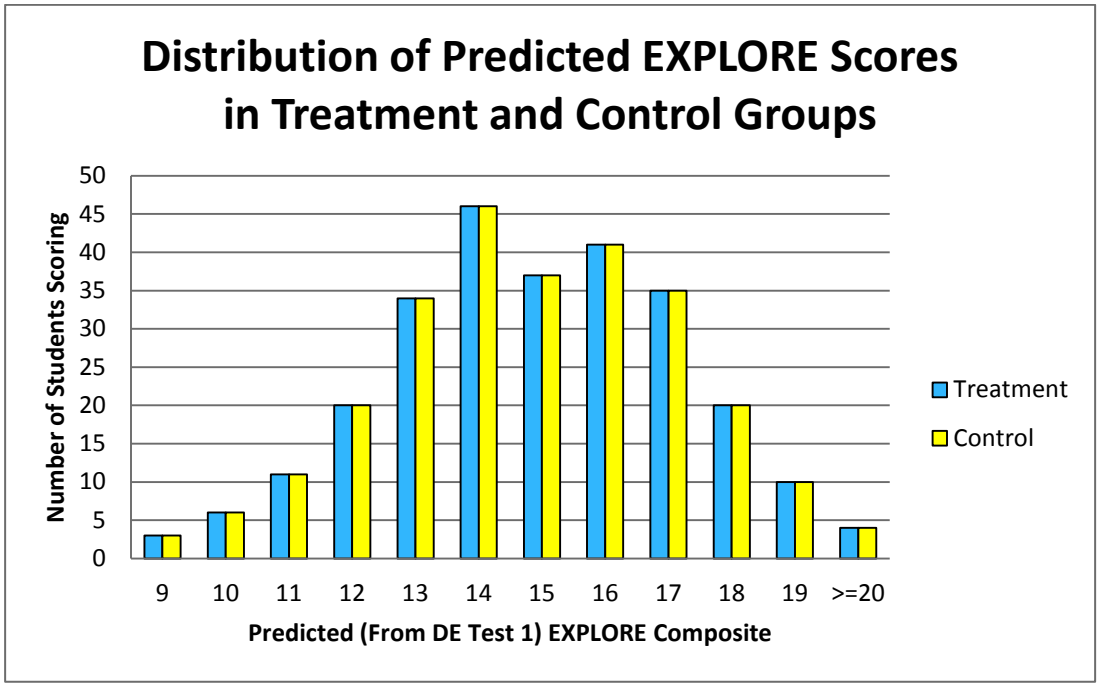

Figure 12.1: Distribution of Predicted EXPLORE Composites - DE Test 1

Once the control group was determined, hypothesis testing could be done to see if there was a difference in EXPLORE results. Chi-squared testing was also performed to determine if the percent of students scoring 17 or higher was any different between the treatment and control group.

Results: EXPLORE Composite Scores

The distributions of EXPLORE composites are contained in figure 12.2.

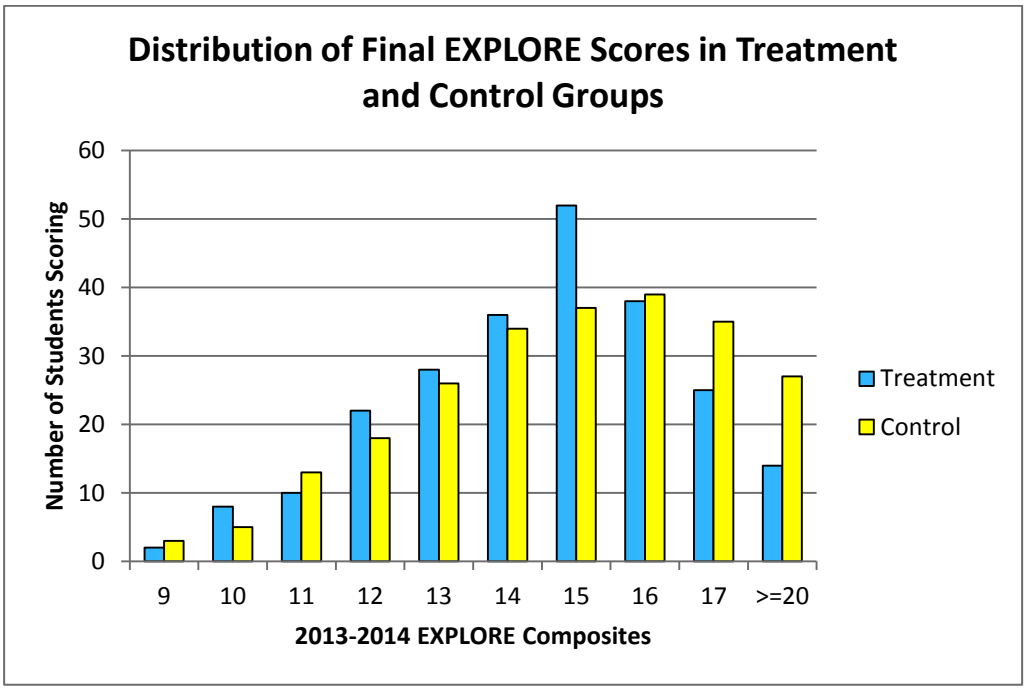

Figure 12.2: Distribution of Predicted EXPLORE Composites - DE Test 3

Table 12.2 contains the results of the hypothesis testing on the mean EXPLORE composite scores at each school. The null hypothesis was that there was no difference between mean EXPLORE composites. All hypothesis testing was based on alpha=0.05.

Table 12.2: Hypothesis Testing Results

School	Treatment Group		Control Group		Difference of Avg. Treatment minus Control	Result
	Average	Count	Average	Count		
Bearden Middle	14.98	40	16.44	48	-1.46	Treatment Worse
Halls Middle	17.12	26	15.77	69	1.35	Treatment Better
Northwest Middle	13.69	49	14.68	25	-0.99	Treatment Worse
Powell Middle	17.34	41	15.91	58	1.43	Treatment Better
South-Doyle Middle	15.13	45	15.05	39	0.08	Same Performance
Vine Middle	12.30	10	13.69	16	-1.39	Treatment Worse
Whittle Springs Middle	14.18	56	13.92	12	0.26	Same Performance
Grand Total	15.07	267	15.51	267	-0.43	Treatment Worse

The district results indicated that the students who were in the tutoring program had a lower mean EXPLORE composite when compared to students who were not enrolled in the EXPLORE tutoring program. Powell Middle and Halls Middle exhibited a mean EXPLORE composite that was higher (statistically significant) for their treatment groups when compared to their control group. Please

note whereas the count of students in the treatment and control groups are the same at the aggregate (district) level that is not true at the school level. There are schools (Halls, Northwest, Whittle Springs, etc.) where the counts of students in the control group compared to the treatment group are very different. This may lead to some biasing in the results, but this was necessary in the analysis due to the way rosters were created. If a school put all students who were predicted to score 16 and 17 in tutoring there would be no group to provide a comparison without increasing any bias.

One possible reason for the success at Halls and Powell Middle may have been the population targeted at the school. The students that were enrolled in tutoring at Halls and Powell tended to have higher predicted EXPLORE composites (predicted from DE test 1) than the balance of students enrolled in the program. The distribution of EXPLORE predications (from DE test 1) is available in figure 12.3. It is also possible that the biasing mentioned above played a role in the difference between the treatment and control groups at Powell and Halls Middle.

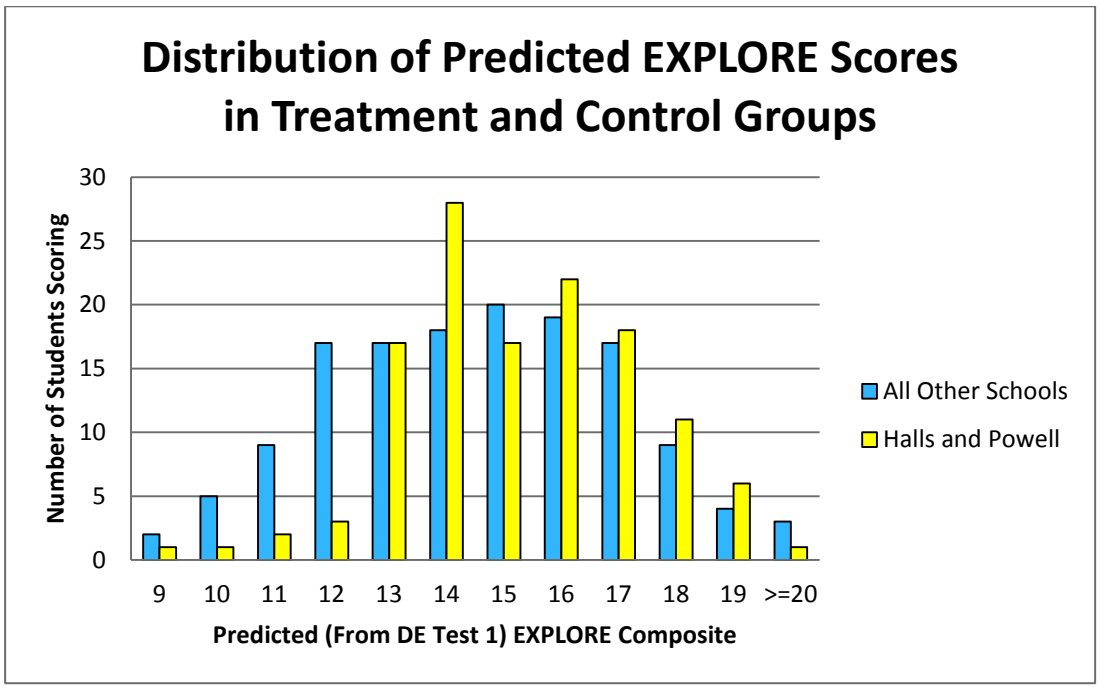

Figure 12.3: Comparison of Halls and Powell Enrollees and Balance of District

Iterative chi-squared tests were computed to find a statistically significant cut point between the Halls and Powell predicted EXPLORE distribution and the predicted distribution of the rest of the schools. A cut point of 16 produced a p-value of 0.043. This indicates the probability that Halls and Powell enrolled a different distribution of students with a predicted EXPLORE composite of 16 or greater was 95.7%. Visible inspection of figure 12.3 indicates Halls and Powell were enrolled students with higher predicted EXPLORE composites.

A chi-squared test was also performed to determine if the number of students that scored a 17 or higher on the EXPLORE composite was different between the control group and the comparison group. The results of the chi-squared test are contained in table 12.3.

Table 12.3: Chi-Squared Test Results

Group	Test 3 Student Counts	
	EXPLORE < 17	EXPLORE >= 17
Treatment	196	71
Control	175	92

The results indicate that the distribution of students scoring a 17 or above on the EXPLORE composite was not the same between the control group and the treatment group (p = 6.84e-3).

Conclusions and Considerations

The EXPLORE tutoring program, as implemented in 2012-2013, did not lead to statistical increases in mean EXPLORE composites when compared to students who were not in the tutoring program. Halls and Powell Middle Schools exhibited a statistically significant positive difference between the treatment and comparison groups. Analysis of the distribution of students enrolled in the tutoring program at Halls and Powell indicated that those schools enrolled students with higher predicted EXPLORE scores than the balance of the district. This may or may not have played a role in their increases. The control group, as a whole, exhibited a higher percentage of students reaching the EXPLORE benchmark of 17.

Further consideration should be given to the timing of the tutoring itself. The concern would be around the lag between the completion of the tutoring program and the administration of the EXPLORE test. The analysis could also be tighter if there was a more accurate predictor of the EXPLORE composite score than Discovery Education Test 1. Although the model relating DE Test 1 results with EXPLORE results is statistically significant, it still only accounts for approximately 70% of the total variation in the EXPLORE composite. A tighter correlation would allow the construction of a more representative control group.

13. ACT Tutoring

The ACT test is a national benchmark for college readiness, and as such, ACT results serve as benchmarks in Knox County's strategic plan to help gauge quality and rigor of instruction in the district. A pilot program was instituted in 2012-2013 at a select group of Knox County high schools to provide targeted tutoring around ACT test taking strategies. The overall goal of the program was to increase student performance on the ACT.

The schools involved in the pilot were Carter High, Central High, Halls High, Karns High and Powell High.

Methodology

Schools provided a roster of students that participated in the tutoring program. The tutored students were matched up to their predicted state percentile on the ACT (as calculated by SAS and reported on the TVAAS website). A control group was created from a pool of students at the same schools who had the same distribution of predicted ACT percentiles. Control group students were randomly selected from this pool to provide the same number of students with the same predicted score distribution as the tutored group. The final distribution of predicted ACT percentiles for the treatment and control group is available in figure 13.1.

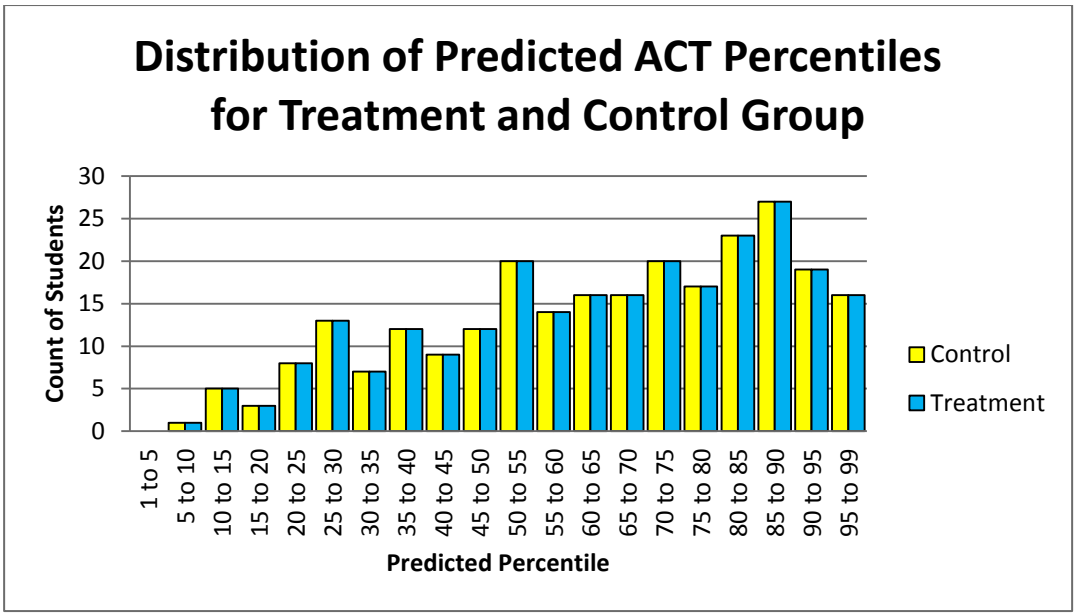

Figure 13.1: Distribution of Predicted ACT Percentile

The final program analysis was done on a student's best ACT score (when a student in either the treatment or control group took the ACT multiple times).

Hypothesis testing was done to determine if there was a statistical difference between the mean ACT scores of the tutored and control groups. The null hypothesis was that the difference of the mean ACT test scores between the control and tutored groups was zero.

A chi-squared test was also done to test if the distribution of students scoring a 21 or higher on the ACT (a specific benchmark in the strategic plan) was different between the two groups. The null hypothesis of the chi-squared test was that there was no difference between the distribution of students scoring above and below the threshold of 21 between the control and treatment groups.

Results: ACT Scores of treatment and control Groups

The distributions of best ACT test scores for the tutored and control group are contained in figure 13.2.

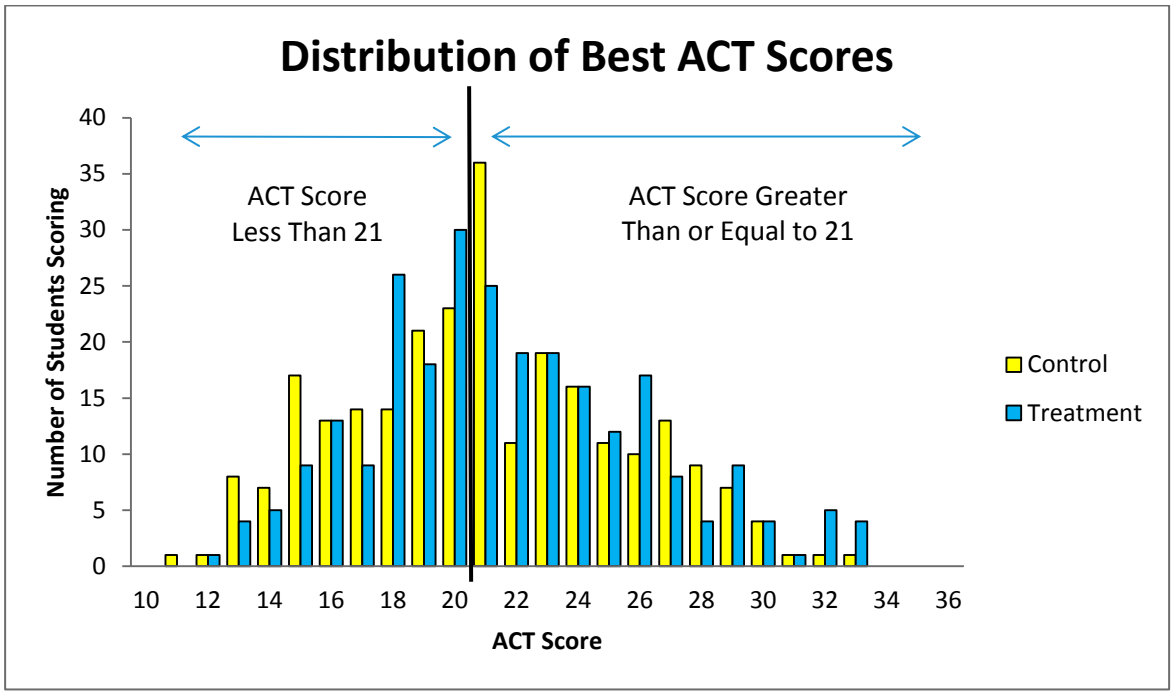

Figure 13.2: Best ACT Score Distribution

From the distribution, it can be seen that the control group had more students scoring at the lower end of the ACT scale (17 and below), whereas the treatment group had more students scoring at the high end (29 and higher). The control group had more students with an actual ACT score of 21, but overall the treatment group had 4 more students scoring 21 or higher than the control group.

Hypothesis testing (alpha = 0.10) indicates that the mean ACT score was higher at most locations that piloted the tutoring program. Results are available in table 13.1.

Table 13.1: Hypothesis Testing Results

	Control	Treatment		
Name	**Average of Best ACT Score**	**Average of Best ACT Score**	**p-value**	**Result**
Carter High	20.42	19.89	0.26	NDD* Between Groups
Central High	20.53	21.98	0.08	Higher Avg for Tutored Group
Halls High	21.30	22.80	0.04	Higher Avg for Tutored Group
Karns High	21.08	22.36	0.07	Higher Avg for Tutored Group
Powell High	21.19	21.08	0.45	NDD Between Groups
District	20.98	21.62	0.05	Higher Avg for Tutored Group

*No discernible difference

At the 90% confidence limit, the students that were in the tutoring program (aggregate, district-wide) performed better on their ACT than students that did not receive tutoring. At Central, Halls, and Karns High Schools, students enrolled in the tutoring program had a higher mean ACT score than their non-tutored peers. Students at Carter and Powell did not have a statistically significant difference in the mean ACT score between the two groups (no discernible difference).

Results: Distribution of ACT scores

Chi-squared testing (alpha = 0.10) indicates that there is no statistical evidence that the distribution of students scoring a 21 or higher was different between tutored and control groups. Results are in table 13.2.

Table 13.2: Chi-Squared Test Results

	Control	Treatment		
Name	Percent Scoring 21 or Better	Percent Scoring 21 or Better	p-value	Result
Carter High	48.89%	41.82%	0.28	NDD* Between Groups
Central High	66.67%	61.22%	0.36	NDD Between Groups
Halls High	53.97%	64.29%	0.11	NDD Between Groups
Karns High	53.97%	60.00%	0.39	NDD Between Groups
Powell High	50.88%	50.00%	.99	NDD Between Groups
Knox Co.	53.88%	55.43%	0.62	NDD Between Groups

*No discernible difference

It should be noted, the test was performed on the distribution of students that fell into two categories: those scoring at or above 21, and those scoring less than 21. With such a low degree of freedom in the analysis, it would have required compelling evidence to detect a difference between the tutored and control students.

That said, if the alpha level was relaxed from 0.10 to 0.11, Halls High would show a statistical difference between the distributions. At an alpha of 0.11, the percentage of students scoring 21 or above was higher for tutored students compared to non-tutored students.

Conclusions and Considerations

The ACT tutoring program, as implemented in 2012-2013, was successful in increasing the average score of the students who participated in the tutoring when compared to their peers who did not participate in tutoring (hypothesis test, alpha = 0.10). However, even though the mean score increased, the distribution of students crossing the threshold of an ACT score of 21 was not different between the two groups (chi-squared test, alpha = 0.10).

The program implemented at Halls High appeared to be the most successful. Tutored students at Halls High exhibited a higher mean average ACT score than non-tutored students at alpha values as low as 0.05. Halls High also exhibited a higher percentage of students scoring 21 or above on the ACT at the alpha = 0.11 level. Halls High was the only location to exhibit a higher percentage of students scoring 21 or above on the ACT at any reasonable alpha value.

Future work on refinement of the ACT tutoring program should involve qualitative research into the differences of program implementation at the various locations. The Halls High model of tutoring should be expanded at that location to maximize the benefits of the tutoring program (assuming capacity exists to expand the program at the same level of instructional quality). Root cause analysis of the program implementation at schools that did not exhibit gains (Carter and Halls) should be undertaken to understand why these schools did not exhibit the same gains as other schools involved in the program.

14. Early Literacy Materials and Support

All 49 elementary schools participated in this intervention. Students were chosen based upon AIMSweb CBM data. Students in grades one to five who scored between the 11th and the 25th percentiles were to be the subjects for this intervention. The intervention itself consisted of students receiving an additional 30 minutes of reading instruction each day. Voyager Passport was purchased as the reading intervention program. Classroom teachers and instructional assistants were to provide the instruction.

Methodology

We linked various data sets together to create a testing data file. Our data file consisted of the predicted and observed scale scores for grades one to three. For the fourth and fifth grades we used the previous year's Reading/Language Arts (RLA) Normal Curve Equivalent (NCE) score as the predicted score and this year's RLA NCE as the observed score. We included the CBM percentiles from the fall administration of AIMSweb in our data set as well as demographic information on the students and whether or not they were included in the Voyager Passport data file.

Our intent was to test Voyager student growth as measured by the difference between the observed scores and the predicted scores. This was to be done on three separate measures: SAT 10 scales scores for grades one and two, TCAP Achievement scale scores in grade three, and TCAP NCEs in grades four and five.

We initially considered multiple lines of inquiry in our Voyager evaluation. These include

- One-sample t-tests on the growth of Voyager students and two-sample t-tests comparing the growth of Voyager and non-Voyager students and
- A matched-pair analysis between demographically equivalent Voyager and non-Voyager students

In the course of our analysis it became clear that many students outside of the intervention parameters were using Voyager. We then placed students into various bands based upon the fall CBM results. We considered various t-tests on these bands to get beyond a Voyager evaluation to an analysis of an intervention using Voyager as originally intended.

Results: Initial t-test results

We were able to obtain predicted and observed scores for 8,305 first and second graders, denoted as Measurement Type = Scale Score SAT 10. As an entire group, their growth (observed minus predicted) was 3.48 scale score points which was significantly above zero. We were able to match 3,979 third graders, denoted as Measurement Type = Scale Score ACH. This group saw an average growth of 2.98 scale score points which was also significantly above zero. Among our fourth and fifth graders, designated as Measurement Type = NCE ACH, we were able to match 7,607 students. This group saw an average gain of 1.17 NCEs which too was significantly above zero. We considered a result to be significant if the probability of a result of this kind happening by chance is less than 1 in 20 (or $p < .05$). For each of our levels, the p-value was less than .0001 indicating that our students as a whole experienced significant reading growth.

We next divided our Voyager and non-Voyager students and considered their growths compared to zero. These results can be seen in table 14.1 below.

Table 14.1: One sample t-test Results on Reading Growth

				Growth		
				Count	Mean	p-value
Voyager Student	No	Measurement Type	NCE ACH	5767	1.15	.000
			Scale Score ACH	2677	4.69	.000
			Scale Score SAT10	5877	4.11	.000
	Yes	Measurement Type	NCE ACH	1840	1.24	.000
			Scale Score ACH	1302	-0.54	.372
			Scale Score SAT10	2428	1.96	.000

Five of the six groups exhibited significant growth. The third grade Voyager students had an average observed score lower than their predicted score by .54 of a scale score. While this was less than zero, it was not significantly less than zero.

It can be noted in table 14.1 that in two of the three measurement types, the non-Voyager students outgrew their Voyager counterparts. The exception to this is in the fourth and fifth grade NCE ACH group where the Voyager students were ahead.

We conducted a two-sample t-test comparing the two groups of students at each measurement type with the following results:

Table 14.2: Two sample t-test Results on Reading Growth

Measurement Type	Voyager Student Mean Growth	Non-Voyager Student Mean Growth	Difference	t statistic	p-value
NCE ACH	1.24	1.15	.09	.257	.797
Scale Score ACH	-0.54	4.69	-5.23	-7.257	.000
Scale Score SAT10	1.96	4.11	-2.15	-3.592	.000

The non-Voyager students significantly outperformed the Voyager students in grades one to three while there was no discernible difference in grades four and five. While this is interesting, it may not tell the whole story because we may be comparing two distinct types of students. For this reason we shall emphasize our overall one-sample test and point out that our first through third grade Voyager students saw significant reading growth.

Results: Matched Pair Results

In an attempt to create a legitimate comparison between Voyager and non-Voyager students we determined to pair students based upon their demographic information and their predicted reading scores. The demographic information we ended up using consisted of their school, their ethnicity, their economic status, their special education status, and their English language learner status. Their predicted reading scores did not have to be exactly the same, but did have to be within either one

NCE or five scale score points. In the end we were able to match 1,365 students among the three measurement types.

How is it that we were able to match so many students when the intervention was proscribed for a distinct band of students? There are two answers to this question. The first is that the students in Voyager are not all within the proscribed band. Figure 14.1 is an example of the relationship between CBM Percentiles and Predicted Scores that uses colors to denote whether or not the student used Voyager.

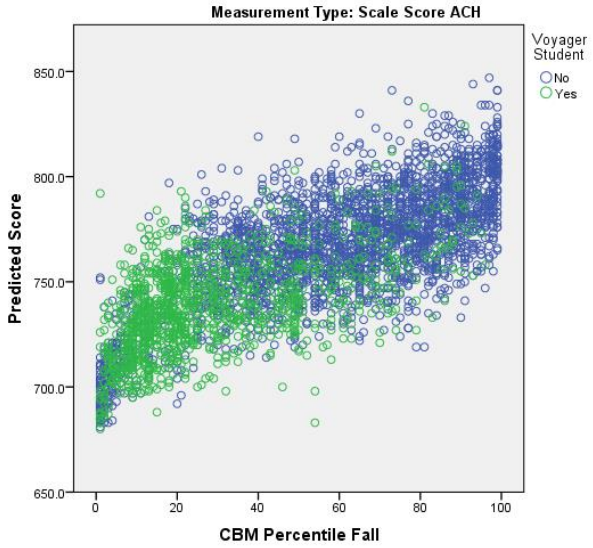

Figure 14.1: Scatterplot relating CBM Percentiles and Predicted Scores

While the majority of the students in the 11th to the 25th CBM percentiles were in Voyager, not all were. Additionally, we see a large number of students above the 25th percentile who were in Voyager. The second reason we were able to match so many students is that we used the predicted score in our match, as opposed to CBM, because that measure is a better data set for determining growth. While the two are related ($r > .7$ for each measurement type), they are not close to being exact. For this particular test we are matching students with the same demographic information that would exist on any given horizontal line on the graph above, or who are not even on the graph as our data set includes students who did not have a fall CBM assessment.

We conducted a two-sample t-test on our matched pairs and the results can be found in table 14.3.

Table 14.3: Two sample t-test Results on Reading Growth for Matched Pairs

Measurement Type	Count in each group	Voyager Student Mean Growth	Non-Voyager Student Mean Growth	Difference	t statistic	p-value
NCE ACH	316	-1.326	3.370	-4.6962	-4.366	.000
Scale Score ACH	353	-3.705	3.476	-7.1813	-4.742	.000
Scale Score SAT10	696	2.019	5.843	-3.8247	-2.917	.004

For each measurement type the non-Voyager students grew significantly faster than their Voyager peers. This indicates that not only did Voyager not help these students when compared to their peers but it may have actually had a harmful effect on their mean scores. Figure 14.2 provides a visual perspective. In it we see that blue dots representing the non-Voyager students are scattered about the upper horizontal line, which is their mean growth, while the Voyager students are scattered about the lower line.

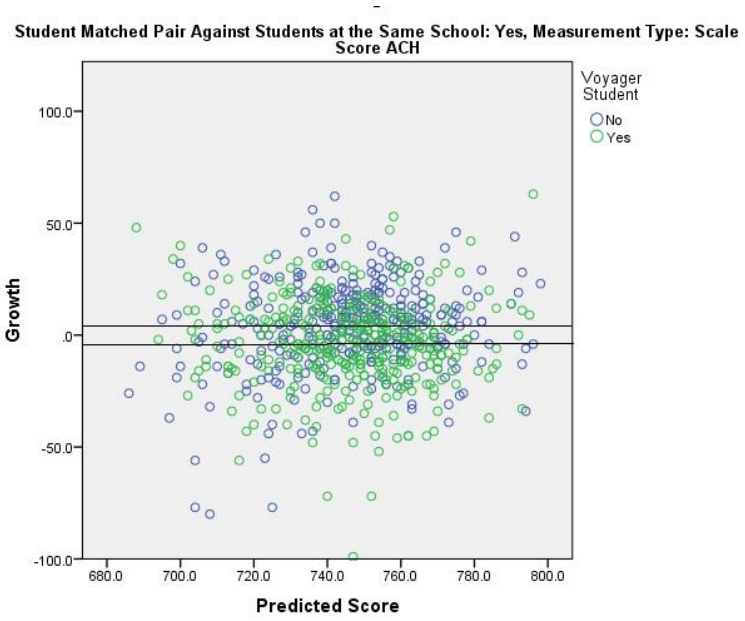

Figure 14.2: Scatterplot relating Predicted Scores and Growth

This particular graph concerns third graders. The scale for this exam is between 600 and 900 points. In the larger scheme the means for the two groups are fairly close, but due to the number of participants, the gap is statistically significant. The matched pair results by school can be found in Appendix 12: Early Literacy Matched Pair Analysis. While some of the school's Voyager students outgrew their peers, none did so in a statistically significant way.

Results: Intervention Results Based Upon CBM Placement

Our matched pair analysis focused on matching students in a way that used the predicted TCAP Reading/Language Arts Achievement outcomes or the predicted SAT 10 Reading outcomes. We believe that this is the best method for matching students because in the end it is the results of the TCAP or SAT 10 that we desire to improve. Yet, the basis for placing students into Voyager was, ostensibly, the results of the fall administration of the AIMSweb CBM. In reality, only 37% of the students (2,074) who were in Voyager had a CBM result in the targeted 11th to 25th CBM percentiles, while 685 students who were in this targeted range did not participate in the intervention. All of the various numbers and percentages can be found in table 14.4.

Table 14.4: Voyager Participation by CBM Percentile Bands

		Band Name									
		Above Target CBM		Below Target CBM		No Fall CBM		Target CBM		Total	
		Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %
Voyager Student	No	12041	84.1%	810	5.7%	785	5.5%	685	4.8%	14321	100.0%
	Yes	2003	36.0%	794	14.3%	699	12.5%	2074	37.2%	5570	100.0%
	Total	14044	70.6%	1604	8.1%	1484	7.5%	2759	13.9%	19891	100.0%

We conducted one-sample t-tests on each of the four categories for each of the three measurement types for each of the Voyager Student types. The results of these tests are in table 14.5.

Table 14.5: One sample t-test Results by CBM Percentile Bands

						Growth		
						Count	Mean	p
Voyager Student	No	Measurement Type	NCE ACH	Band Name	Above Target CBM	4961	1.2	.000
					Below Target CBM	265	.5	.558
					No Fall CBM	233	.7	.429
					Target CBM	308	.6	.471
			Scale Score ACH	Band Name	Above Target CBM	2213	5.5	.000
					Below Target CBM	179	5.9	.003
					No Fall CBM	176	-2.3	.167
					Target CBM	109	-2.4	.223
			Scale Score SAT10	Band Name	Above Target CBM	4867	6.0	.000
					Below Target CBM	366	-13.6	.000
					No Fall CBM	376	.2	.885
					Target CBM	268	-.4	.794
	Yes	Measurement Type	NCE ACH	Band Name	Above Target CBM	596	.9	.093
					Below Target CBM	261	.7	.389
					No Fall CBM	236	3.3	.001
					Target CBM	747	1.1	.032
			Scale Score ACH	Band Name	Above Target CBM	476	3.5	.000
					Below Target CBM	211	-5.7	.002
					No Fall CBM	162	-3.0	.092
					Target CBM	453	-1.6	.113
			Scale Score SAT10	Band Name	Above Target CBM	931	6.1	.000
					Below Target CBM	322	-8.9	.000
					No Fall CBM	301	-.6	.658
					Target CBM	874	2.4	.004

The results indicate that Voyager students in the targeted band exhibited significant growth in grades one, two, four, and five while also exhibiting a non-significant decline in grade three. What is more encouraging is that for each measurement type, the Voyager students had a higher growth than the non-Voyager students. We ran two-sample t-tests between the two groups, but the differences were not statistically significant.

In the course of conducting this analysis, we discovered another representation of the disparity between CBM and prediction scores. Figure 14.3 shows the wide range of students who had a fall CBM assessment between the 11th and the 25th percentile. One hundred twenty three of these students had a previous Reading/Language Arts NCE of 50 or greater. This means that about 16% of the students in this intervention for remediation had performed in the top half of all of the students in the state.

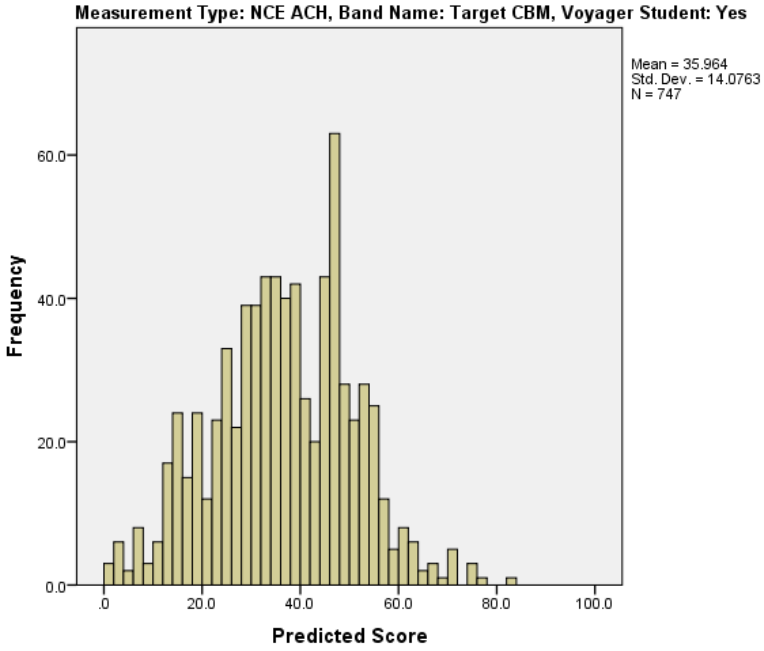

Figure 14.3: Histogram of Predicted NCE Scores for targeted CBM students in Voyager

Appendix 12 includes the results of the matched pair analysis.

Conclusions and Considerations

Voyager Passport is an intervention that was used to improve early literacy and increase student performance on the reading portion of our state examinations. Students in grades one, two, four, and five who used this program saw statistically significant growth in their reading scores over the scores that were used as predicted scores. It was also the case that students in all five elementary grades who did not use the intervention had statistically significant growth. When Voyager and non-Voyager students were tested against one another as a whole, the growth was statistically equivalent in grades four and five while the non-Voyager students grew significantly better than their Voyager peers.

In an effort to remove as much potential bias as possible a matched pair test was conducted between demographic and predicted score equivalent students. With a very large sample of equivalent students, the non-Voyager students outgained the Voyager students significantly in all grades. It seems doubtful that a program can have a harmful effect. What seems more plausible is the nature in which students were taken out of the classroom to engage in the intervention had a detrimental effect. More qualitative research needs to be conducted to get to the heart of this matter.

We noticed that the means with which we designed our match pair did not take into account the original design of the intervention. While addressing this we saw that the use of the intervention went well beyond the original design. When we restricted our data to include only the targeted students for whom the intervention was designed, we did find that this group of Voyager students grew significantly in grades one, two, four, and five; and grew faster than their non-Voyager peers in all grades, although not in a statistically significant way.

We saw that CBM testing is correlated fairly well with the predicted scores for students, but not tight enough to prevent students with a wide range of predicted scores being placed into a targeted intervention group. We would recommend using the predicted scores for placing students in interventions if possible, as was done this year, and only using CBMs if the predicted scores are not available.

Based upon the matched pair results, we would recommend reducing the pool of students going into an intervention by judiciously examining a number of indicators that would warrant the intervention.

15. First Grade Intervention

Fifteen schools were assigned a full-time literacy coach in order to implement the Early Literacy Grant. These schools were selected based upon previous results on the Kindergarten Literacy Assessment and the First Grade AIMSweb Assessment. Literacy coaches and first grade teachers attended monthly professional development sessions and coaches provided daily support to teachers and students. Additionally, an Early Literacy Consultant provided oversight for the 15 schools.

Methodology

Various internal assessments were performed during the Fall, Winter, and Spring. Most of these assessments indicated improvement for most of the schools in the Early Literacy Grant. The results for these assessments can be found at the end of this subsection. For this evaluation we will examine how students performed on the Reading portion of the SAT 10 exam. The SAT 10 was administered to the first grade students during the Fall and then again in the Spring. This is an exam that is provided by the state and growth is measured by SAS (originally Statistical Analysis Systems) and made available through TVAAS (Tennessee Value Added Assessment System.) Growth was measured by the difference between the Observed Scores and the Predicted Scores on the Spring administration of the exam. For our analysis we considered three methods of hypothesis testing:

1. Growth by the students at these schools,
2. A matched pair test on growth when compared to schools with similar predicted results, and
3. A matched pair test on students with the same demographics and predicted results against other schools in the district.

Results: Growth by students at the intervention schools

Figure 15.1 displays how students at the First Grade Intervention schools were predicted to perform as well as how they actually performed. Students at eleven of the fifteen schools exceeded their predictions and students at two of those schools who did not were within one scale score point. To determine if these students had statistically significant growth we performed a t-test using the null hypothesis that there is no growth. We used $p<.05$ as significant on this and all other significance tests. The average growth was just over 4 scale score points and the p-value turned out to be considerably less than .05. We were therefore able to reject the null hypothesis in favor of the alternative hypothesis that the growth was not zero and was, in fact, positive. These results can be seen in table 15.1.

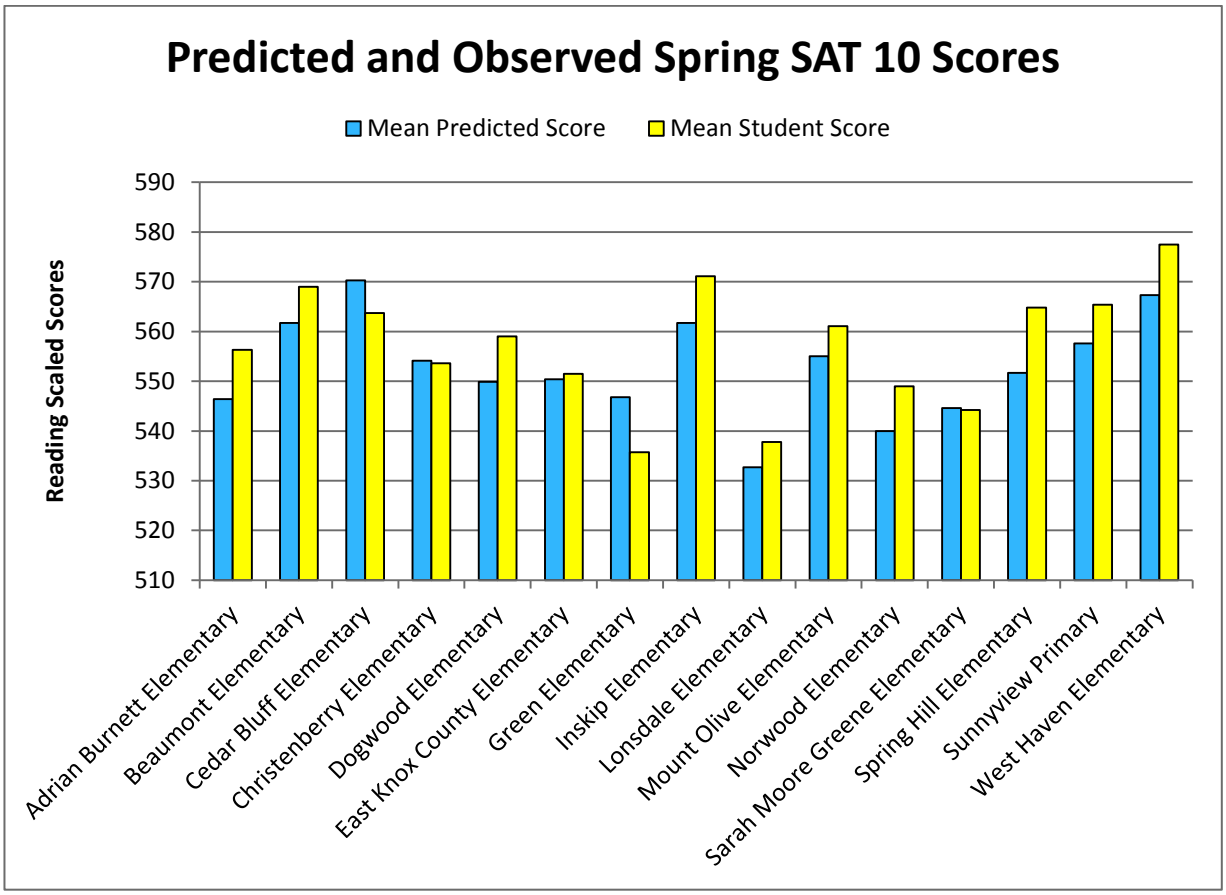

Figure 15.1: Predicted and Observed Spring SAT 10 Scores

Table 15.1: One Sample t-test on the Reading Growth of First Grade Intervention Students

	Test Value = 0					
					95% Confidence Interval of the	
	t	df	Sig. (2-tailed)	Mean Difference	Lower	Upper
Growth	5.59	1231	0.000	4.1844	2.716	5.653

We also tested the students at the individual schools in a similar fashion. Eight of the schools had statistically significant positive growth. Two schools had statistically significant negative growth while the other schools had p-values that were greater than .05 and therefore not considered as being statistically significant. These schools are listed in table 15.2 and color coded as follows: Green indicates a positive growth, Red indicates a negative growth, dark colors indicate statistical significance, while light colors indicate a lack of statistical significance.

Table 15.2: Growth by school with t-test results

	Growth					
	Mean	Median	Minimum	Maximum	Standard Deviation	Count
Adrian Burnett Elementary	9.9	10.7	-43.0	65.0	23.4	87
Beaumont Elementary	7.3	10.4	-54.4	69.2	24.1	83
Cedar Bluff Elementary	-6.6	-8.0	-81.0	92.8	26.5	171
Christenberry Elementary	-.6	-.4	-56.7	81.1	26.1	70
Dogwood Elementary	9.1	7.6	-61.1	71.2	25.0	106
East Knox County Elementary	1.0	-2.0	-49.5	92.8	24.8	71
Green Elementary	-11.1	-8.7	-93.5	32.9	23.8	45
Inskip Elementary	9.4	7.8	-45.3	68.3	23.8	74
Lonsdale Elementary	5.1	6.0	-46.9	80.9	24.3	79
Mount Olive Elementary	6.0	2.7	-55.4	82.3	32.2	46
Norwood Elementary	9.0	13.8	-66.1	54.8	25.4	89
Sarah Moore Greene Elementary	-.4	3.2	-48.5	53.1	25.8	95
Spring Hill Elementary	13.1	9.8	-38.1	87.2	28.4	70
Sunnyview Primary	7.8	11.0	-56.3	74.3	25.1	90
West Haven Elementary	10.2	9.7	-52.8	78.5	25.6	56
Total	4.2	4.7	-93.5	92.8	26.3	1232

Results: Growth of the intervention schools matched against similar schools

While the previous results indicate growth, we will next consider whether the growth at the intervention schools stands out or if growth over the prediction is the norm for the district. We will do this by using a matched pair design on the schools. To eliminate a possible bias, intervention schools were blindly paired with schools that had similar predicted Reading scale score means. Schools were sorted according to their Reading growth and intervention schools were paired with the closest non-intervention school that had not already been paired. School names were kept hidden and the pairs were designated by an alphabet letter followed by a Y or an N indicating whether or not they were an intervention school. Using this naming convention, school AY had the smallest predicted reading score among the intervention schools and it was compared to a very similar school, AN. School OY had the highest predicted reading score among the intervention schools and it was paired with school ON. The spacing on figure 15.2 is not perfect as the pairs should line up blue, then green; but while less than desirable, the graph indicates that none of the comparison schools had a negative growth in Reading. The results show that the comparison schools had a higher mean growth than the intervention schools. (See table 15.3.)

To test the results we performed a two-sample t-test with the null hypothesis being that there was no difference in the Reading scale score growth means. The results can be found in table 3. With a p-value greater than .05 we could not reject the null hypothesis and can thus conclude that there is no statistically significant difference between the intervention schools and the matched comparison schools.

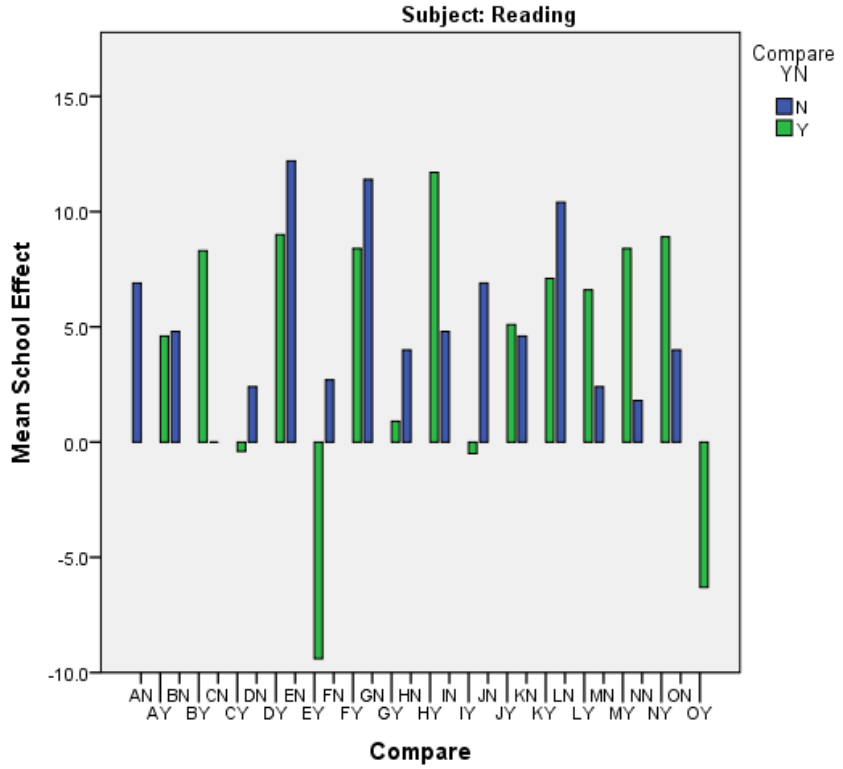

Figure 15.2: Reading growth intervention and comparison schools

Table 15.3: Independent Samples t-test on Reading Growth between Intervention and Comparison Schools

Group Statistics					
Intervention		**N**	**Mean**	**Std. Deviation**	**Std. Error Mean**
Growth	Yes	1232	4.184	26.2728	.7485
	No	897	5.142	27.0662	.9037

Independent Samples Test							
	t-test for Equality of Means						
	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
						Lower	Upper
Growth	-.820	2127	.412	-.9578	1.1680	-3.2483	1.3326

Results: Growth of the intervention school students matched against similar students

It can be noted that our second analysis probably paired schools of various sizes and in many ways can be considered a broad brush stroke for comparing the Reading growth of the students at the intervention schools against similar schools. We continued our analysis with a finer brush by creating matched pairs of students. To do this we first rounded the predicted Reading scale scores of all of the first grade students to the nearest ten in order to increase the number of matched sets of students. We then aligned each student's ethnicity, economic status, special education status, and English language learner status with his or her rounded Reading predicted scale score. We were able to pair 991 students at intervention schools with students from other schools having the exact same demographic traits and rounded Reading predicted scale scores. The growth in Reading scale scores is represented in figure 15.3.

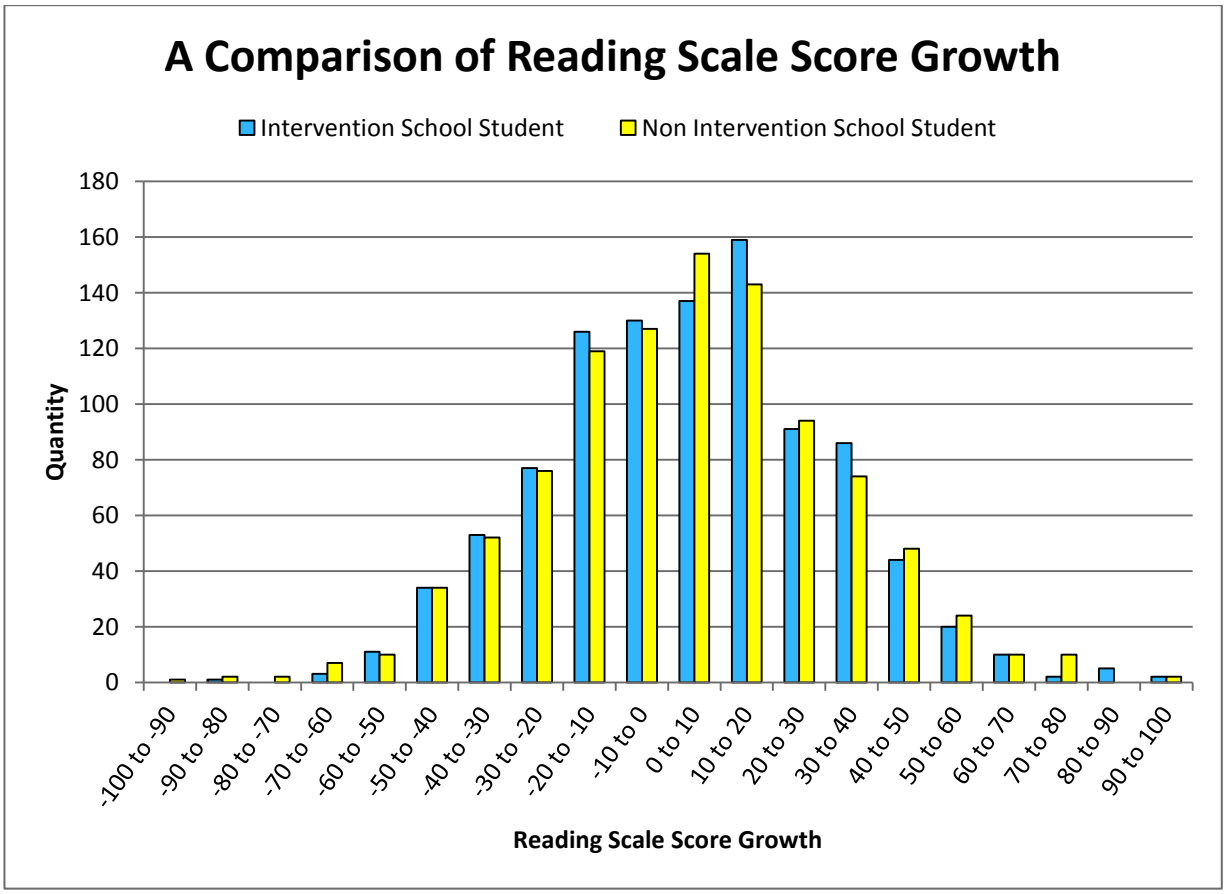

Figure: 15.3 A Comparison of Reading Scale Score Growth

The graph does not let us visually conclude that there is a difference between the two groups. An independent sample t-test was therefore applied using a null hypothesis of there being no difference between the means of the growth of the students at the two types of schools. The results of this test can be found in table 15.4.

Table 15.4: Independent samples t-test on Reading growth between students

Group Statistics					
Intervention		N	Mean	Std. Deviation	Std. Error Mean
Growth	Yes	996	4.463	26.5105	.8400
	No	996	4.998	27.3313	.8660

Independent Samples Test							
	t-test for Equality of Means						
	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
						Lower	Upper
Growth	-.443	1990	.658	-.5349	1.2065	-2.9011	1.8312
	-.443	1988.153	.658	-.5349	1.2065	-2.9011	1.8312

Matching at the student level saw the students at the intervention schools had a slightly smaller growth mean than their non-intervention school peers. Since p = .658, which is greater than .05, we cannot reject the null hypothesis and can thus conclude that there is no statistical difference between the two groups.

We were able to perform this same statistical test on the individual schools. The results can be seen in table 15.5. They indicate that 10 of the 15 schools had growth means for their students that were better than the comparison means. Dogwood Elementary had a mean increase of 9.8 scale score points. This increase resulted in a p-value of .014 indicating that the probability of a result being this extreme by random chance is less than 2%. As this value is less than p = .05 it is considered to be statistically significant. Five of the 15 schools had growth means that were worse than those generated by the comparison students. Among these schools Cedar Bluff was outperformed by 17.6 scale score points which was also statistically significant.

Table 15.5: Independent Samples t-test on Reading Growth between Students for Each Intervention School

School	Count	Mean School Student Growth	Comparison Student Growth	Difference	t-test p-value
Adrian Burnett Elementary	77	9.1	5.4	3.7	0.349
Beaumont Elementary	73	7.9	.9	6.9	0.114
Cedar Bluff Elementary	152	-6.3	11.3	-17.6	0.000
Christenberry Elementary	57	-1.4	2.7	-4.2	0.379
Dogwood Elementary	82	8.3	-1.5	9.8	0.014
East Knox County Elementary	69	1.5	4.3	-2.8	0.515
Green Elementary	29	-7.6	2.7	-10.3	0.179
Inskip Elementary	64	10.2	7.2	3.0	0.522
Lonsdale Elementary	50	5.8	4.0	1.9	0.742
Mount Olive Elementary	44	6.4	1.9	4.5	0.529
Norwood Elementary	65	10.5	7.0	3.4	0.483
Sarah Moore Greene Elementary	50	1.8	4.6	-2.8	0.603
Spring Hill Elementary	54	10.1	3.3	6.8	0.263
Sunnyview Primary	83	6.6	3.7	2.9	0.441
West Haven Elementary	47	11.7	9.7	2.0	0.696
Total	996	4.5	5.0	-0.5	0.658

Conclusions and Considerations

Our analyses indicate that first grade students at the intervention schools exhibited significant growth on the Reading portion of the SAT 10 exam; yet, this fact is tempered by the evidence that the students at the intervention schools and the schools themselves have not been shown to be statistically different from the students at the non-intervention schools and non-intervention schools themselves. It should be noted that the SAT 10 is only one type of quantitative measure. It was used because we were able to receive student prediction scores for it. Further qualitative research should include investigations of the schools with large or significant positive or negative growth in an attempt to understand the root causes of these results. Additional investigations can attempt to relate the SAT 10 results with the other assessment results.

16. Additional Elementary Reading Support Intervention

Twenty schools were provided with an instructional assistant to improve Reading/Language Arts scores and to help facilitate a Voyager Passport intervention with designated students in grades three to five. This analysis is a smaller version of the Early Literacy Materials Report with a focus on the students supported by the Additional Elementary Reading Support (AERS) interventionists.

Methodology

We linked various data sets together to create a testing data file. Our data file contained the predicted and observed scale scores for grade three. For the fourth and fifth grades, we used the previous year's Reading/Language Arts (RLA) Normal Curve Equivalent (NCE) score as the predicted score and the current year's RLA NCE as the observed score. To control for as many variables as possible, we decided to measure student growth only for and against students who were in the Voyager file. This was done in part because the vast majority of AERS students were Voyager students as well. We started with 611 students from the twenty schools. After eliminating students who did not have a predicted score or moved to a non-AERS school or who were not listed on the Voyager Passport data file, we ended up with 494 students with a complete data set.

The methodology of choice was to test student growth as measured by the difference between the observed scores and the predicted scores. This was to be done on two separate measures: TCAP Achievement scale scores in grade three, and TCAP NCEs in grades four and five.

We proposed to evaluate the AERS intervention by using

- One-sample t-tests on the growth of the AERS students and two-sample t-tests comparing the growth of AERS and non-AERS students who each were Voyager students, and
- A matched-pair analysis between demographically equivalent AERS and non-AERS Voyager students

Results: Initial t-test results

We were able to link the data of 198 third graders who were both Voyager and AERS students. This grade was denoted as Measurement Type = Scale Score ACH. This group saw an average growth of (negative) -5.35 scale score points which was significantly below zero. This indicates that this group had a mean score below what was predicted for them. Among our fourth and fifth graders whose scores were designated as Measurement Type = NCE ACH, we had 296 students in our data set. This group saw an average gain of 2.21 NCEs which was significantly above zero. For significance we considered a result to be significant if the probability of a result of this kind happening by chance was less than 1 in 20 (or $p<.05$).

Mean gains by school were calculated and these results are in tables 16.1 and 16.2 below.

Table 16.1: One-sample t-tests on Reading Growth among AERS Students in Grades 4 and 5 by School

	Predicted Score Mean	Observed Score Mean	Growth Mean	Growth Count	Growth p
Adrian Burnett Elementary	34.8	33.0	-1.9	47	0.34
Amherst Elementary	35.3	38.2	2.9	22	0.257
Ball Camp Elementary	31.3	35.4	4.1	14	0.264
Blue Grass Elementary	43.6	39.9	-3.8	8	0.619
Bonny Kate Elementary	35.7	39.6	3.9	11	0.572
Chilhowee Intermediate	34.4	41.2	6.8	16	0.059
Christenberry Elementary	27.5	28.5	0.9	13	0.823
Copper Ridge Elementary	36.7	32.3	-4.3	6	0.084
Dogwood Elementary	33.6	31.7	-1.9	13	0.677
Fountain City Elementary	32.6	38.1	5.5	16	0.101
Gibbs Elementary	42.2	41.9	-0.3	10	0.959
Green Elementary	30.6	27.0	-3.6	14	0.312
Halls Elementary	30.2	38.1	7.8	13	0.077
Inskip Elementary	N/A	N/A	N/A	N/A	N/A
Karns Elementary	35.2	39.2	4	30	0.109
Norwood Elementary	26.8	24.1	-2.7	15	0.371
Pond Gap Elementary	36.5	43.5	6.9	11	0.015
Sarah Moore Greene Elementary	27.6	22.0	-5.6	5	0.47
Spring Hill Elementary	35.3	38.2	2.9	14	0.527
West Haven Elementary	33.7	46.6	12.8	18	0
Total	33.9	36.1	2.2	296	0.008

Table 16.2: One-sample t-tests on Reading Growth among AERS Students in Grade 3

	Predicted Score Mean	Observed Score Mean	Growth Mean	Growth Count
Adrian Burnett Elementary	743.3	725.8	-17.5	13
Amherst Elementary	742.4	736.2	-6.2	5
Ball Camp Elementary	735.3	732.3	-3.1	12
Blue Grass Elementary	751.8	751.2	-0.7	6
Bonny Kate Elementary	742.3	730.3	-12.0	3
Chilhowee Intermediate	736.8	739.8	2.9	16
Christenberry Elementary	735.3	743.5	8.2	13
Copper Ridge Elementary	735.1	730.4	-4.8	8
Dogwood Elementary	744.0	739.4	-4.6	7
Fountain City Elementary				0
Gibbs Elementary	745.3	737.3	-8.2	6
Green Elementary	727.1	710.3	-16.9	16
Halls Elementary	743.1	730.3	-12.8	12
Inskip Elementary	743.8	745.9	2.1	20
Karns Elementary				0
Norwood Elementary	718.4	707.8	-10.6	13
Pond Gap Elementary	731.7	724.6	-7.1	10
Sarah Moore Greene Elementary	730.0	720.9	-9.1	9
Spring Hill Elementary	737.6	741.7	4.1	11
West Haven Elementary	729.8	722.5	-7.4	18
Total	736.1	730.8	-5.4	198

In grades four and five, Pond Gap and West Haven led the way by exhibiting significant growth for their AERS students. No schools exhibited growth in grade three, but three schools, Chilhowee, Christenberry, and Spring Hill, did show growth in each of the measurement types.

We next divided our AERS and non-AERS Voyager students and independently considered their growths compared to zero using one-sample t-tests. These results can be seen in table 16.3 below.

Table 16.3: One-sample t-tests on Reading Growth among Voyager Students

				Predicted Score Mean	Observed Score Mean	Growth Mean	Growth Count	p
AERS Student	No	Measurement Type	NCE ACH	40.14	41.19	1.05	1540	0.002
			Scale Score ACH	738.69	739.04	0.34	1102	0.604
	Yes	Measurement Type	NCE ACH	33.86	36.07	2.21	296	0.008
			Scale Score ACH	736.11	730.77	-5.35	198	0.000

As mentioned above, our fourth and fifth grade AERS students exhibited a significant RLA gain; but the non-AERS students exhibited a significant gain as well. The table indicates that the AERS students had a 2.21 mean NCE gain while their peers had a 1.05 mean NCE gain. As a note of interest, the Predicted Scores of AERS students are significantly below their non-AERS peers. This indicates that choosing AERS students was deliberate. This group that had previously performed much lower than their peers grew at a faster rate. This indicates that this intervention was helpful in closing the reading gap in fourth and fifth grades.

Third grade tells a different story. While the mean predicted scores for the AERS students is lower, 736 to 739 scale score points, the difference is not significant. What is significant is how the two groups grew. The non-AERS students exhibited a small, but not statistically significant, gain of .34 of a scale score point, while our treatment group, the AERS students, exhibited a significant 5.35 mean scale score loss.

A two-sample t-test was conducted comparing the two groups. The mean gains for the two NCE ACH groups turned out to be no different from a statistical perspective ($p = .174$). At the third grade level, the AERS students performed significantly worse than their non-AERS peers ($p < .001$). These results are summarized in table 16.4.

Table 16.4: Two-sample t-tests on Reading Growth for Voyager Students

Measurement Type	AERS Student Mean Growth	Non-AERS Student Mean Growth	Difference	t statistic	p-value
NCE ACH	2.21	1.06	1.15	1.359	0.174
Scale Score ACH	-5.35	0.35	-5.7	-3.395	0.001

Matched Pair Results

In an attempt to create a tight comparison between AERS and non-AERS Voyager students, students were paired based upon their demographic information and their predicted reading scores. The demographic information used consisted of their ethnicity, their economic status, their special education status, and their English language learner status. Their predicted reading scores did not have to be exactly the same, but did have to be within either one NCE or five scale score points. In the end we were able to match 453 pairs of students among the two measurement types.

We conducted a two-sample t-test on our matched pairs and these results can be found in table 16.5.

Table 16.5: Two-sample t-tests on Reading Growth for the Matched Pairs

Measurement Type	Count in Each Group	AERS Student Mean Growth	Non-AERS Student Mean Growth	Difference	t statistic	p-value
NCE ACH	261	2.29	1.22	1.07	0.899	0.369
Scale Score ACH	192	-6.31	-0.23	-6.08	-3.04	0.003

The results mimic our previous results. The mean growths were a little bit different for each group, but we continued to see that the third grade AERS group had a significant mean loss when compared to their non-AERS peers.

Conclusions

The Additional Elementary Reading Support intervention is a tale of two tests. In grades four and five where Normal Curve Equivalent scores were used to assess progress, the mean growth of the students in the intervention was significantly greater than predicted and twice as large as Voyager students who were not in this intervention (while twice as large, the gain was not significantly larger than this peer group.) A matched-pair design comparing demographically equivalent students confirmed these results.

The results changed direction for third grade. This group was measured by Achievement Scale Scores and the students in the intervention exhibited significant losses both against the predicted means and against demographically equivalent students. This reversal was evident at many schools in addition to the group as a whole.

Further qualitative investigation is needed to ascertain why the results would be so different at the third grade level. It may be an unintended consequence of the third-grade retention policy, but the match pair design results should have negated this potential.

17. Summer Bridge

The Knox County summer bridge program was originally designed as an intervention for rising freshman that raised warning flags in attendance, grades, and state testing results. The intent of the program was to provide a "bridge" between middle and high school to get potentially off-track students back on-track. The traditional focus of the 6-8 week summer bridge was to re-teach Reading/English Language Arts (RLA/ELA), Math and study skills.

In 2012-2013, the summer bridge program was expanded to include rising 6th graders to bridge between elementary and middle schools. The expanded summer bridge pilot involved students who would be attending two different Knox County middle schools (Northwest and Whittle Springs). The initial selection of students for the expanded summer bridge program was based solely on state test results (students who were basic or below basic).

Methodology

Although the summer bridge program has been around in Knox County since the 2009-2010 academic year, there has been no systematic study of its effectiveness. Therefore, the first step in this analysis is to determine the effectiveness of the pre-existing (high school) summer bridge program. Once the legitimacy of the summer bridge program is established, we will look at some interim results from the expanded summer bridge program and discuss future analysis of expanded summer bridge once 2013-2014 TCAP results are available.

The initial analysis of the high school summer bridge program was conducted to determine changes in trajectory of enrolled students. Baseline Math and RLA NCEs were calculated from 7th grade TCAP results. A match-pair design was used to create a control group who had similar NCEs in 7th grade but were never enrolled in the bridge program. The distributions of 7th grade NCEs for both Math and RLA for the treatment and control groups are in figures 17.1 and 17.2.

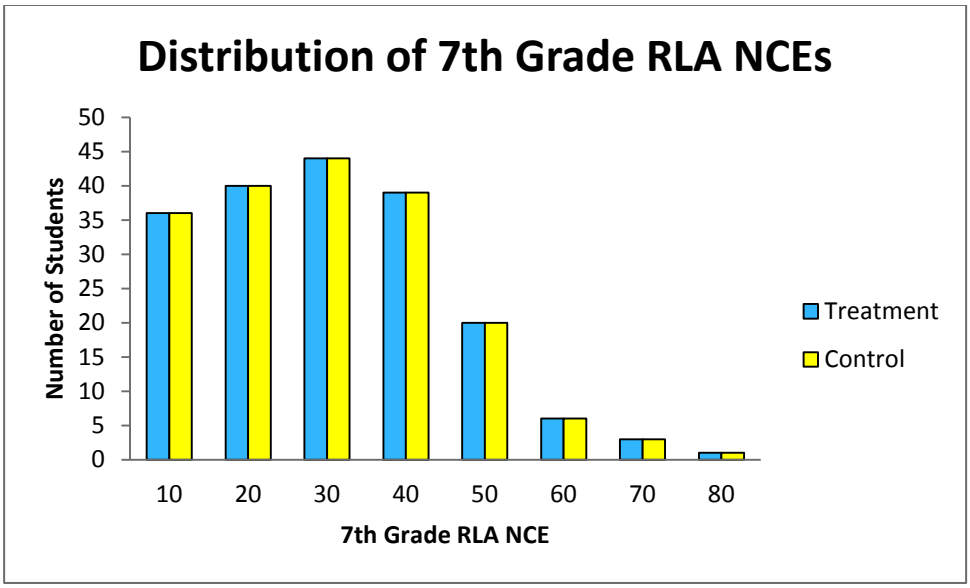

Figure 17.1: Initial Distribution of RLA NCEs

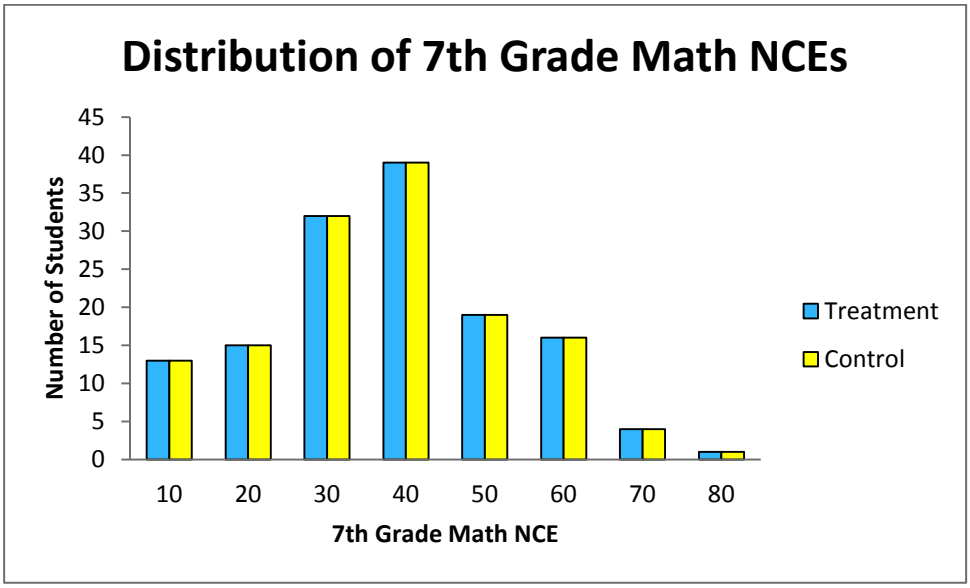

Figure 17.2: Initial Distribution of Math NCEs

Ninth grade equivalent NCEs were calculated from each student's state percentile on Algebra or English EOCs. The percentiles were converted to Z-scores, which were converted to NCEs to have a consistent measure between middle and high school.

Results: Change in NCE

Results for the quintile level RLA/ELA analyses are contained in table 17.1, while results for Math are contained in table 17.2. There were not enough students in the upper quintiles (4 and 5) to complete a meaningful analysis for RLA/ELA. In Math, there was insufficient data to calculate p-values for the uppermost quintile (5) only.

Table 17.1: RLA/ELA Change in NCE

Change In Reading/English Language Arts NCE					
	Quintile	**Control - Avg Δ NCE**	**Treatment - Avg Δ NCE**	**Treatment minus Control**	**p-value**
7th to 8th Grade	1	8.79	8.39	-0.40	0.79
	2	6.00	4.51	-1.49	0.54
	3	2.88	-2.33	-5.22	0.12
	All Quintiles	7.63	6.53	-1.10	0.37
7th to 9th Grade	1	12.09	12.01	-0.08	0.96
	2	5.53	4.10	-1.42	0.61
	3	2.47	-0.67	-3.14	0.32
	All Quintiles	9.76	9.11	-0.65	0.61

Inspection of the difference of mean change in NCE (treatment minus control) indicates the change in mean NCE improved after students were exposed to the summer bridge program (though in some cases, the difference was not statistically significant). Deficits between the treatment group and control group moderated after the summer bridge intervention. This moderation provides some evidence that the gap (in mean NCE) between bride and non-bridge students is no longer growing. The p-values in tables 17.1 and 17.2 are the probabilities that the mean change in NCE is the same for both treatment and control groups. We can see in table 17.1 that after treatment, there is a higher probability in each quintile that the scores are the same. This provides some evidence that the summer bridge program is putting bridge students back on track with their peers.

Table 17.2: Math Change in NCE

Change In Math NCE					
	Quintile	**Control - Avg Δ NCE**	**Treatment - Avg Δ NCE**	**Treatment minus Control**	**p-value**
7th to 8th Grade	1	11.20	10.14	-1.06	0.70
	2	11.26	2.62	-8.64	0.00
	3	1.33	-2.90	-4.23	0.23
	4	4.91	-3.75	-8.66	0.10
	All Quintiles	9.18	4.75	-4.43	0.01
7th to 9th Grade	1	11.34	8.27	-3.07	0.32
	2	4.05	3.86	-0.19	0.96
	3	-4.67	-5.90	-1.23	0.73
	4	-2.45	-4.58	-2.13	0.69
	All Quintiles	5.66	3.75	-1.91	0.35

The Math data exhibits some of the same trends. In every quintile but the first, the difference between the mean change in NCE decreases after students have been enrolled in the summer bridge. In quintiles 2 through 4, the p-value indicates that the mean change in NCE aligns more closely with the control group after summer bridge intervention. The greatest effect is seen in quintile 2. Prior to treatment, there was virtually zero probability that the treatment and control groups were exhibiting the same change in NCE from year to year. After the intervention, there was a 96% probability that the growth was the same between 7th and 9th grade.

Despite these apparent successes, it is troubling that students in the first quintile appear that they are being outpaced by their non-bridge peers. Most troubling is that this quintile accounts for 46% of the students that are enrolled in the summer bridge program.

The results of the chi-squared tests on the distribution of students with year-over-year increases in NCE are contained in tables 17.3 and 17.4.

Table 17.3: Chi-Squared Test Results - RLA

Percent of Students Exhibiting an Increase in RLA/ELA NCE				
	Control	**Treatment**	**Treatment minus Control**	**p-value**
From 7th to 8th	72%	67%	-6%	0.1450
From 7th to 9th	79%	74%	-6%	0.1090

Analysis of the reading distributions indicate that summer bridge students are exhibiting consistent improvement when compared to their non-bridge peers. The p-value, which is the probability that the distribution of students exhibiting year-over-year increase in NCE is the same between treatment and control, indicates that there is a slightly lower probability that the distributions are the same after treatment. Whereas table 17.1 indicates that RLA/ELA NCEs are improving at a faster rate in the bridge program, table 17.3 indicates that growth may be from a distinct population of those students, rather than from across the cohort as a whole.

Table 17.4: Chi-Squared Test Results - Math

Percent of Students Exhibiting an Increase in Math NCE				
	Control	**Treatment**	**Treatment minus Control**	**p-value**
From 7th to 8th	73%	59%	-14%	0.0003
From 7th to 9th	60%	58%	-2%	0.7294

The math results are more encouraging. The p-value indicates that there was very low probability that the control group and treatment group had the same distribution of students with increasing year-over -year NCEs. However, after the summer bridge, the difference between the two groups has considerably decreased, and the probability that the two groups have the same distribution of students increasing year over year NCEs has increased. Coupled with the data in table 17.2, this indicates that growth is coming from a large population of students. However, as was already discussed, there are still potential issues with growth in the first quintile for math students.

Outcome data for students that were involved in the new elementary to middle bridge program will not be available until 2013-2014 test results are released. As such, the Scholastic Reading Inventory (SRI) pre and post-tests were used as a proxy for growth. Results indicated that about 20% of students enrolled in the elementary to middle summer bridge exhibited at least 1 year of growth (as measured by the SRI lexiles). Math growth was measured through the elementary-to-middle summer bridge program using the Scholastic Math Inventory assessment. On this assessment, about 40% of students enrolled in the expanded summer bridge program exhibited at least 1 year of growth.

Without comparison data, it is impossible to determine the effectiveness of the expanded bridge program. The analysis of the expanded summer bridge program will be carried out in the same way as the high school bridge analysis above once 2013-2014 TCAP data is available.

Conclusions and Considerations

The directional data (p-values and means) seem to indicate that the program is having its intended effect of putting students back on track with their academic peers. Gains, however, are seldom sufficiently large enough to provide strong statistical evidence of the program's merits. Gains can be seen in the NCE data in both of the subject areas (reading and math) and there is some evidence that bridge students are increasing math NCEs at a faster rate than their peers. The greatest concern for the summer bridge program should be the students in the first math quintile. This is the only area in which there is some evidence that achievement gaps are growing rather than decreasing.

The detailed analysis on the expanded summer bridge program will occur once the summative data from 2013-2014 is available. The methodology for that analysis will mirror the analysis presented in this section regarding the high school summer bridge program.

APPENDIX

The following Appendices include information referenced in the Management and Technical Reports. These documents provide further context and additional analysis to support the reports' conclusions and recommendations.

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1. Appendix: 2012 ROI Executive Summary

Executive Summary for Return on Investment Report

In July 2009, the Knox County Board of Education adopted a strategic plan for the Knox County Schools (KCS) entitled, *Building on Strength: Excellence for All Children*. Through a continued focus on implementation of the plan, and by reallocating existing resources, strategically targeting federal and private dollars, and implementing internal efficiencies, the Knox County Schools has begun to meet some of the milestones and academic goals outlined in the plan. Our goals are purposefully ambitious however, and while improvements in student achievement are encouraging and noteworthy, they have been largely incremental and continue to reflect some significant challenges facing our school district.

Acknowledging the need to accelerate improvements in our academic outcomes and recognizing that the strategies and initiatives necessary to make these improvements require resources beyond our current funding level presented a compelling case for a detailed analysis in the following areas:

1. Current funding sources and allocation practices
2. Expenditures versus student performance outcomes
3. Present return on investment for major district initiatives
4. Comparison study of other schools with similar demographics but better outcomes

The financial analysis revealed that the vast majority of the Knox County Schools budget represents the cost of the people necessary to perform the work of education, and the increase in the budget since fiscal year (FY) 2009 has totaled $14.5 million, an average of only 1.3% annually. The vast majority of that increase has been committed to instruction and instructional support expenditures, with debt service also taking up the next largest proportion of the total increase. The budget increase over the past three years has generally not been for salaries and wages, which have remained relatively stable since 2009, but rather can be largely attributed to the impact of required increases in insurance premiums and retirement contributions (principally for teachers) which the school system does not directly control. The budget increases of the past three years were funded almost entirely (97.8%) by additional revenues from the state basic education program (BEP). Funding from Knox County sources is roughly equal in FY 2012 to where it was in FY 2009, essentially because sales tax revenue has decreased more than property and other local tax revenue has increased. To maintain an essentially flat budget, the Knox County Schools has made use of grants and other time-limited resources and aggressively managed non-instructional expenses to maximize the proportion of funds available for instruction and support.

It is also clear that the funding provided from the state through the “Basic Education Program" is insufficient to adequately meet the needs of the students in Knox County and woefully insufficient to attain the ambitious goals outlined in the Knox County Schools Strategic Plan. In absence of significant enhancements to the BEP, the burden will continue to fall on our local community to provide adequate resources necessary to ensure *Excellence for All Children*.

Several operational themes emerged from our return on investment analyses:

- Time matters. The amount of time students are meaningfully engaged in learning and their level of expectations for themselves are directly proportional to academic outcomes.
- We need the right people doing the right work. Clearly defined roles and skills matched to role can make or break an initiative.
- Leadership, consistency, focus and resources make a difference. Outcomes of an educational initiative depend on fidelity of implementation. Fidelity of implementation requires consistency in focus and support. The level of focus and support depends on the level of leadership and investment.
- We need data to keep score and inform decisions. Appropriate data for decision-making requires an infrastructure and culture of assessment and accountability to investments from the outset.

Below is a summary of the operational recommendations associated with each of these themes, with rationale and highlights from the details provided in the full text of the report. These recommendations are designed to maximize the return on our educational investment.

Time on Task and Student Expectations

- Scheduling Models: Maintain current middle school schedule but allow/encourage hybrid scheduling in high school.
- Excellence Through Literacy: Revise structure of literacy interventions in middle and high school. Ensure that middle school and high school students received the full grade-level course of language arts regardless of reading-specific intervention.
- Magnet and Project GRAD: Increase academic rigor in magnet schools and continue Project GRAD scholarship program.
- Kindergarten: Implement a full-day Kindergarten program for all students in the district.
- Benchmarking: Explore options for more time on task at all levels, informed by an examination at the school level of the amount of time during the existing school day that students are not – but could be – engaged in learning.

Defined Roles and Appropriate Skills

- Instructional Coaching Model and Excellence Through Literacy (Elementary): Clearly define a feasible set of coaching roles and responsibilities focused on professional development and facilitation of professional learning communities (PLCs).
- Project GRAD: Discontinue academic components; for remaining Project GRAD math coaches, assess skills and match to the KCS coaching model, where appropriate. If the scope of the Project GRAD partnership will be broader than the college access program in future years, outline in the contract details of the activities and staff associated with the KCS dollars committed as well as a reporting structure that defines accountability to the Project GRAD staff and principals.

- Block scheduling: Targeted professional development to ensure that in every high school, the personnel responsible for the master schedule have the appropriate skills for the complexity of the task.
- Magnet: Develop specific criteria for staff selection and consider significant restructuring where necessary to ensure highly effective education
- Benchmark: Continue to provide principals with flexibility for staffing their schools via the budget allocation formula *as long as decisions have and continue to lead to improved outcomes.*

Focus, Consistency, and Support

- Coaching Model:
  - Build into the budget additional assistance matched to need for schools that do not have assistant principals.
  - Maintain a full-time coaching model in elementary schools and consistent school assignments for coaches.
  - Implement a supervisory structure for coaches to report to content supervisors as well as principals to ensure district-wide coordination and support.
- Magnet: Develop rigorous and specialized curriculum for magnet offerings, and provide ample resources to support implementation.
- Staffing formulas: It is important that the current staffing model be reviewed and adjusted each year to ensure that its philosophical underpinnings translate to rational allocations.
- All present and future initiatives: Develop assessment plan including short-term fidelity/quality measures and longer-term outcome indicators and workload priorities.

Culture of Data Driven Decision-making (Quantitative and Qualitative)

- All present and future initiatives: Develop *and execute* assessment plan as noted above, including collection of data/information from the outset and funding contingent on short-term quality and progress measures and project milestones for termination or expansion based on achievement of outcomes.
- Project GRAD: Develop in coordination with Project GRAD an analysis plan including agreed-upon structure and content for tracking and data collection regarding students in the scholarship program.
- Middle and high school reading interventions: Convene a representative selection of principals, teachers, coaches, and directors to review full program evaluation data for Language! and develop a data-driven course of action.
- Elementary school scheduling model (parallel block) and coaching: Ensure focus in elementary PLCs with coaches to facilitate and assess quality and continue to collect data to assess appropriate staffing ratios and the effect of full Excellence Through Literacy investment.

These recommendations and analyses support the broader priorities for several important initiatives, including: more instructional time for students, enhanced instructional support for teachers, interventions for struggling students and enrichment opportunities for excelling students, consistently excellent magnet programs, and expanded performance pay to recruit and retain the very best educators. However, these priorities appear not to be within reach of the Knox County Schools' current revenue structure and instructionally-focused budget. This analysis suggests that if the KCS wants to accelerate and enhance student growth and achievement and be competitive at regional, state and national levels, additional investment will be needed. Therefore, it is recommended that the district develop a five-year budget proposal that identifies priority areas for additional resources based on these findings and an assessment plan and progress measures that lead toward the anticipated impact on student achievement and attaining the district's ambitious goal of *Excellence for All Children*.

2. Appendix: $7MM Investment Summary

DRAFT

Knox County Schools

FY13 Investments Proposal - Detailed Assumptions

Updated 6/4/12

Initiative (including detailed assumptions)	FTE	FY13	Early Literacy
TECHNOLOGY			
Instructional Technology Coordinator		$ -	
Technician / Training Specialist		$ -	
Technology Infrastructure Assessment & Implementation plan		$ -	
Technology Equipment		$ -	
		$ -	
MORE INSTRUCTIONAL TIME			
Tutoring Programs - expand program to 30 more schools (~ 5,400 student hours per school)		$ 340,500	
Tutoring Resources - all others schools (avg $3,700 per school = ~ 1,775 student hrs)		$ 159,500	
		$ 500,000	
TEACHER SUPPORT			
Lead teachers (242 additional part-time lead teacher positions - ~ 2 to 3 per school)		$ 630,000	
Lead teachers (pilot half time positions particularly at Elementary (8.0 FTEs)	8.0	$ 496,000	
Instructional Coaches (Deployment based on student achievement outcomes)	25.0	$ 1,875,000	$ 1,540,000
Teacher position restorations (2 each at Farragut, HVA & AEHS. 1 at SDHS)	7.0	$ 350,000	
Professional Development (Common Core training, summer institute, TEAM/TAP Rubric PD)		$ 500,000	$ 300,000
		$ 3,851,000	
MAGNET			
Austin-East HS ($65k per school - dedicated to support magnet theme)		$ 65,000	
Fulton HS		$ 65,000	
L&N STEM Academy		$ 65,000	
West HS		$ 65,000	
Vine MS		$ 65,000	
Beaumont Magnet		$ 65,000	
Green Academy		$ 65,000	
Sarah Moore Greene		$ 65,000	
		$ 520,000	
INTERVENTION			
Additional Elementary Reading Support (Additional Voyager small groups at 20 schools)	20.0	$ 440,000	$ 440,000
Early Literacy Materials & Support		$ 200,000	$ 200,000
Pilot Expanded Summer Bridge for 6th Grade		$ 100,000	
Additional Support for HS Learning Centers		$ 49,000	
1st grade intervention (5 more schools)	5.0	$ 390,000	$ 390,000
		$ 1,179,000	
ENRICHMENT			
STEM Activities (Through STEM Hub)		$ 94,000	
School-Based Enhanced Learning Opportunities (avg. $3,000 per school)		$ 264,000	
Fine Arts After School & Summer Academies		$ 32,000	
FIRST Robotics Teams - support & expand (provide half of total cost - $7,500 each for 8 teams)		$ 60,000	
		$ 450,000	
COMMUNITY SCHOOLS			
Expand Community Schools concept to three more schools		$ 435,000	
Community Schools Resource Coordinator	1.0	$ 65,000	
		$ 500,000	
Inflationary / Contingency (4% of funding to address unanticipated or inflationary costs of these initiatives)		$ -	
TOTAL	**66.0**	**$ 7,000,000**	**$ 2,870,000**

3. Appendix: Smarter School Spending

"Smarter School Spending"
Project Overview
July 2013

Background

Knox County Schools has received a grant from the Bill & Melinda Gates Foundation (Gates Foundation) for an initiative aimed at strengthening our ability to align resources to district priorities. An initial investment of $840,000 will be funded through the Gates Foundation, with the remaining 30 percent of the investment being provided by the Knox County Schools per the grant guidelines. The total value of the grant is estimated at $1.2 million. Knox County Schools (KCS) is one of four school districts across the country to receive funding from the Gates Foundation for this important work. (The other districts are Fayette County Public Schools in KY, Lake County Schools in FL, and Rochester City School District in NY.)

To support our effort to ensure that we are allocating resources in a manner that most strategically supports student learning, KCS has retained The Parthenon Group (Parthenon) and Education Resource Strategies to assist with data collection, resource utilization, and return on investment analysis. Between July and December, we will work together to assess how we can make KCS' most critical and high-impact initiatives more effective and create opportunities to realign resources in a way that maximizes student success.

This is an opportune time for the KCS to think critically about resource alignment as we begin a process to develop a new five-year strategic plan that builds on the current *Excellence for All Children* roadmap.

When the "Smarter School Spending" project is complete, we will have developed a set of sustainable recommendations regarding resource allocation, a budgetary framework for implementing the recommendations, and a sustainable process for continuous improvement going forward.

Focus Areas Identified for Deeper Resource Analysis

As part of this initiative, KCS has identified a range of focus areas for careful analysis. These are areas where the district has made investments and is looking to better understand their realized or potential impact on student achievement. The end goal of the "Smarter School Spending" project is to identify ways to maximize resources for the highest impact programs and initiatives.

<u>Focus Areas</u>

- High School Block Scheduling
- Instructional Coaching Model Utilization and Effectiveness
- General Education Instructional Aides Utilization and Effectiveness
- Teacher Evaluation System, including Lead Teachers
- Professional Development Supports, including the TAP model
- Strategic Compensation (APEX)
- Special Education
- Early Grade Intervention Programs
- Personalizing Student Learning

4. Appendix: ERS/Parthenon Analysis – Overall Resource Allocation

Overall Resource Allocation
Summary of Key Takeaways

Benchmarking Analysis

- KCS has an operating budget of $438M ($7.6K per pupil in 2011-12)
- $17.6M or 4% is allocated to central office ($304 per pupil)
- KCS is a lean district, spending less than any of the comparison districts on a per pupil basis across major cost categories (including central office)
- Comparisons highlight several areas that may be "too lean" such as School Supervision

Per Pupil Equity Analysis

- KCS tends to spend more per pupil at the high school level, driven by higher Leadership, Pupil Services, and Operations & Maintenance costs
- In particular, KCS has a higher ratio of AP and clerical support at the high school level than a set of comparison districts
- At all school levels, KCS spends more per pupil at schools with higher Free/Reduced Lunch student populations

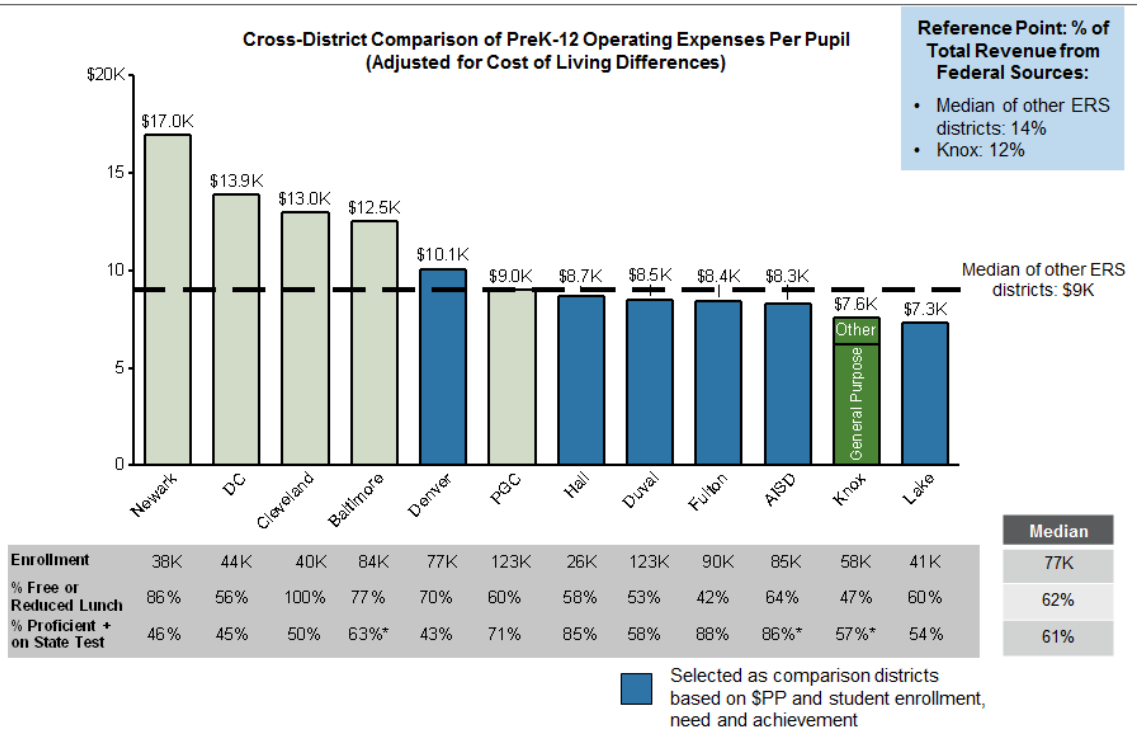
Overall Resource Allocation: Benchmarking Analysis
KCS spending falls below the ERS district median across all major expenditure categories

	Central Office Expenditures	Overall Expenditures	Median Overall	Comparison to ERS Median
	Dollars per pupil	Dollars per pupil	Dollars per pupil	Knox Percent Below Median
Instruction	• No CO expenditures	• $4,463	• $5,159	• 13% Below
O&M	• $31	• $1,444	• $1,689	• 15% Below
Leadership	• $68	• $568	• $737	• 23% Below
Pupil Services and Enrichment	• $16	• $432	• $727	• 41% Below
ISPD	• $102	• $425	• $514	• 17% Below
Business Services	• $87	• $182	• $372	• 51% Below
Total	• **$304**	• **$7,564**	• **$8,987**	• **16% Below**

Note: (1) Central Office expenditure total differs from the cross-district comparison figure due to $55 per pupil in "system-wide" spending that is included for purposes of comparison with benchmarks but excluded from the KCS Central Office definition. (2) Districts included in the median are Duval, Hall, Fulton, Prince Georges County, AISD, Baltimore, Denver, DC, Newark, Cleveland, Lake. Source: ERS Financial Analysis, Parthenon Analysis

Overall Resource Allocation: Benchmarking Analysis

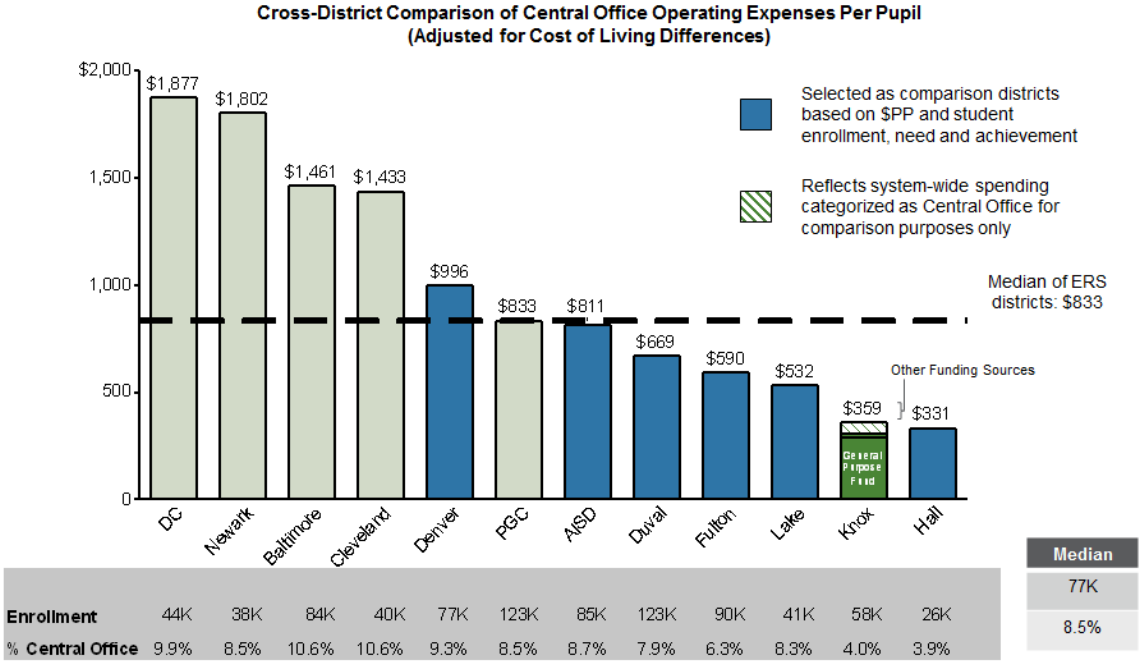
KCS spends less per pupil than many of the other districts that ERS has examined



Note: Median does not include KCS. Source: KCS 2011-12 expenditure data; ERS analysis

Overall Resource Allocation: Benchmarking Analysis

Relative to comparison districts, KCS also spends less per pupil on central office functions



Note: Central Office spending is defined as district governance and management of support services provided to schools. It includes personnel who report to work at the Central Office and non-personnel "overhead" costs that cannot be attributed to schools in any way. KCS % Central Office does not include system-wide spending. Median does not include KCS. Source: KCS 2011-12 expenditure data; ERS analysis.

5. Appendix: Parthenon Analysis – Instructional Coaching

Instructional Coaching Model

Coaching implementation is rated highly on compliance measures and moderate-to-low on quality measures; Impacts are mixed as a result

	Description	Summary
Costs of the Model	• Average cost per coach: $61K • Number of coaches in 2012-13: 95 • Total cost of the model: $5.8M • Central Office oversight: Part-time responsibility for 4 content supervisors	**$5.8M**
Fidelity of Implementation	• **Survey data indicates that implementation was largely compliant with district guidelines** – ILCs typically lasted 5-6 weeks – 60% of teachers reported meeting with their coach weekly during ILCs and 75% reported meeting with their PLC coach at least every other week • **ILC and PLC coaching was rated lower on quality measures** – Less than 30% of teachers reported that ILC coaches completed a formative assessment or created a plan for continued learning – Coaches indicate a lack of alignment between the support they provided at the TEAM/TAP observation process	
Benefits of the Model	• **The impact of coaching on teacher effectiveness is mixed** • 40% of fewer teachers indicate that the coaching support they received through ILCs or PLCs had a meaningful impact on their professional practice (rated 5 or more) • Principal perceptions of impact are similar, though slightly more positive in the case of PLCs	

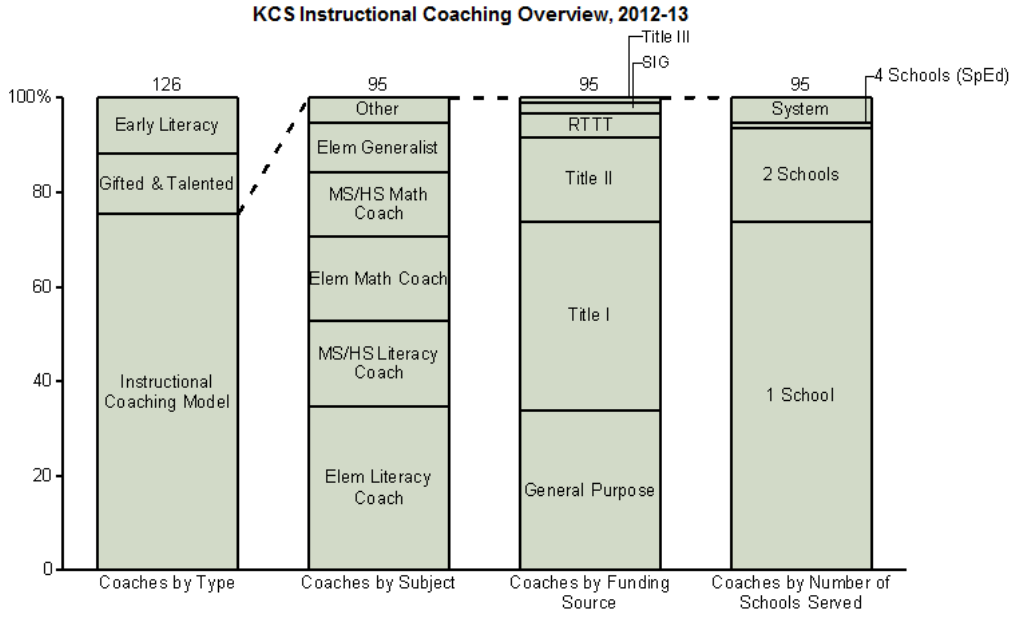
Instructional Coaching Model

Summary of Key Takeaways

- Implementation of the instructional coaching model in 2012-13 was mixed, particularly with respect to the quality of coaching support provided
- Given 2012-13 implementation, the measurable impact on teacher effectiveness is inconclusive, particularly when controlling for starting performance levels and focusing on Math and ELA scores
- Survey data does not reveal a "selection bias" of individual teachers or PLC groups identified to receive coaching support, but additional monitoring is required to determine whether coaches are working with the optimal group of teachers
- Coach survey data indicates possible ways to improve implementation of the model going forward:
  1. Create stronger linkages between coaching support and the TEAM/TAP observation process
  2. Ensure that coaches have sufficient time to dedicate to highest impact activities
  3. Train principals on supporting the coaches in their building
  4. Increase the level of support and feedback provided to coaches through the central office
  5. Increase training around working with low performing teachers and leading ILCs

Instructional Coaching Model

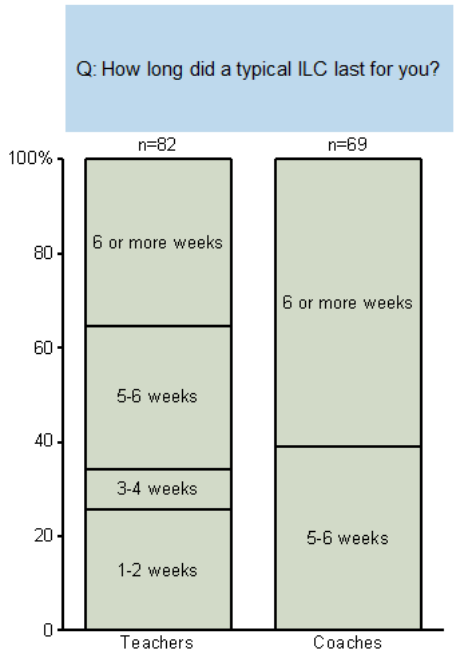
95 coaches serve schools through the district's Instructional Coaching Model, which focuses primarily on math and literacy support for teachers

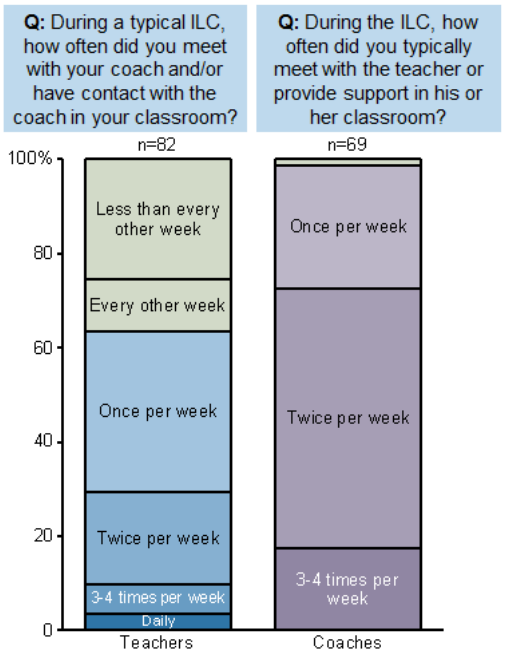


5.1 ILC Support

Instructional Coaching: ILCs

Most ILCs lasted 5-6 weeks or longer; Teachers and coaches indicate somewhat different levels of interaction during coaching cycles

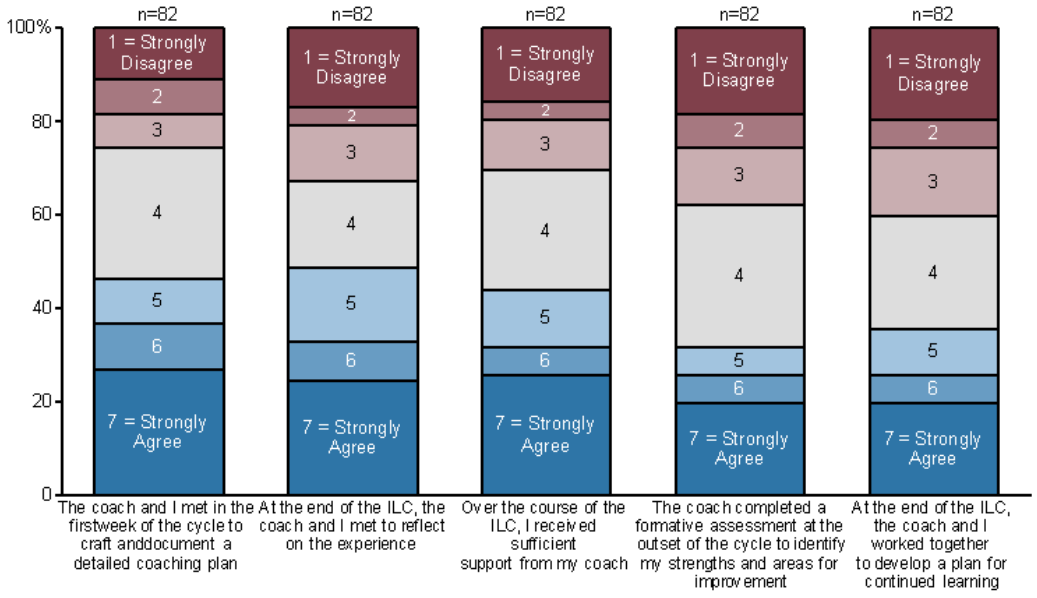




Instructional Coaching: ILCs

Teachers indicate that fidelity of implementation of ILCs was highly varied

Q: Please rate the quality of the ILC(s) you participated in across the following measures on a scale of 1-7 where 1="Strongly Disagree" and 7="Strongly Agree"

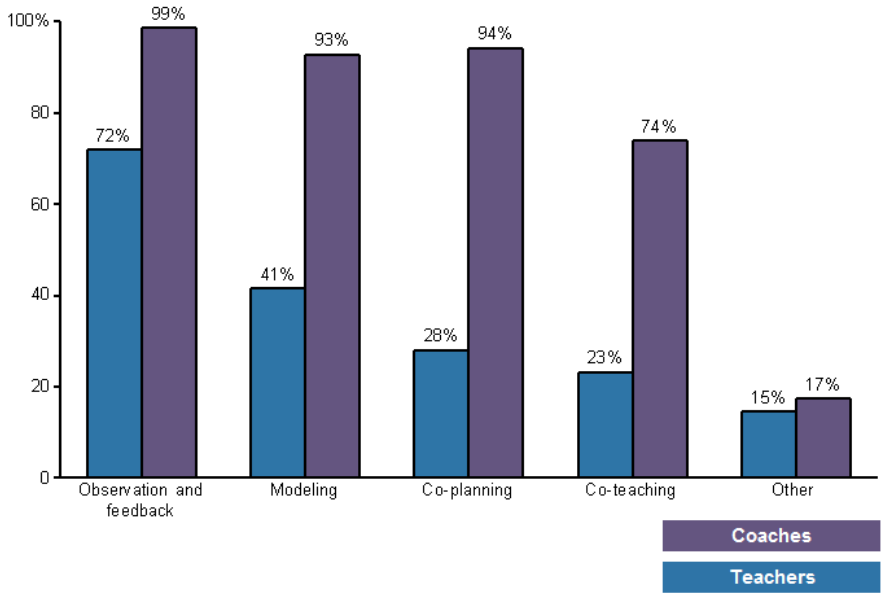


	The coach and I met in the firstweek of the cycle to craft anddocument a detailed coaching plan	At the end of the ILC, the coach and I met to reflect on the experience	Over the course of the ILC, I received sufficient support from my coach	The coach completed a formative assessment at the outset of the cycle to identify my strengths and areas for improvement	At the end of the ILC, the coach and I worked together to develop a plan for continued learning
Percent of Respondents Answering 6-7	37%	33%	32%	26%	26%

Instructional Coaching: ILCs

Compared to teacher responses, coaches indicate using a wider variety of strategies during ILCs

Q: Which of the following strategies did you use to guide learning throughout the ILC? Please check all that apply.

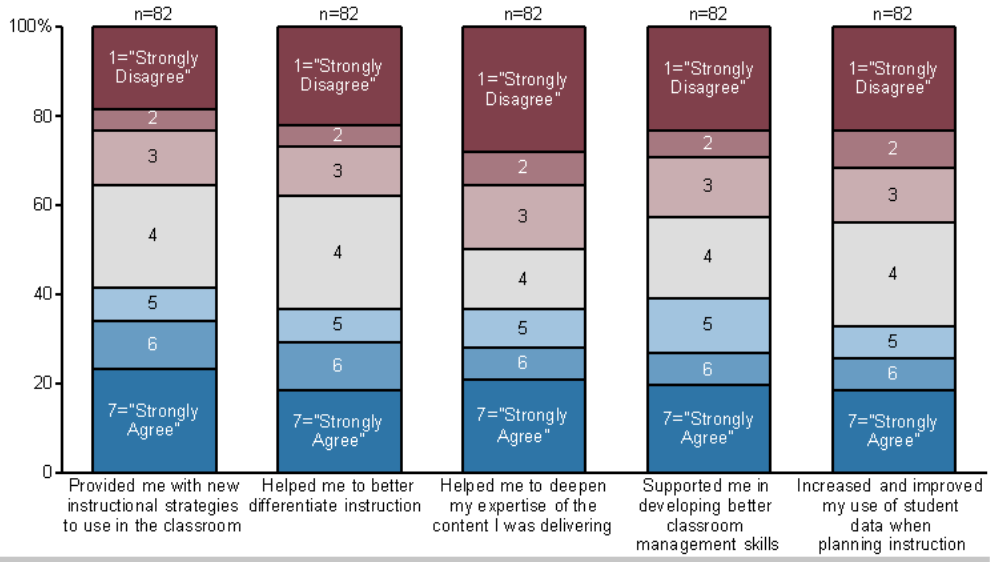


Source: Parthenon/KCS Survey, Fall 2013; n = 82 teachers

Instructional Coaching: ILCs

~40% of teachers indicate that ILCs had a meaningful impact on their teaching practice across multiple competencies; ~20% did not perceive any impact

Q: Please rate the following statements on a scale of 1-7 on the following measures where 1="Strongly Disagree" and 7="Strongly Agree". The ILC(s) that I participated in:

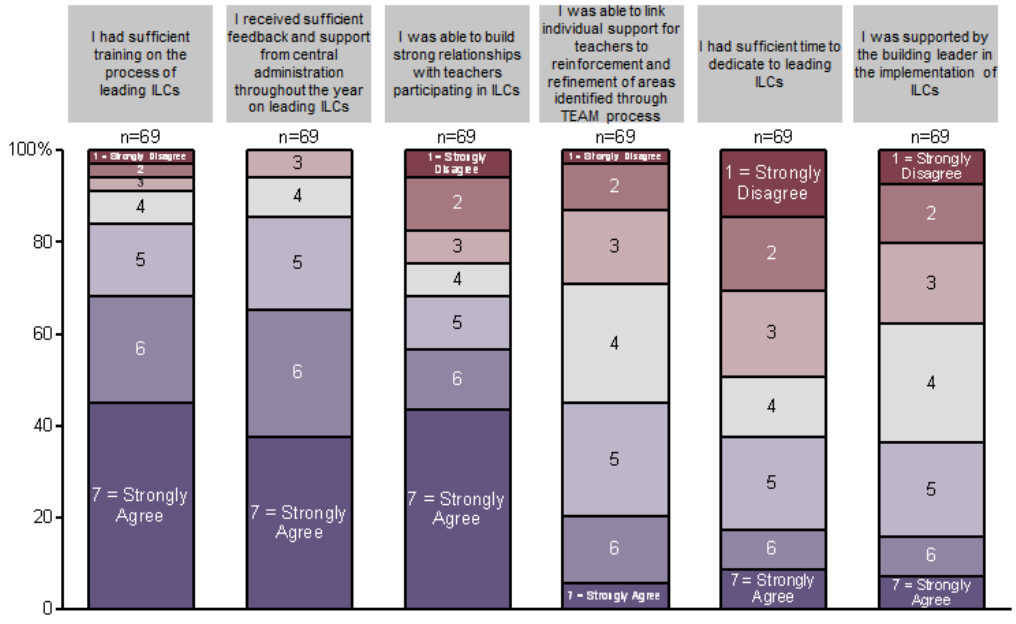


	Provided me with new instructional strategies to use in the classroom	Helped me to better differentiate instruction	Helped me to deepen my expertise of the content I was delivering	Supported me in developing better classroom management skills	Increased and improved my use of student data when planning instruction
Percent of Respondents 6-7	34%	29%	28%	27%	26%

Instructional Coaching: ILCs

Coaches indicate lack of alignment between ILC support and the observation process, as well as a lack of time to dedicate to leading ILCs

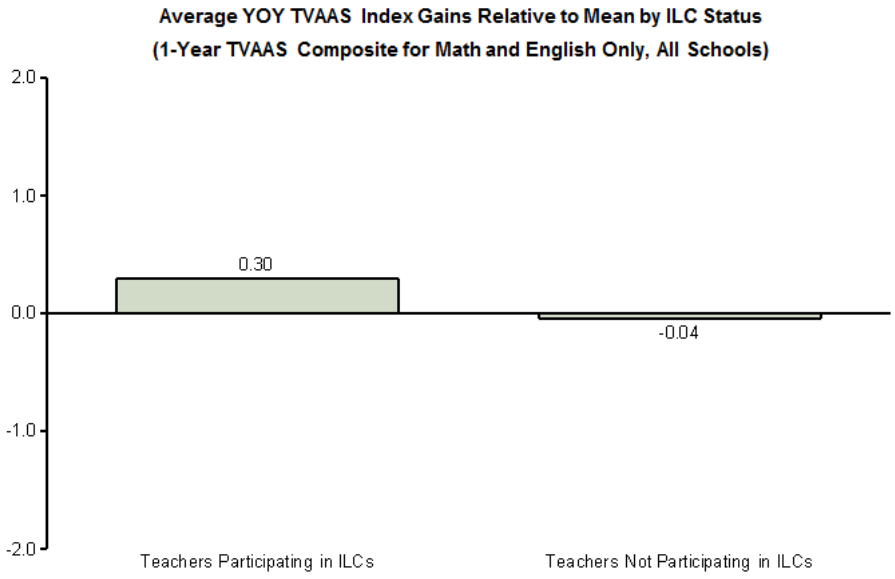
Q: Please rate on a scale of 1-7 where 1="Strongly Disagree" and 7="Strongly Agree":



	I had sufficient training on the process of leading ILCs	I received sufficient feedback and support from central administration throughout the year on leading ILCs	I was able to build strong relationships with teachers participating in ILCs	I was able to link individual support for teachers to reinforcement and refinement of areas identified through TEAM process	I had sufficient time to dedicate to leading ILCs	I was supported by the building leader in the implementation of ILCs
Percent of Respondents 6-7	68%	65%	57%	20%	17%	16%

Instructional Coaching Model

In aggregate, teachers participating in ILCs exhibit greater TVAAS index gains than teachers not participating in ILCs

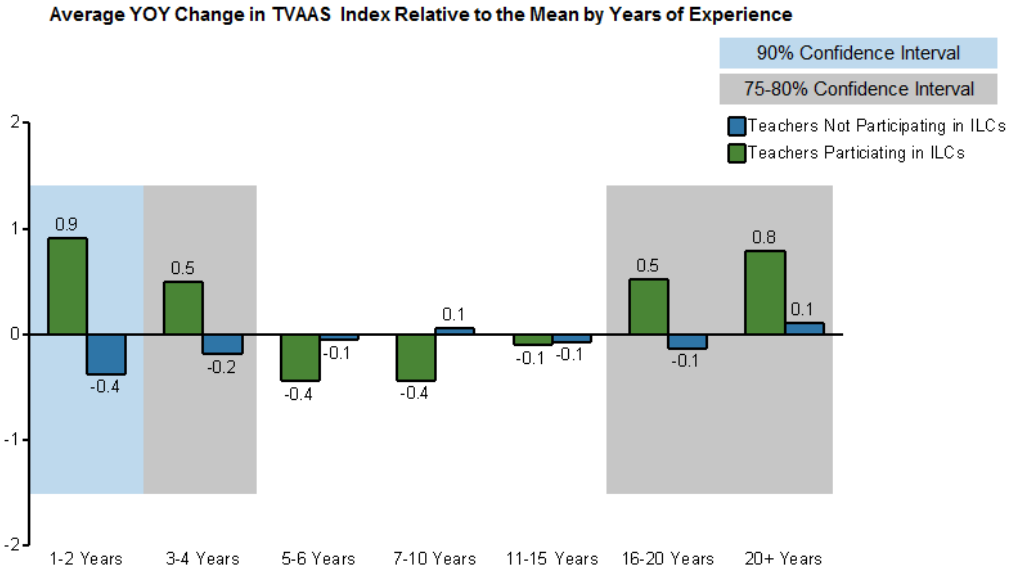


Number of Teachers	104	703

Confidence Interval: 85%. 142 level 1 and level 2 teachers, 62 received of those received coaching.

Instructional Coaching Model

The impact of participating in an ILC varies by years of experience, with the greatest impact occurring for teachers in their first 3 years

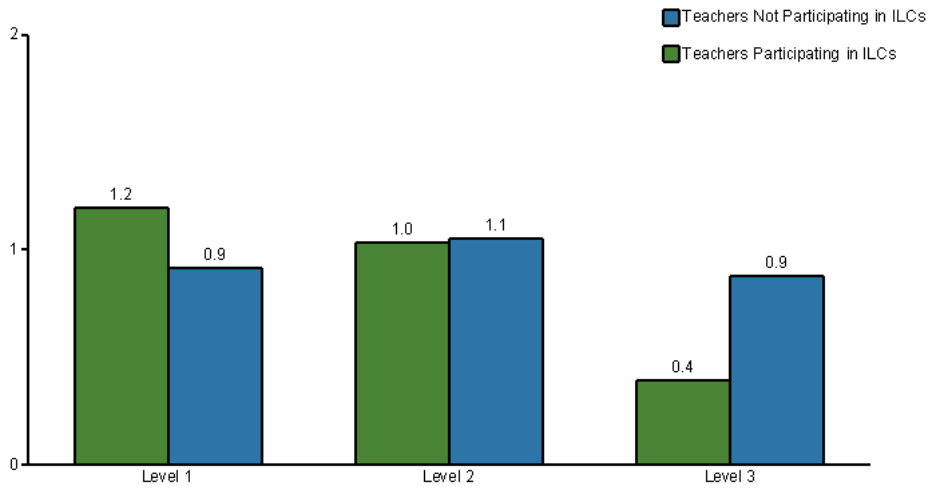


# of Teachers in ILCs	17	16	10	14	14	17	15
# of Teachers Not in ILCs	43	92	96	132	117	72	144

Instructional Coaching Model

Level 1 teachers participating in ILCs exhibit stronger gains than those not participating in ILCs

Average YOY TVAAS Index Gains Relative to the Mean by 2011-12 Performance Level (1-Year TVAAS All Subjects)



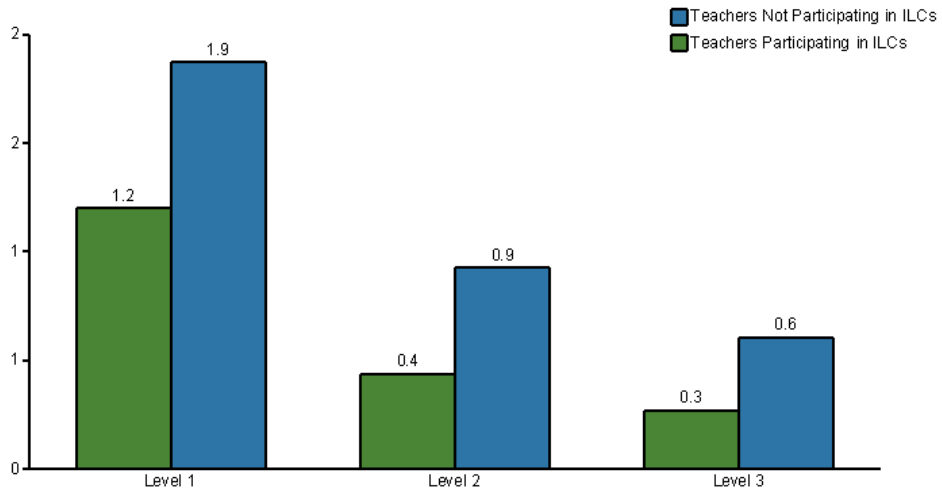
	Level 1	Level 2	Level 3
# of Teachers Participating in ILCs	43	19	40
# of Teachers Not Participating in ILCs	38	42	189

Differences in gains for teachers participating in ILCs vs. teachers not participating in ILCs are not statistically significant

Instructional Coaching Model

Controlling for starting performance level, teachers not participating in ILCs exhibit stronger effectiveness gains in Math and ELA

Average YOY TVAAS Index Gains Relative to the Mean by 2011-12 Performance Level (Math and English)



	Level 1	Level 2	Level 3
# of Teachers Participating in ILCs	27	16	36
# of Teachers Not Participating in ILCs	24	31	155

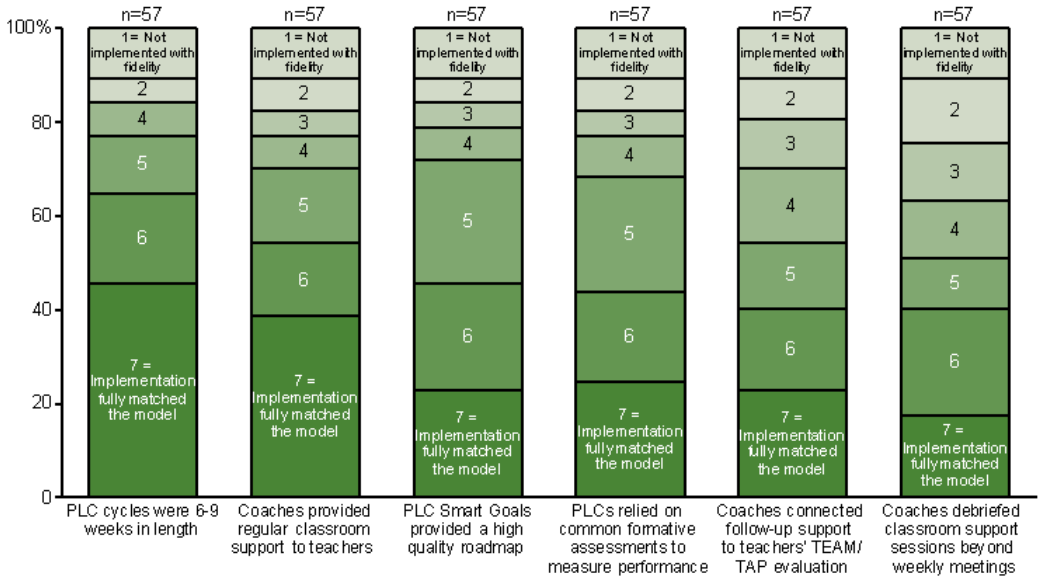
Differences in gains for teachers participating in ILCs vs. teachers not participating in ILCs are not statistically significant

5.2 PLC Support

Instructional Coaching: PLCs

Principals indicate that coach-led PLC cycles were implemented with varied quality

Q (Principals): Please rate the implementation of PLC cycles in your building last year on each of the following elements. Rate each element on a scale of 1-7 where 1="Not implemented with fidelity" and 7="Implementation fully matched the model"

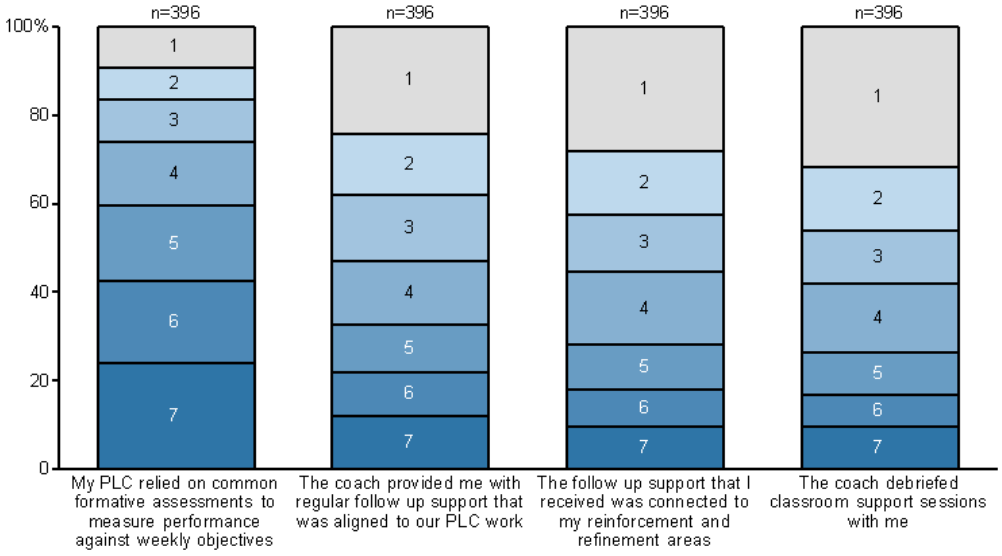


	PLC cycles were 6-9 weeks in length	Coaches provided regular classroom support to teachers	PLC Smart Goals provided a high quality roadmap	PLCs relied on common formative assessments to measure performance	Coaches connected follow-up support to teachers' TEAM/ TAP evaluation	Coaches debriefed classroom support sessions beyond weekly meetings
Percent of Respondents 6-7	65%	54%	46%	44%	40%	40%

Instructional Coaching: PLCs

Teachers largely indicate that their coach-led PLC relied on common formative assessments, however many did not receive consistent follow up support

Q (Teachers): Please rate the following statements for a typical PLC cycle on a scale of 1-7 where 1="Strongly Disagree" and 7="Strongly Agree"

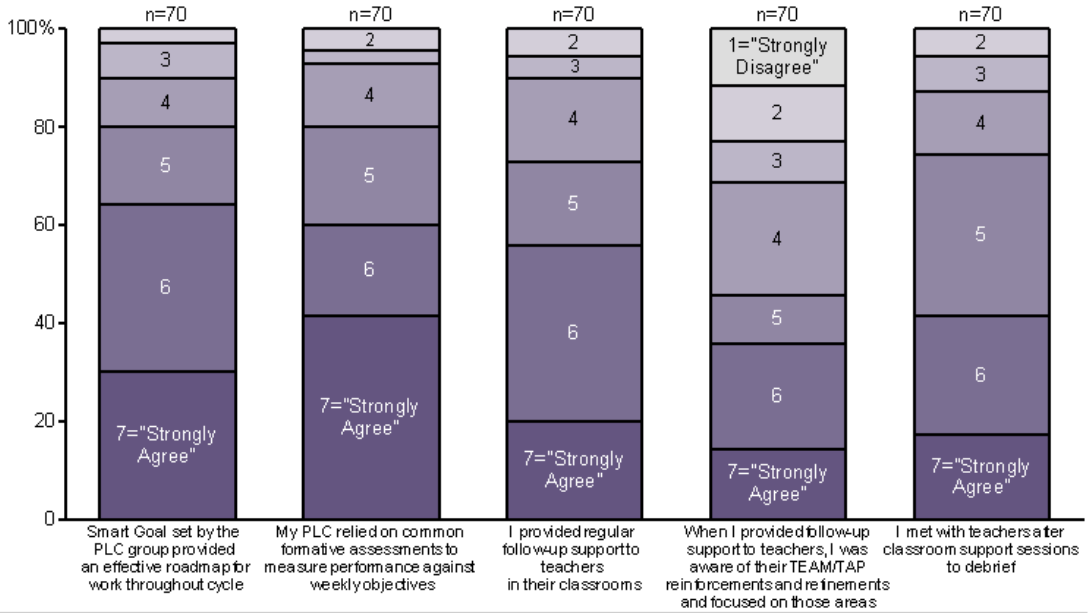


	My PLC relied on common formative assessments to measure performance against weekly objectives	The coach provided me with regular follow up support that was aligned to our PLC work	The follow up support that I received was connected to my reinforcement and refinement areas	The coach debriefed classroom support sessions with me
Percent of Respondents 6-7	42%	22%	18%	17%

Instructional Coaching: PLCs

Coaches indicate a lack of alignment between the follow up support they provided to teachers and the TEAM/TAP observation process

Q (Coaches): Please rate the following statements for a typical PLC cycle on a scale of 1-7 where 1="Strongly Disagree" and 7="Strongly Agree"

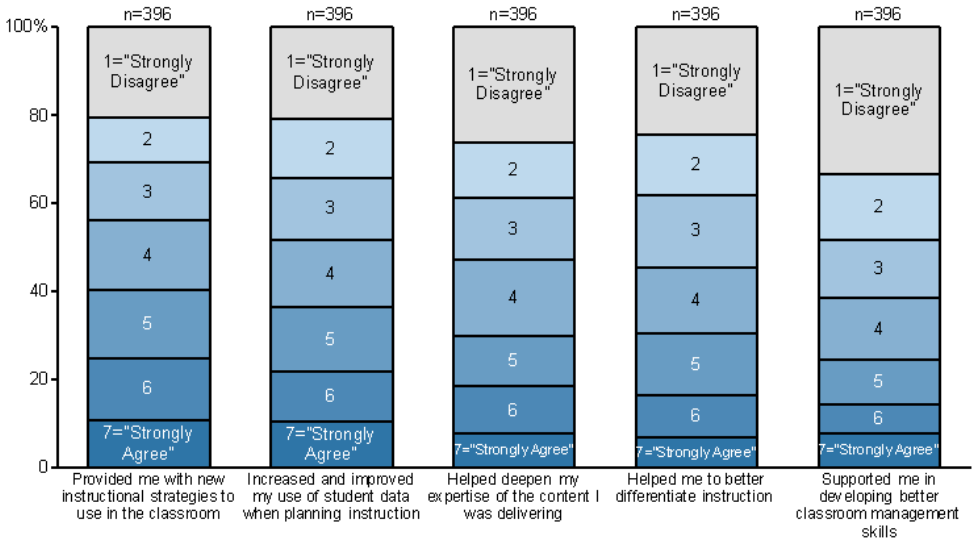


	Smart Goal set by the PLC group provided an effective roadmap for work throughout cycle	My PLC relied on common formative assessments to measure performance against weekly objectives	I provided regular follow-up support to teachers in their classrooms	When I provided follow-up support to teachers, I was aware of their TEAM/TAP reinforcements and refinements and focused on those areas	I met with teachers after classroom support sessions to debrief
Percent of Respondents 6-7	64%	60%	56%	36%	41%

Instructional Coaching: PLCs

40% or fewer teachers indicate that their coach-led PLC cycle had a meaningful impact on their professional practice

Q (Teachers): In your opinion, please rate the PLC on the following measures on a scale of 1-7 where 1="Strongly Disagree" and 7="Strongly Agree". The coach-led PLC cycle(s) that I participated in:

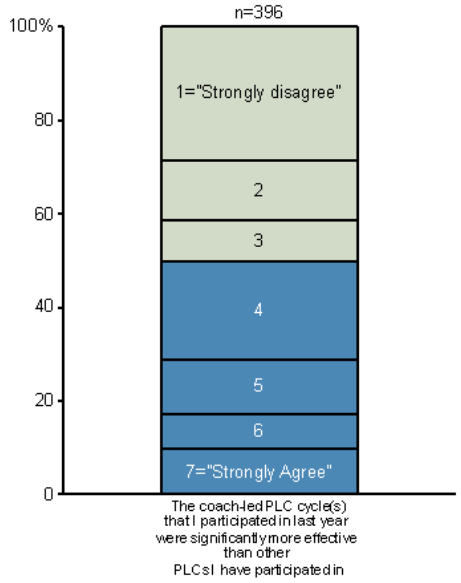


	Provided me with new instructional strategies to use in the classroom	Increased and improved my use of student data when planning instruction	Helped deepen my expertise of the content I was delivering	Helped me to better differentiate instruction	Supported me in developing better classroom management skills
Percent of Respondents 6-7	25%	22%	18%	16%	14%

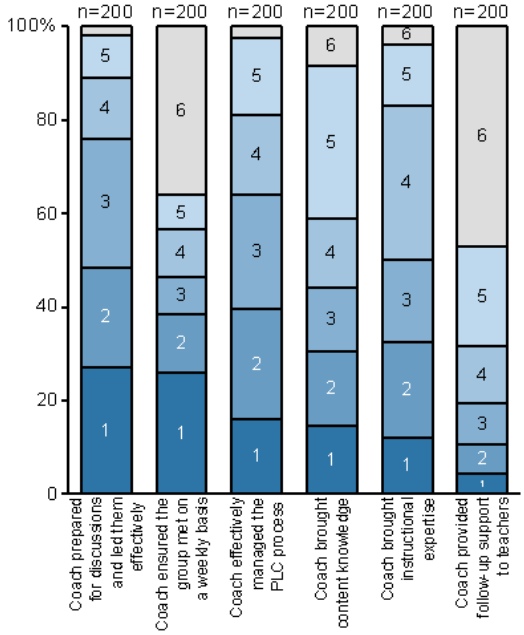
Instructional Coaching: PLCs

~50% of teaches indicated that their coach-led PLC cycle was more effective than others they have participated in for a variety of reasons

Q: In your opinion, please rate the following statements on a scale of 1-7 where 1="Strongly Disagree" and 7="Strongly Agree"



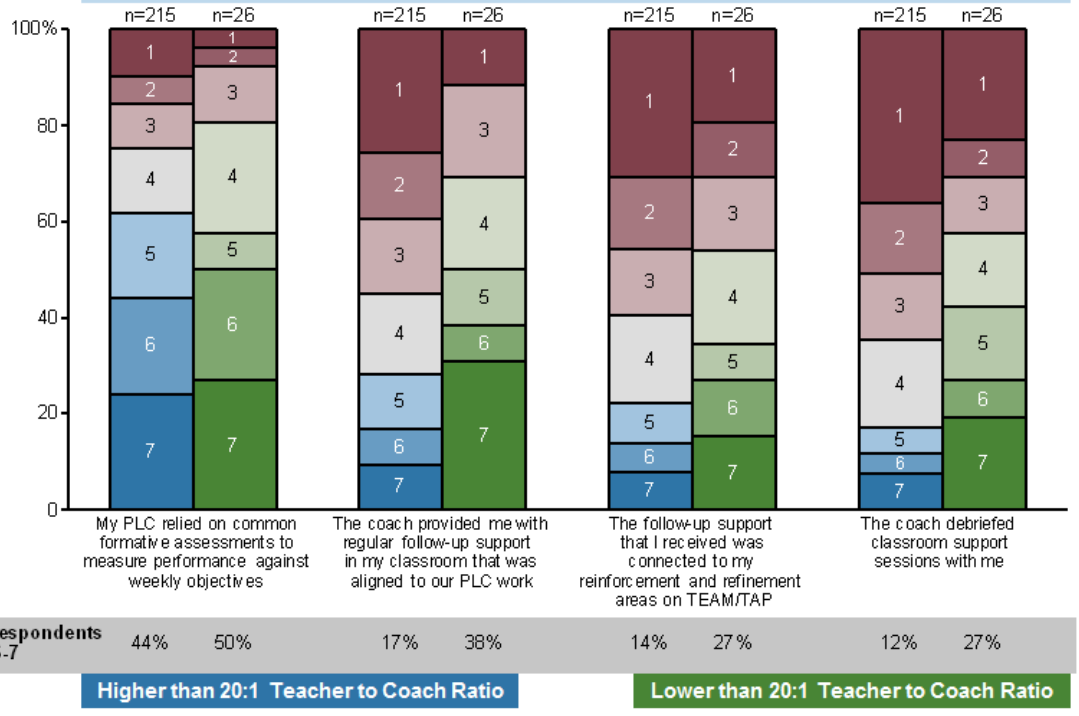
Q: What made the coach-led PLC more effective than other PLC experiences you have had? Please rank these features in order of more important to least important.



Instructional Coaching Model: PLCs

At schools with a strong coach to teacher ratio, teachers reported higher quality follow-up from coaches outside of PLC meetings

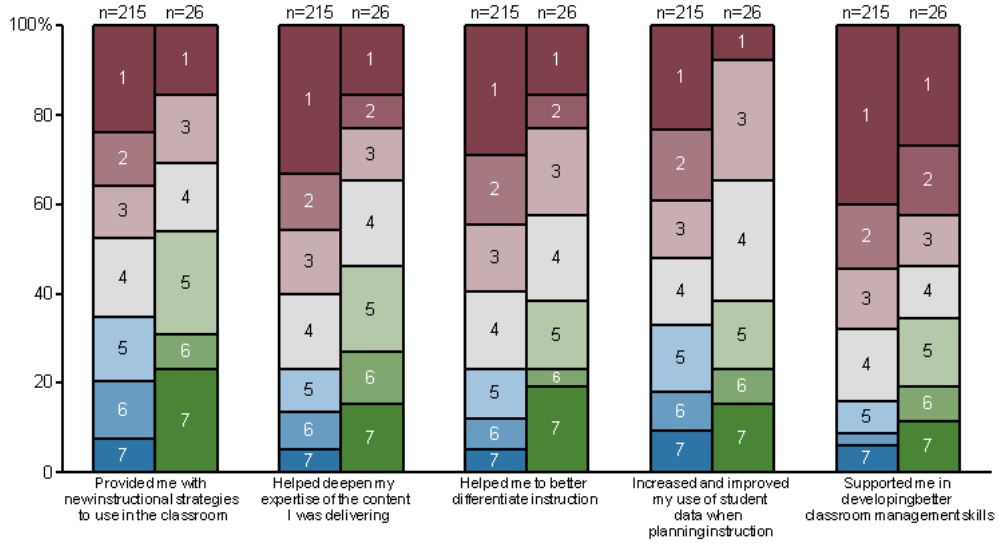
Q (Teachers): Please rate the following statements for a typical PLC cycle on a scale of 1-7 where 1="Strongly Disagree" and 7="Strongly Agree"



Instructional Coaching Model: PLCs

Teachers at schools with strong coaching ratios also report a greater impact of coach-led PLC cycles on their professional practice

Q (Teachers): In your opinion, please rate the PLC on the following measures on a scale of 1-7 where 1="Strongly Disagree" and 7="Strongly Agree". The coach-led PLC cycle(s) that I participated in:



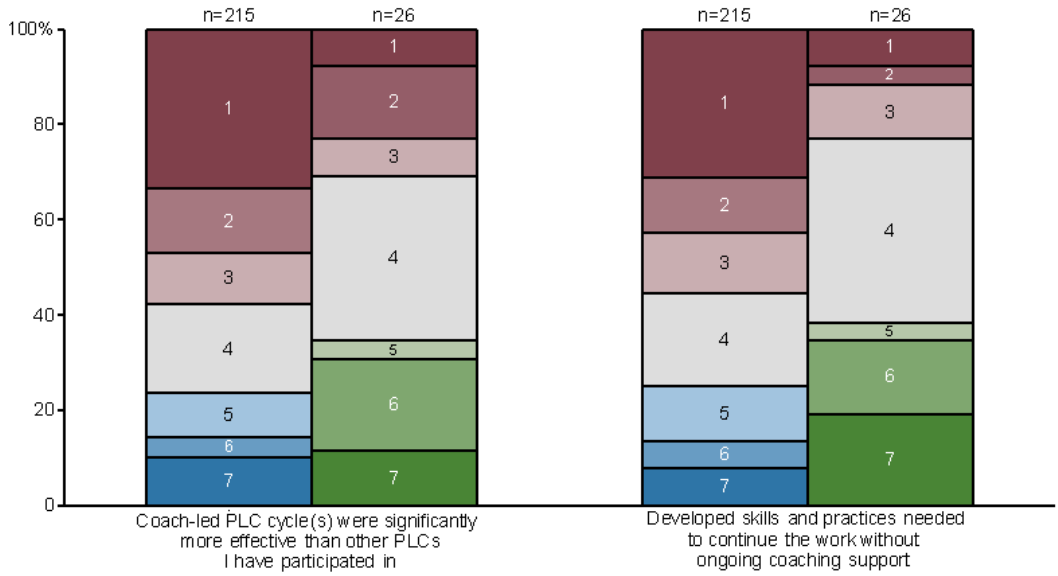
Percent of Respondents Answering 6-7	20%	31%	13%	27%	12%	23%	18%	23%	9%	19%

Higher than 20:1 Teacher to Coach Ratio | Lower than 20:1 Teacher to Coach Ratio

Instructional Coaching Model: PLCs

At schools with strong support ratios, teachers rated overall effectiveness of coach-led PLCs high and reported that there was a focus on capacity building

Q (Teachers): In your opinion, please rate the PLC on the following measures on a scale of 1-7 where 1="Strongly Disagree" and 7="Strongly Agree". The coach-led PLC cycle(s) that I participated in:



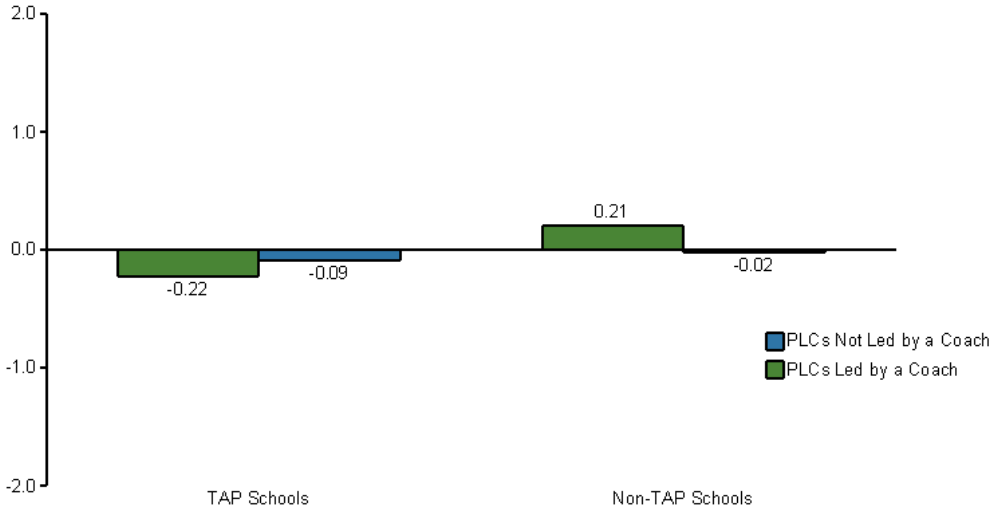
Percent of Respondents Answering 6-7	14%	31%	13%	35%

Higher than 20:1 Teacher to Coach Ratio | Lower than 20:1 Teacher to Coach Ratio

Instructional Coaching Model

In non-TAP schools, PLCs led by a coach exhibited greater TVAAS index gains than PLCs not let by a coach, but the difference is not statistically significant

Average YOY TVAAS Index Gains Relative to Mean by Status of Participating in a Coach-Led PLC
(1-Year Grade and Subject Level TVAAS, TAP vs. Non-TAP Schools)

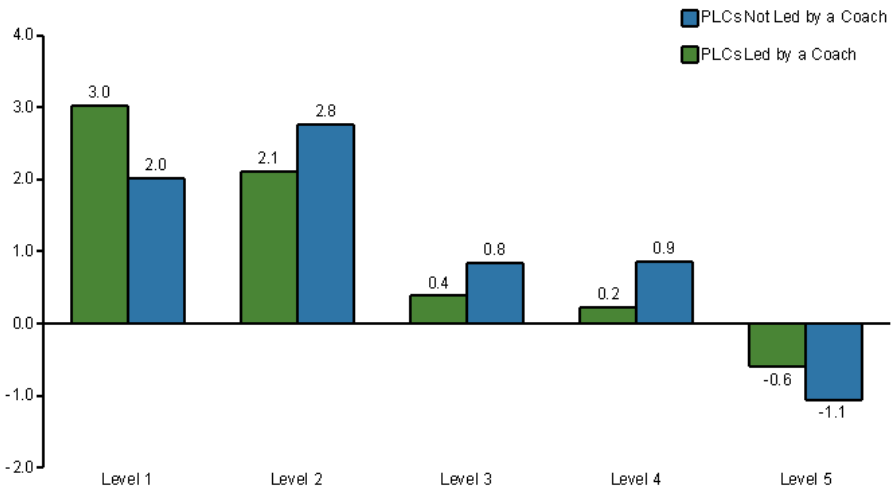


PLCs Led by a Coach	61	121
PLCs Not Led by a Coach	79	283

Instructional Coaching Model

Controlling for starting performance level, coaching support appears to have the greatest impact on Level 1 PLC groups, though the result is not significant

Average YOY TVAAS Index Gains Relative to the Mean by 2011-12 Performance Level
(Non-TAP Schools Only)



PLCs Led by a Coach	14	4	26	15	62
PLCs Not Led by a Coach	17	20	55	35	156

Differences in gains for PLCs led by a coach vs. PLCs not led by a coach are not statistically significant

Note: Analysis excludes high school PLCs due to incomplete data mapping coaches to particular subject areas

6. Appendix: PLC SMART Goal Examples

The following table includes SMART goals from the 2012-2013 school year.

Cycle	Group #	Grade	Subject	Smart Goal	Assessment	Expected Outcome	Actual outcome	Smart Goal Achieved?
PLC Cycle 4	3	1st	Reading/English /Language Arts	80% of all 1st graders will be able to write an informative/explanatory response to text in which they name a topic, supply some facts about a topic, and provide some sense of closure. It will be assessed using a 4 point rubric, and the assessment will take place on or before March 8, 2013.	The 4 point rubric that is the standard for Knox County will be the criteria used for assessment	This expected outcome would be 80% of all 1st graders would score a 2 or higher on the rubric. This would indicate that these students would have a topic, detais, and a concluding sentence in their response	Out of the 194 students tested, 156 of these scored a 2 or higher on the rubric. (38 scored a 1, 63 scored a 2, 71 scored a 3, and 22 scored a 4) 80.4 of all 1st graders scored a 2 or higher.	Yes
PLC Cycle 4	1	3rd	Reading/English /Language Arts	Selected students will score a 7/10 on a common ending assessment, demonstrating mastery in targeted language skills.	Teacher created common assessments in language.	Selected students will score 3/5 correct on the end assessment demonstrating growth in language skills.	Based on the data gathered from a Discovery Ed probe on parts of speech and grammar usage, we did not achieve our goal of having 80% of the selected students score a 7/10 on an assessment of these targeted skills. Our averaged percentage was 75%. However, we did see growth in our students being able to distinguish nouns, verbs, adjectives, and adverbs. We also saw growth in correct grammar usage.	No
PLC Cycle 4	2	1st	Math/Algebra	65% of students will solve a math task using a picture or diagram, equation and written explanation using a rubric showing all 3 components by May 16, 2013.	Weekly teacher created TASK will be used as formative assessments.	65% or more students will be able to solve a Math Task using a picture or diagram, equation and written explanation.	71 % of students met the goal of solving a Math Task using a diagram or picture, equation and written explantion.	Yes
PLC Cycle 4	1	3rd	Math/Algebra	The Smart Goal for this PLC Cycle focuses on Math at 3rd grade. We will increase the number of students proficient on the TCAP Math test from 50% to 54% during the fourth PLC cycle.	The assessment that will be used to measure the Smart Goal progress is the TCAP Math test.	We fully expect to see an increase of students proficient or advanced by 4%.	The test analyzed was TCAP Math. The percentage of students proficient/advanced was 47.6%.	No

7. Appendix: Parthenon Analysis – Lead Teachers and TEAM Evaluation

TEAM Evaluation System

TEAM implementation in its second year was mixed, but there is some evidence that where it was done well teachers made greater TVAAS gains

	Description	Summary
Costs of the Model	• Lead Teacher stipends: $565K	**$565KM**
Fidelity of Implementation	• KCS schools are overall compliant with state and district guidelines for conducting the observation process • Rater reliability tends to be low, and over 50% of schools have 10% or more high outliers as defined by the TDOE • Teacher survey data indicates that the quality of feedback provided to teachers is mixed • Lead Teachers are perceived to be somewhat less effective in conducting the observation process despite efforts to support principals • Survey data also indicates that prioritization of the observation process by principals varies by school	
Benefits of the Model	• There is a small, measurable relationship between schools that are implementing TEAM with greater fidelity and the TVAAS index gains demonstrated by teachers at those schools • Principal survey data indicates that the observation rubric and process is a valuable tool for impacting teacher effectiveness • However, teacher survey data indicates that only 20% of teachers feel the observation process has a meaningful impact on their professional growth	

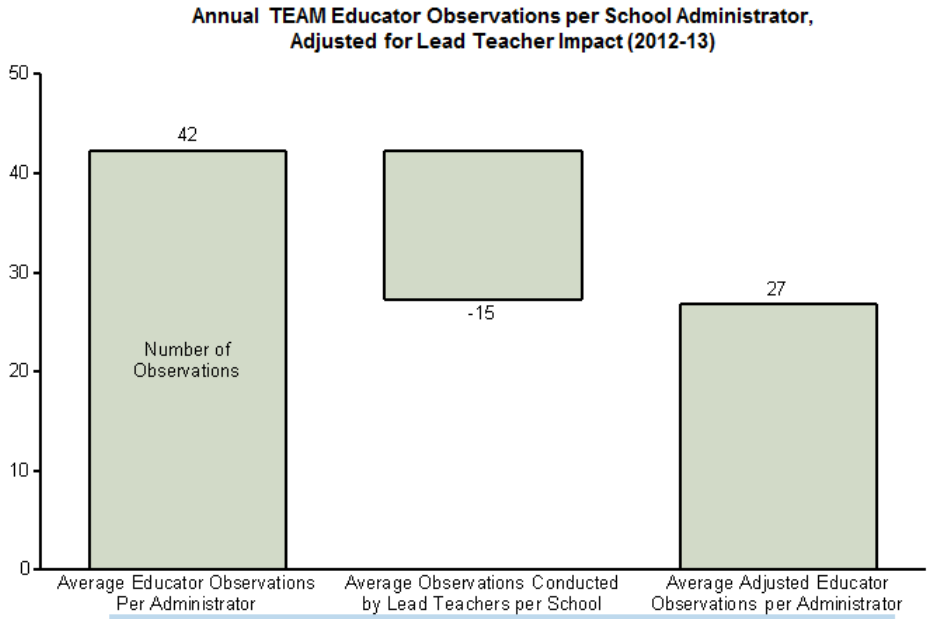
TEAM Evaluation System

Summary of Key Takeaways

- Implementation of the observation process varies across the district in terms of inter-rater reliability and quality of feedback
- There is early evidence that at schools where implementation is strongest, teachers exhibit greater TVAAS gains
- There is a notable discrepancy between principal and teacher perceptions of the observation rubric and process, which may account for some of the implementation challenges indicated
- Improving implementation will likely require increased prioritization on the part of principals and increased support from the district

TEAM Evaluation System

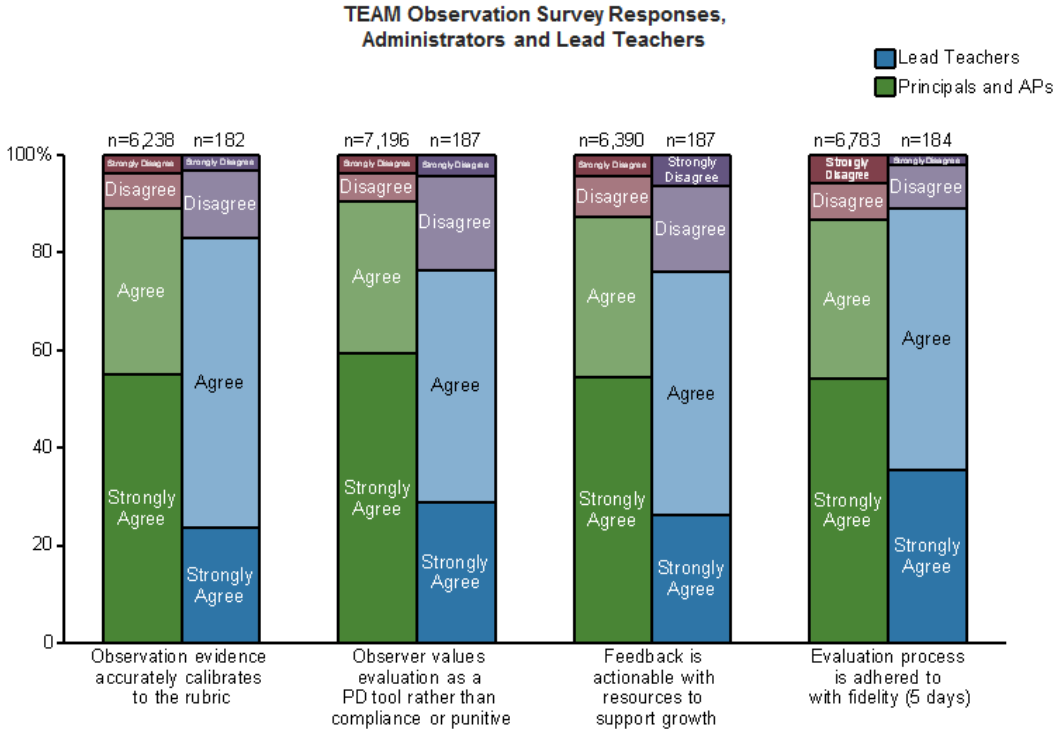
On average, Lead Teachers reduce the number of annual observations per school administrator from 42 to 27, for a total cost of ~$565K



In 2012-13 KCS funded 226 Lead Teacher positions with a $2500 stipend, for a total cost of $565K

TEAM Evaluation System

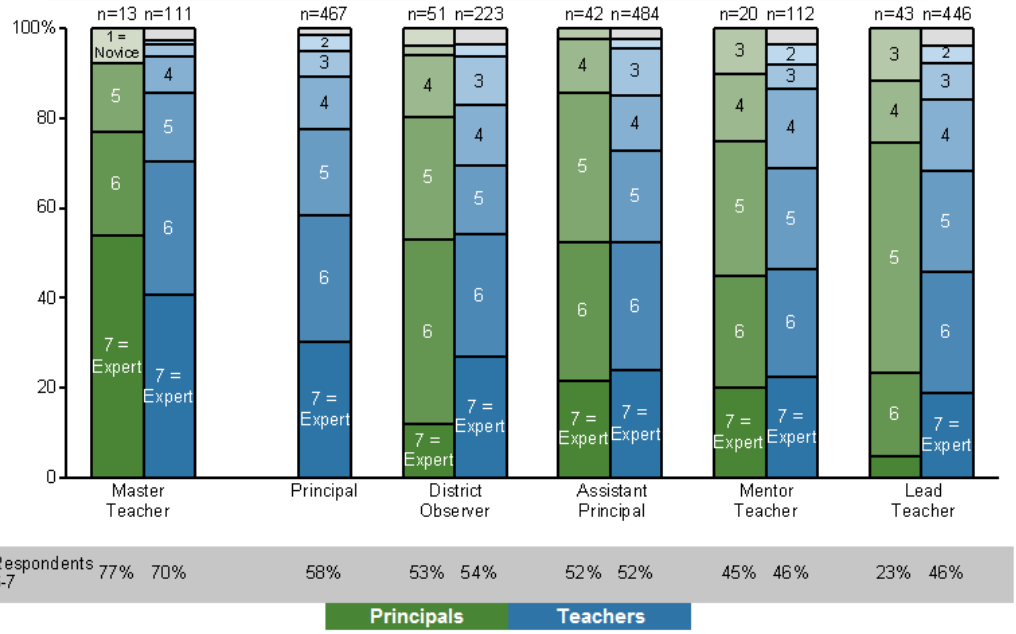
Teachers perceive a higher degree of implementation fidelity when the observation process is conducted by a school administrator



TEAM Evaluation System

Principals and teachers are generally aligned in their assessment of observer expertise, and rate Master Teachers and District Observers highest

Q: On a scale of 1-7, please rate each observer group according to the quality of feedback they provided to teachers in your building last year where 1="Novice" and 7="Expert"

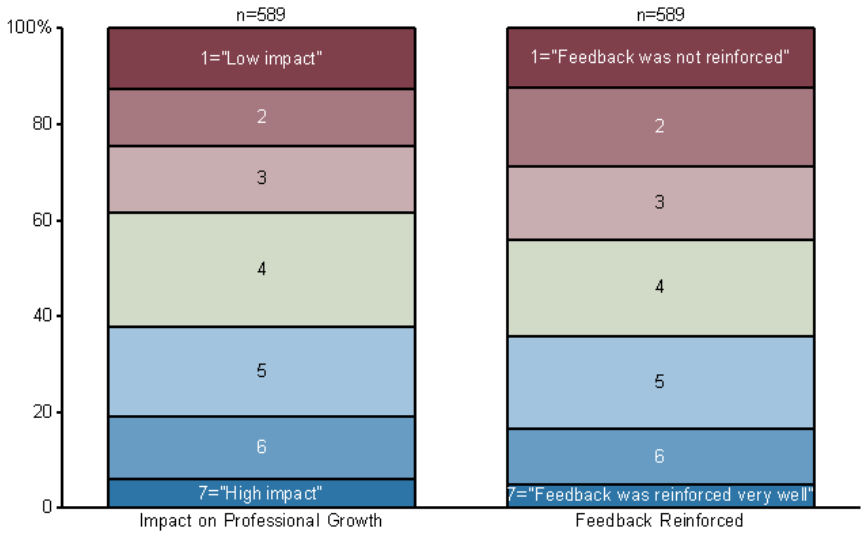


TEAM Evaluation System

Teachers indicate that the impact of the observation process on professional growth ranges widely, as does the degree to which feedback is reinforced

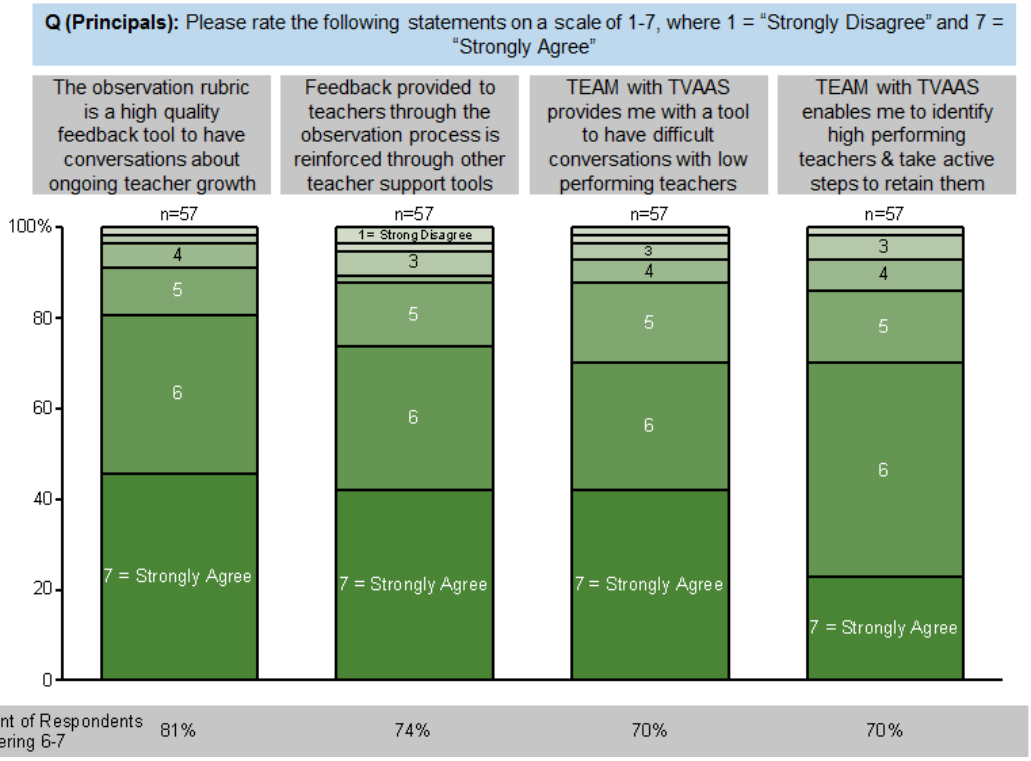
Q (Teachers) : Please rate the impact of the observation process on your professional growth last year on a scale of 1-7, where 1="Low impact" and 7="High impact"

Q (Teachers): Was that feedback you received reinforced by the support/professional development that you received through other channels?



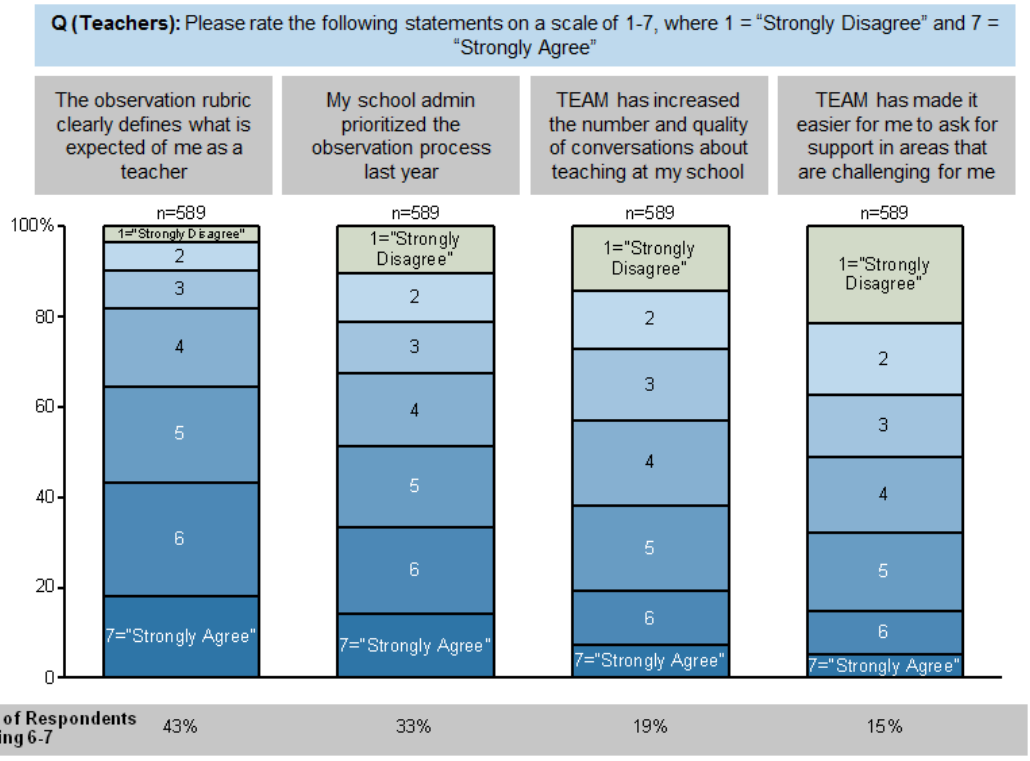
TEAM Evaluation System

Principals are overall satisfied with the observation rubric and feel it provides them with the tools they need to improve teacher effectiveness



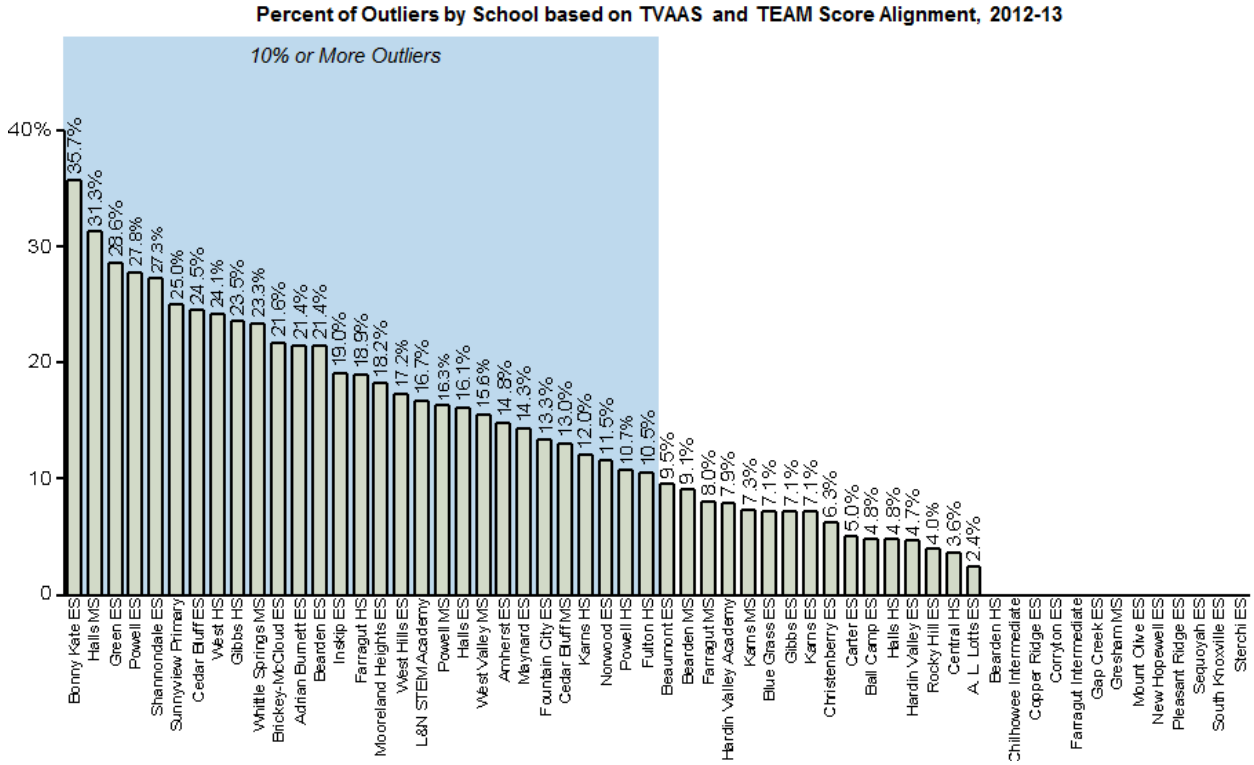
TEAM Evaluation System

Teachers generally find less value in the observation rubric and process, with only 43% indicating that it sets clear expectations for high performance



TEAM Evaluation System

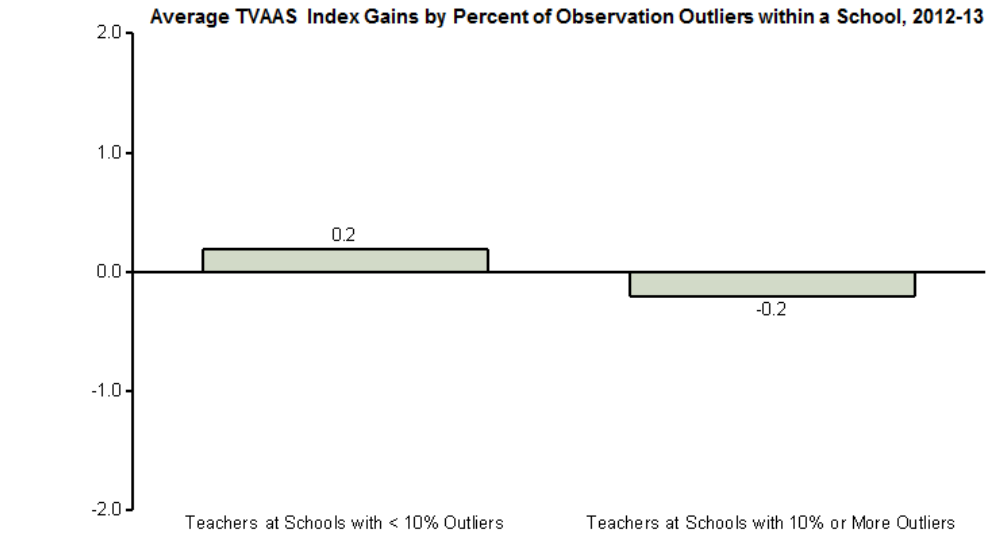
Percent of observation scores considered outliers varies by school, with over half of schools having 10% or more



Note: Outlier observations are defined as those 2 or more points higher than TVAAS levels, using 2012-13 average observation scores and 2012-13 3 year average TVAAS (non-TAP schools); Source: KCS TEAM observation data (2012-13)

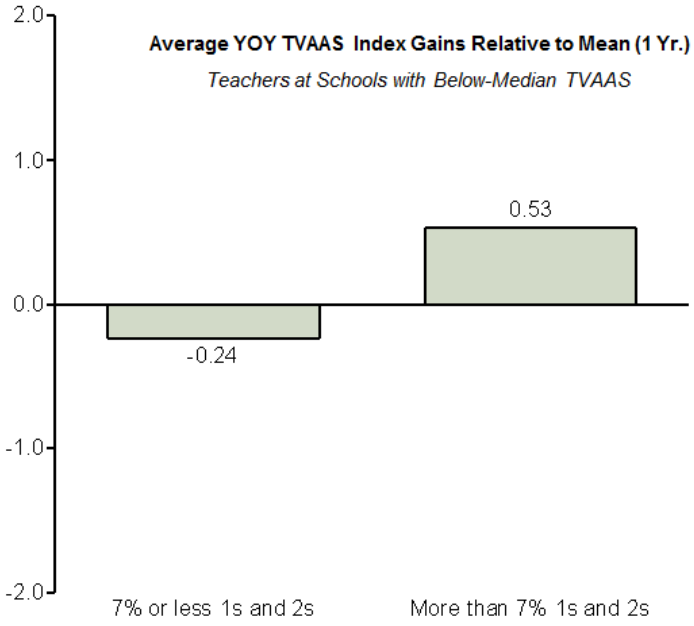
TEAM Evaluation System

Teachers at schools with 10% or more observation outliers underperform those at schools with fewer outliers, starting from a similar base



TEAM Evaluation System

At schools with 2012 TVAAS below the district median, a higher percentage of *indicators* rated 1s and 2s is related to greater teacher effectiveness gains



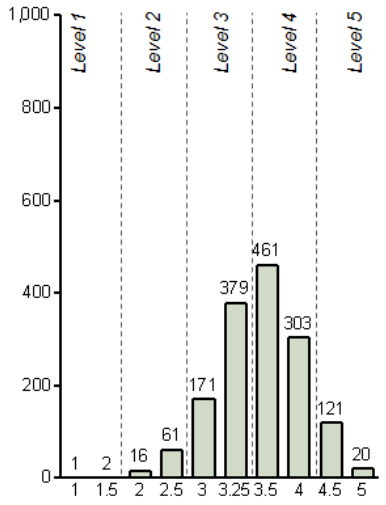
Number of Teachers	123	57

Confidence Interval = 97%

TEAM Evaluation System

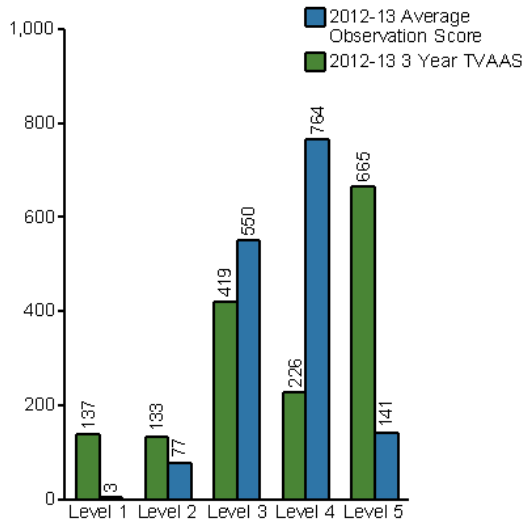
Observation scores in KCS are fairly normally distributed, but TVAAS and TEAM scores are not well aligned, particularly at Level 1 and Level 5

Distribution of TEAM Observation Scores, 2012-13



TEAM: % of Teachers	0%	0%	1%	4%	11%	25%	30%	20%	8%	1%

Distribution of TVAAS Scores vs. TEAM Observation Scores, 2012-13



TEAM: % of Teachers	0%	5%	36%	50%	9%
TVAAS: % of Teachers	9%	8%	27%	14%	42%

8. Appendix: Parthenon Analysis – TAP Model

TAP Model
Summary of Key Takeaways

- Analysis of TAP school performance relative to a comparison set indicates that implementation of the TAP model has had a positive impact on student growth
- Among TAP schools, there is not a strong relationship between implementation metrics and school performance
- Principals and teachers indicate that the most important aspects of the TAP model are:
    1. High quality evaluation feedback provided to teachers
    2. Individualized teacher support provided by Master and Mentor teachers
    3. Team-based support provided through Clusters

TAP Model
Teacher commentary helps to provide insight into mixed ratings of the impact of TAP on student learning and teacher effectiveness

Q (Teachers): Please describe the aspects of TAP that have had the biggest impact at your school:

Positive Commentary from Teachers

- *The **school wide strategy** keeps everyone focused on a data based goal. **Evaluations and feedback** also provide me with valued information to shape my teaching.*
- ***Collaboration and Professional development based on OUR kids at OUR school and OUR needs;** Opportunities to support teachers at THEIR level of expertise; research based and field tested strategies; a unified TLT that helps make decisions for the entire building based on need.*
- *One on one support for the teachers has been the number one aspect in terms of student growth. **Teachers are growing because of the mentoring/coaching that happens.***
- *The **collaboration among teachers in my grade level** and department has been essential to increasing my value added test scores. The TAP rubric has helped me to include aspects in my lesson the improve the quality and the student performance as well.*

Critical Commentary from Teachers

- ***We have less time for actual class planning because of all the meetings dealing with TAP**. We have more observations that are subjective and thus are not impartial. We have a "checklist" to teach from instead of actually getting to really teach.*
- *TAP has provided me with the rubric that I know the evaluators are looking for. **This helps me become a better teacher on paper, but does not seem to have a significant impact on students' understanding of the curriculum.***
- *The student strategy had the biggest NEGATIVE impact. **We would often have to devote 60-75% of a class period just to do the strategy that had no obvious affect on student testing.** In fact our scores have dropped thanks in part to spending so much time worried about TAP (evaluations and strategies) and not being able to plan effective lessons.*
- *TAP has created **more stress and extra unrelated work.***

TAP Model

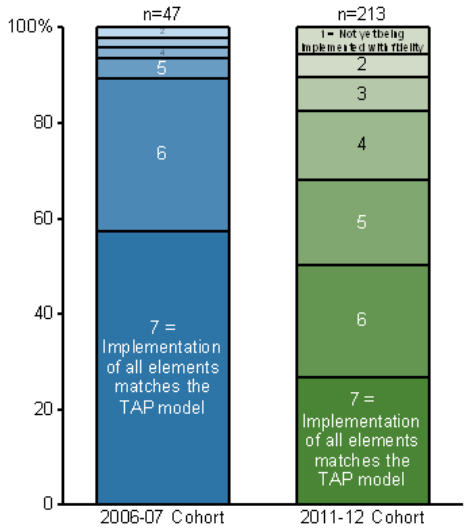
Teachers at schools that adopted TAP in 2006-07 feel more strongly that it has been implemented with fidelity than teachers at schools in the 2011-12 cohort

Q: The TAP model relies on four key elements of success:

- **Multiple career pathways** that allow good teachers to advance professionally without having to leave the classroom and create expert teacher leaders within schools to provide support to other teachers
- **Ongoing professional growth** that is job-embedded, collaborative, student centered and led by expert instructor
- **Instructional focused accountability** based on multiple measures of teacher effectiveness
- **Performance based compensation** that rewards teachers based on new roles and responsibilities, their accomplishments in the classroom and the performance of their students

Please rate the level of TAP implementation at your school to date on a scale of 1-7 where 1 = "Not yet being implemented with fidelity" and 7 = "Implementation of all elements matches the TAP model"

Level of TAP Implementation:

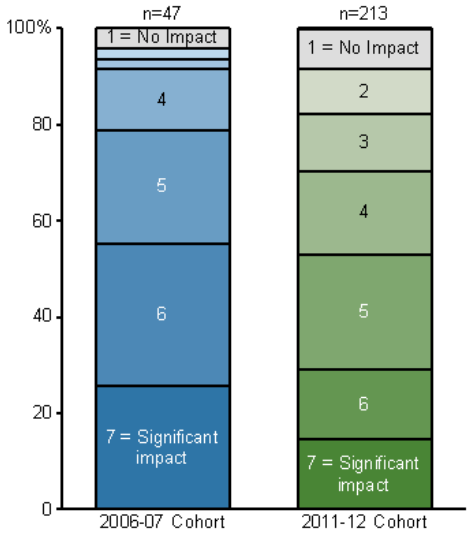


	2006-07 Cohort	2011-12 Cohort
% of Respondents Answering 6-7	89%	50%

TAP Model

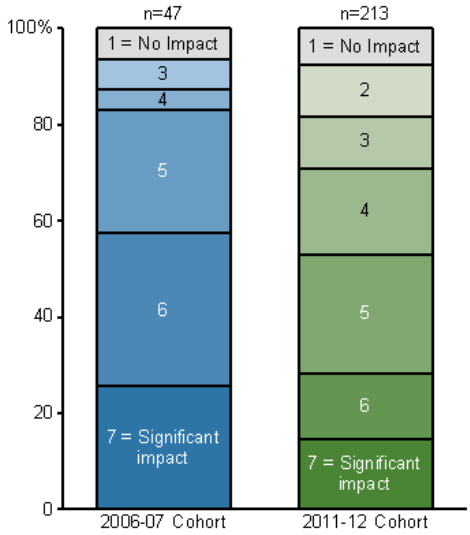
Teachers at schools that adopted the TAP model in 2006-07 report that it has had a significant impact on student learning and teacher effectiveness

Q (Teachers): Please rate the impact of TAP on **student learning** at your school on a scale of 1-7 where 1="No impact" and 7="Significant impact"



	2006-07 Cohort	2011-12 Cohort
Percent of Respondents Answering 6-7	55%	29%

Q (Teachers): Please rate the impact of TAP on **teacher effectiveness** at your school on a scale of 1-7 where 1="No impact" and 7="Significant impact"

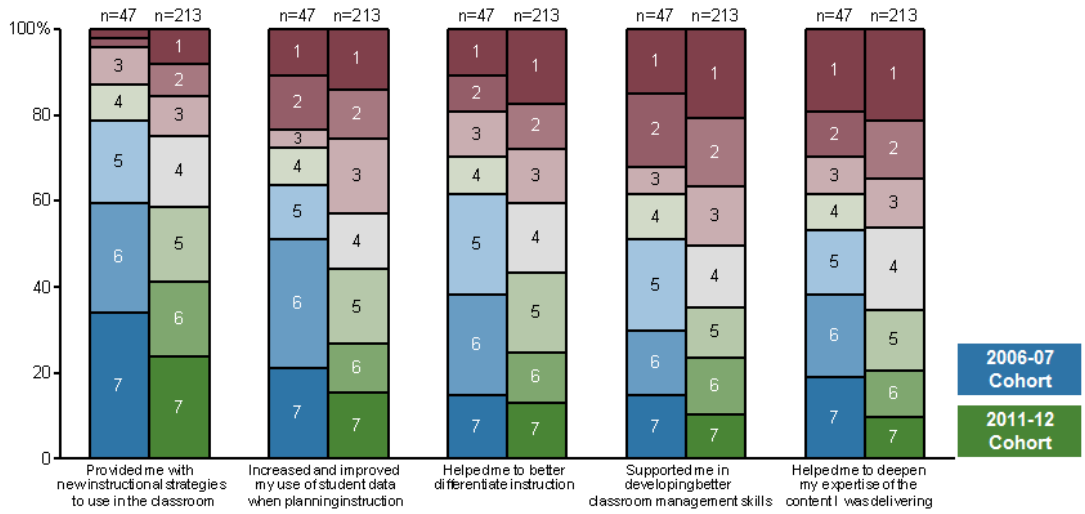


	2006-07 Cohort	2011-12 Cohort
Percent of Respondents Answering 6-7	57%	28%

TAP Model

Teachers in the 2006-07 TAP cohort indicate that the supports they have received improved their practice across a number of dimensions

Q (Teachers): In your opinion, please rate the TAP supports that you received on the following / measures where 1="Strongly Disagree" and 7="Strongly Agree"



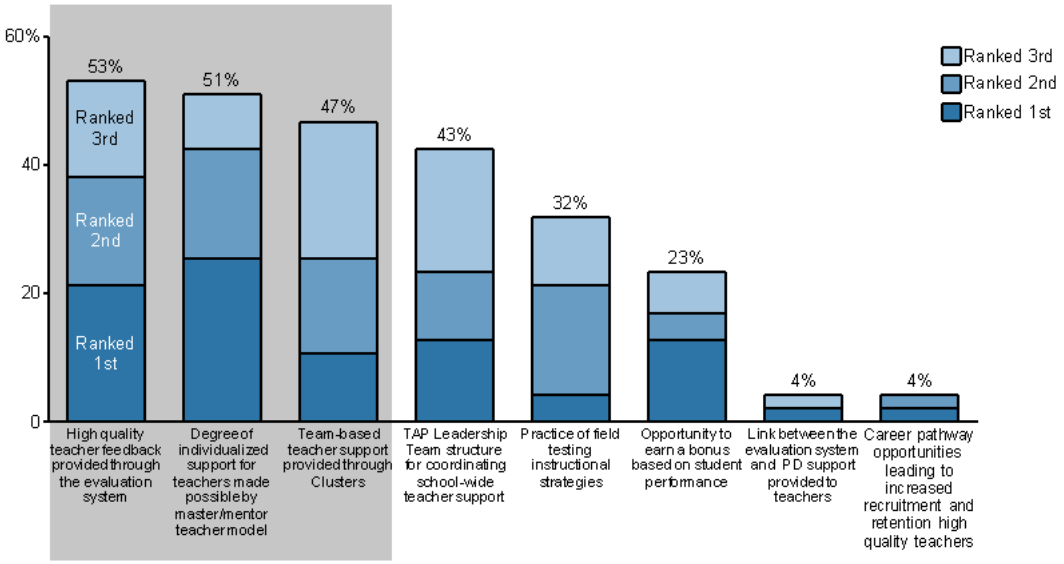
Percent of Respondents Answering 6-7	60%	41%	51%	27%	38%	25%	30%	23%	38%	21%

TAP Model

Teachers at schools in the 2006-07 TAP cohort value high quality teacher feedback and individualized support most, similar to TAP teachers overall

Q (Teachers): You indicated that the following aspects of TAP have had some degree of impact on teacher effectiveness at your school. Please rank the top three aspects that you believe most contribute to the success of TAP:

(Teachers at TAP Schools in the 2006-07 Cohort)

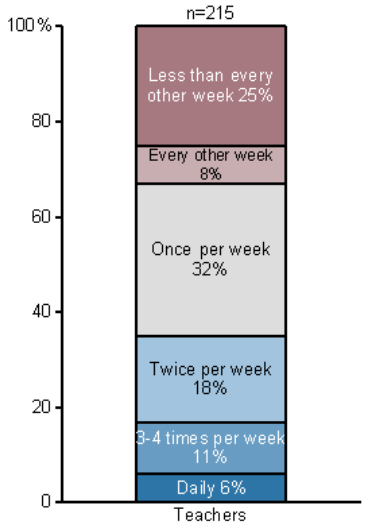


% of TAP Teachers in All Cohorts	53%	46%	52%	25%	27%	30%	20%	6%

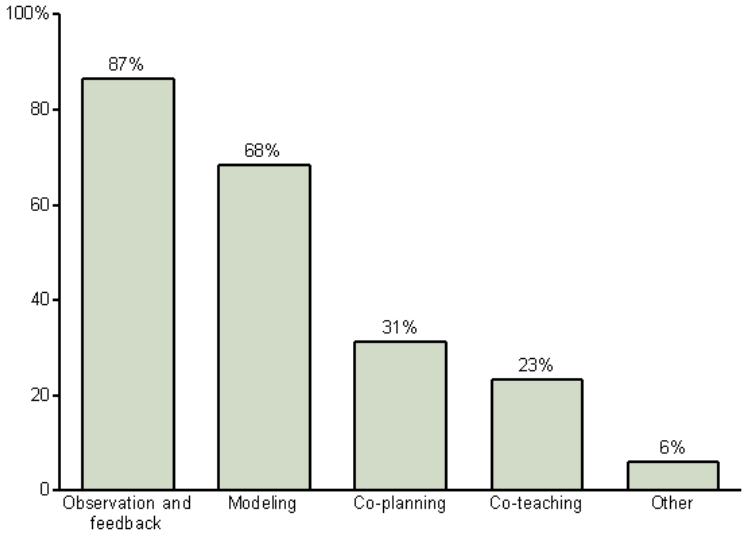
TAP Model

~70% of teachers indicate that they met with a Master or Mentor Teacher outside of Cluster once per week or more

Q (Teachers): On average last year, how often did you typically meet with a master or mentor teacher and/or have contact with them in your classroom outside of Clusters?



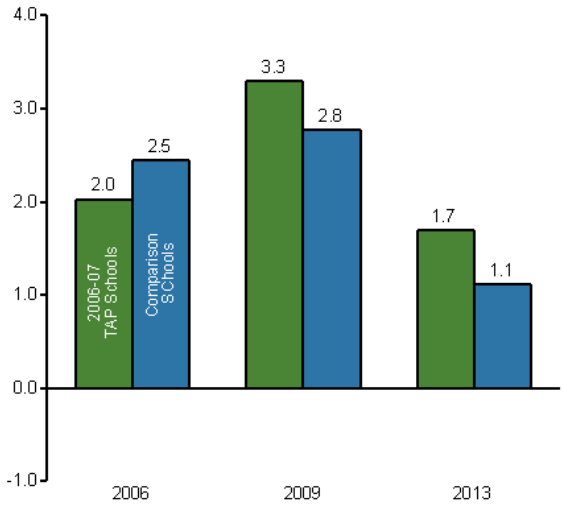
Q (Teachers): Which of the following strategies did the master or mentor teachers use to guide learning outside of Clusters? Please check all that apply



TAP Model

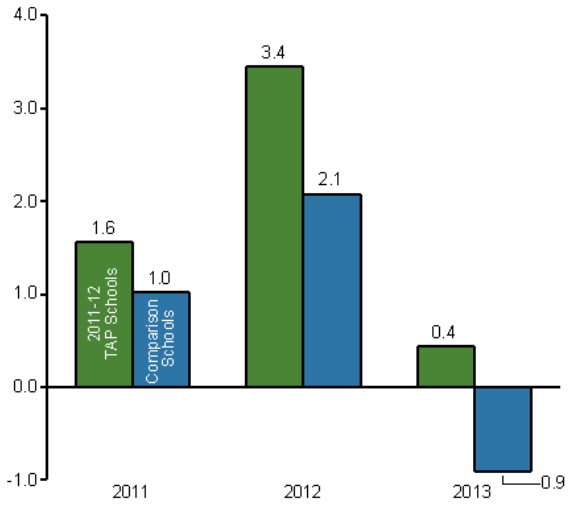
Relative to a set of schools that are similar in terms of size and demographics, schools that adopted TAP exhibited greater NCE gains after implementation

3-Year Average NCE ELA Gains, 2006-07
TAP Schools vs. Comparison Schools



Difference in NCE Gains	-0.4	0.5	0.6

1-Year Average NCE ELA Gains, 2011-12
TAP Schools vs. Comparison Schools



Difference in NCE Gains	0.5	1.4	1.3

9. Appendix: Parthenon Analysis – Elementary Intervention and Voyager

Elementary Intervention

Implementation of Voyager is in early stages, and perceptions of impact are mixed largely due to varied staffing

	Description	Summary
Costs of the Model	• Contract with Voyager: $250K • Cost of personnel: Multiple different personnel implement Voyager, including accounting for approximately one third of general education instructional assistant time (Estimated cost of at least $2M)	**$250K**
Fidelity of Implementation	• There is a **wide penetration of Voyager into KCS schools** at all elementary grade levels (roughly 85%) • There is **some difference between principals and teachers in perceptions of fidelity of implementation** – principals generally rate fidelity of implementation higher than teachers • There is a disconnect between principals and teachers in terms of who is delivering Voyager to participating students • **Current implementation offers room for improvement:** Instructional aides, though used regularly for the purposes of delivering Voyager, are perceived to be less effective at this than coaches and classroom teachers • Historically, limited data has been collected with regard to student groupings and participation	
Benefits of the Model	• **Mixed perceptions of impact:** Over 50% of principals believe that Voyager has a strong impact on student achievement, but only ~ 25% of teachers share this view • **Going forward, early interventions delivery can be improved by:** – Focusing instructional assistant time on small group instruction/intervention rather than on other duties – Providing targeted training for instructional assistants on small group instruction – Evaluating assistants rigorously on this dimension / treating them as a formal teacher pipeline	

Elementary Intervention

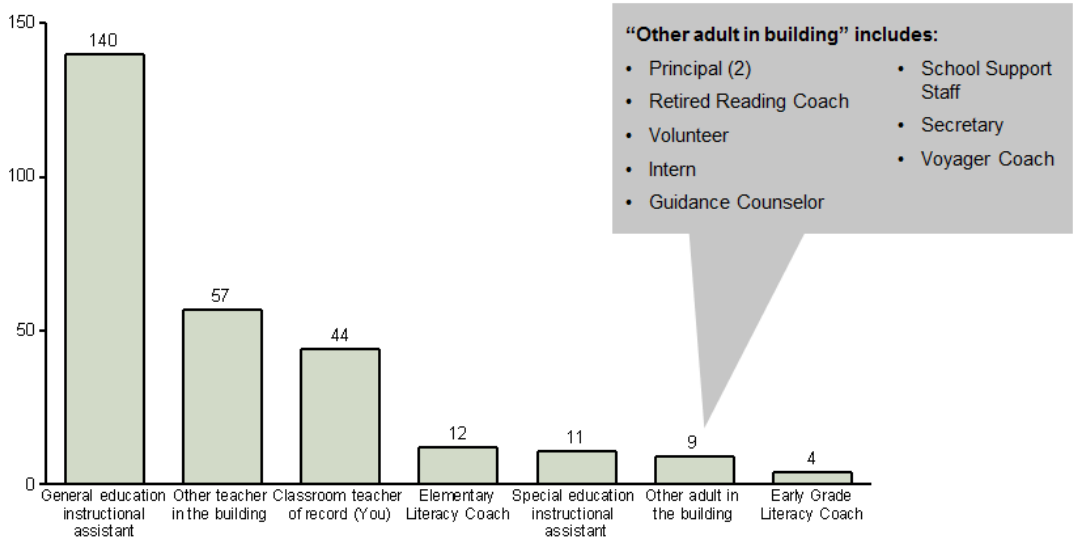
Summary of Key Takeaways

- Wide penetration into KCS schools at all elementary grade level – roughly 85% of elementary principals and 90% of elementary teachers report using Voyager in grades 1-5
- Principals see themselves as having primary responsibility for Voyager implementation and coaches involved with Voyager report primarily being involved in coordinating and planning the program
- Overall, principals generally rate the fidelity of implementation higher than teachers. Both teachers and principals rated 'implementation by knowledgeable instructors' lowest among implementation factors
- General education instructional assistants are responsible for over half of Voyager implementation, but the mix of other adults responsible is different depending on who you ask
- Instructional assistants, though used regularly for the purposes of delivering Voyager, are perceived as less effective than coaches and classroom teachers

Elementary Intervention

Voyager group instruction is most often delivered by teachers or instructional assistants

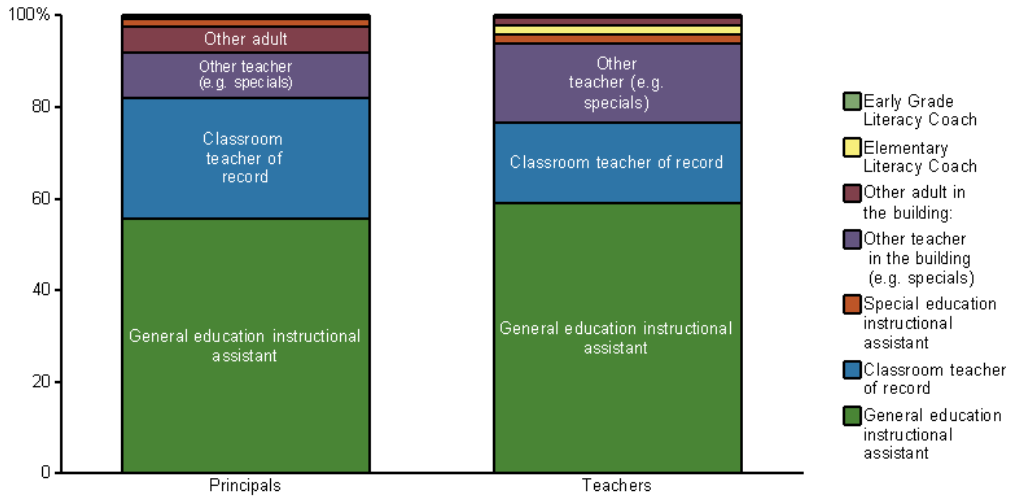
Q (Teacher): Who was responsible for delivering the instruction to your students who participated in Voyager group?



Elementary Intervention

Principals and teachers agree that general education instructional assistants lead the majority of Voyager groups

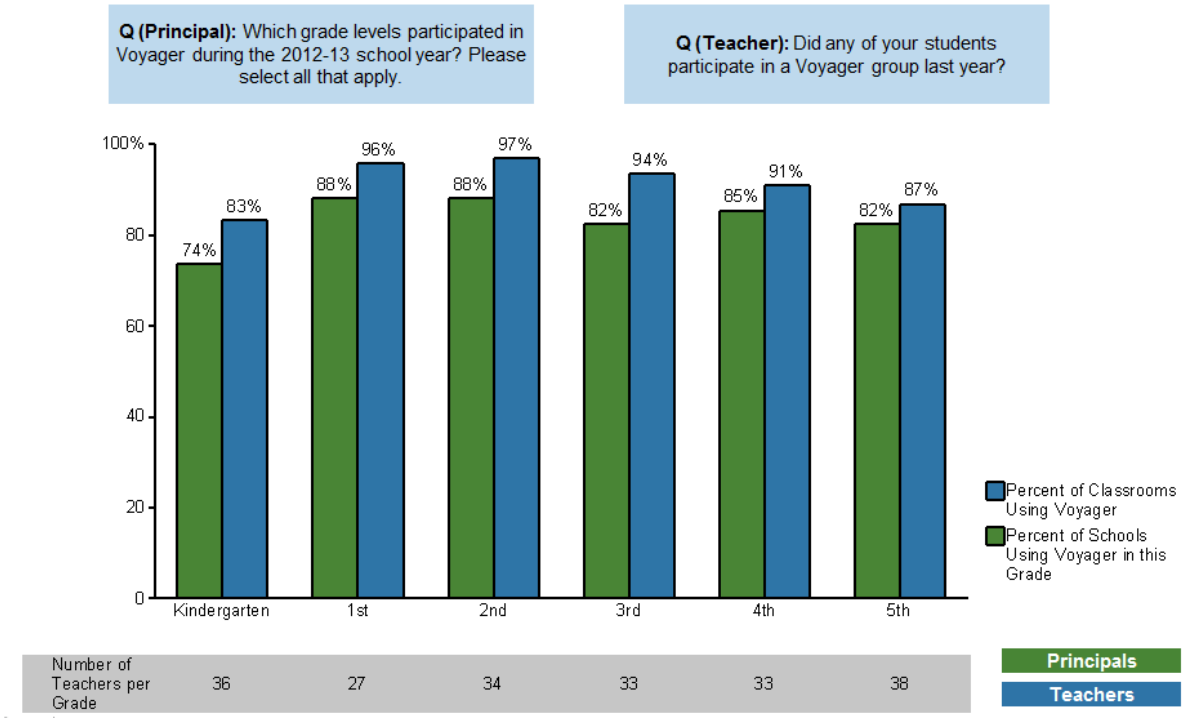
Q (Principal and Teacher): Roughly what percent of Voyager groups were led by each of the instructor types you indicated above?



Source: Parthenon/KCS Survey, Fall 2013; n = 34 ES principals, 185 K-5 teachers

Elementary Intervention

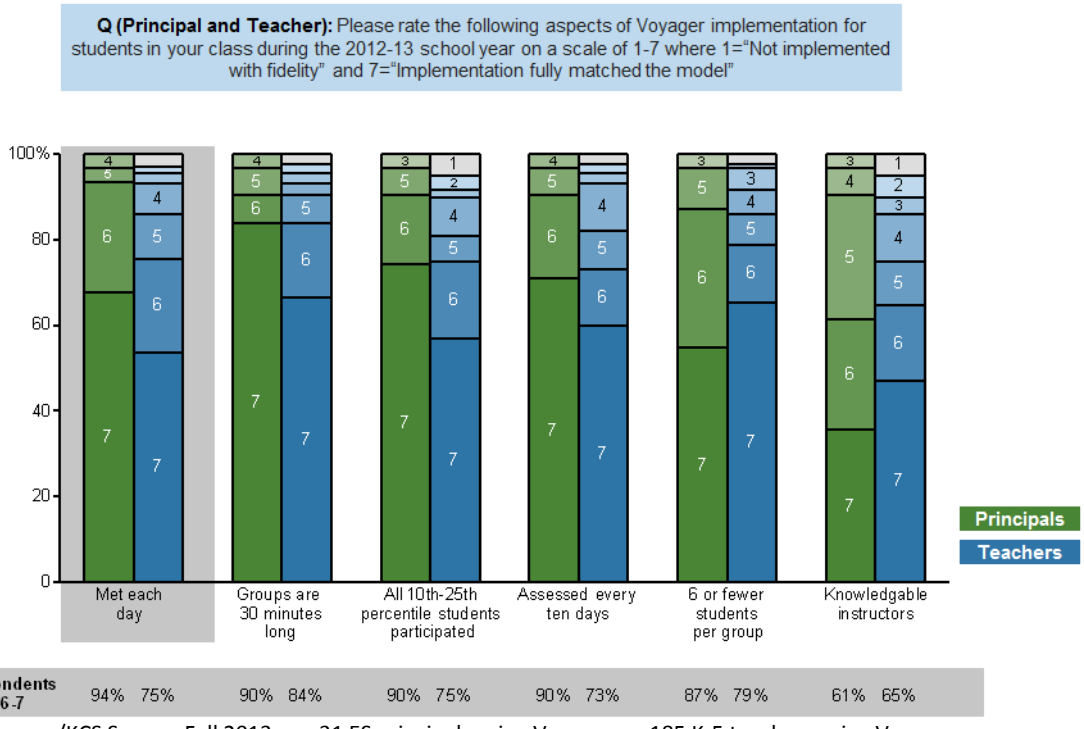
Voyager has wide penetration in KCS schools at all elementary grade levels



Note: 9% of Principals (3) reported that no grades are using Voyager interventions. Source: Parthenon/KCS Survey, Fall 2013; n = 34 ES principals, 185 K-5 teachers

Elementary Intervention

Principals indicate that Voyager is implemented with a high degree of fidelity, while teacher ratings on this dimension are somewhat lower

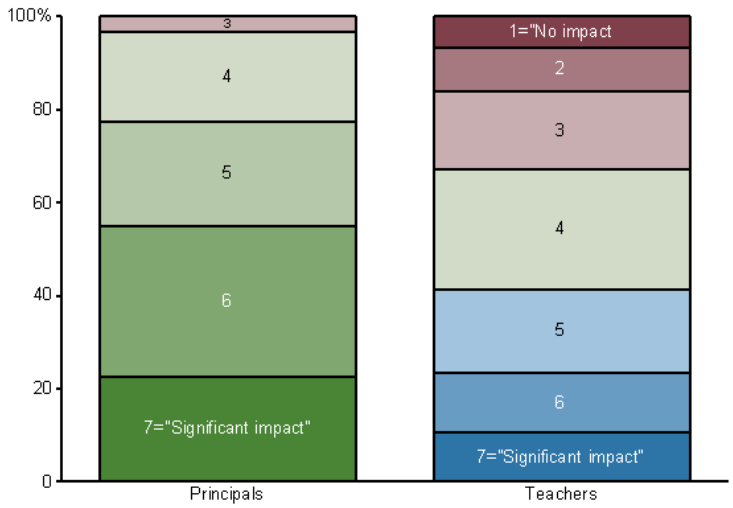


Source: Parthenon/KCS Survey, Fall 2013; n = 31 ES principals using Voyager; n=185 K-5 teachers using Voyager

Elementary Intervention

Principals rated the impact of Voyager on student achievement more highly than teachers

Q (Both): Please rate the extent to which Voyager impacted student achievement in your classroom last year on a scale from 1-7 where 1="No impact" and 7="Significant impact"



	Principals	Teachers
% of Respondents Answering 6-7	55%	23%

Elementary Intervention

Principals report mixed results regarding Voyager, with some indicating positive outcomes and others concerned that it is not effective at achieving results

Voyager works as it exists today

- *"We believe we have addressed the needs of our students with our current model of reading intervention"*
- *"We have adjusted our schedule to allow for maximum use of assistants to allow for each grade level to have a specific intervention time"*
- *"Voyager is working in our building; we believe that it has had a huge impact on student learning, as evidenced by great growth in student achievement, resulting in a school effectiveness score of 5"*

Voyager would work with more time, teachers, or training

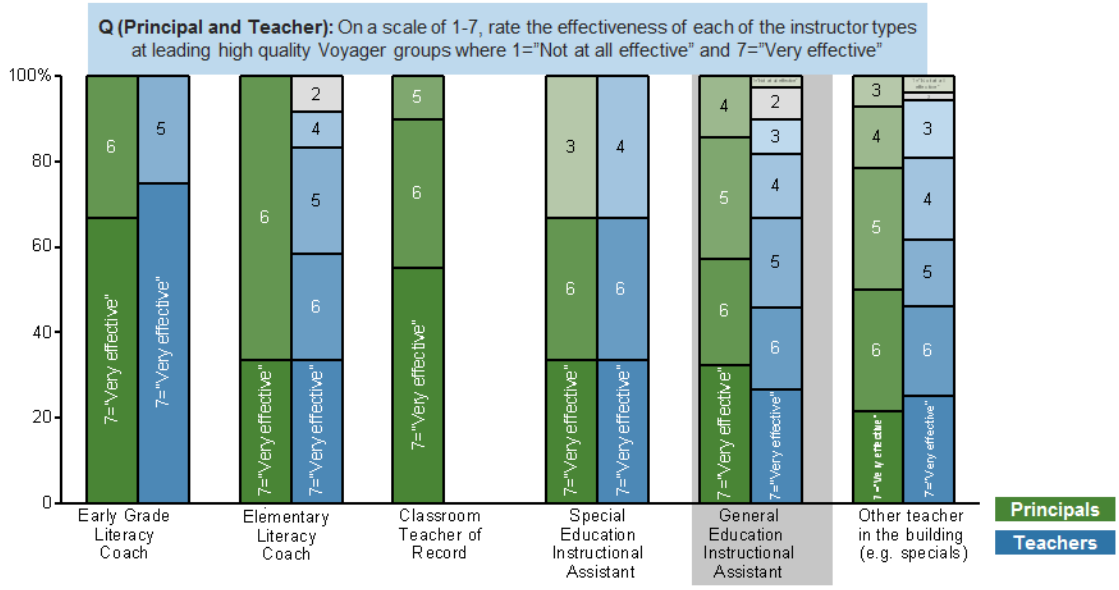
- *"Classroom teachers have had the most success with bringing students up, but it is hard to find adequate time for them to work with the students and maintain their instructional schedule"*
- *"Our Voyager Instruction is strong. I would like to see the district offer better quality summer and development day training specifically for the instructional assistants"*
- *"Additional staff to implement interventions would be beneficial"*

Voyager is not meeting our needs

- *"I am concerned that Voyager is not effective for all students. Some of our students have been in Voyager for multiple years with little to no growth. They are becoming 'life-long Voyager students'"*
- *"Students in the 11-25 percentiles need repeated exposure to material in multiple formats. We either need an extended day for these students or should not hold them accountable for SS/SCI and give them additional instruction in math and ELA during Sci and SS blocks. There is not enough time in the day, with current curricular requirements, to meet the needs of these students"*

Elementary Intervention

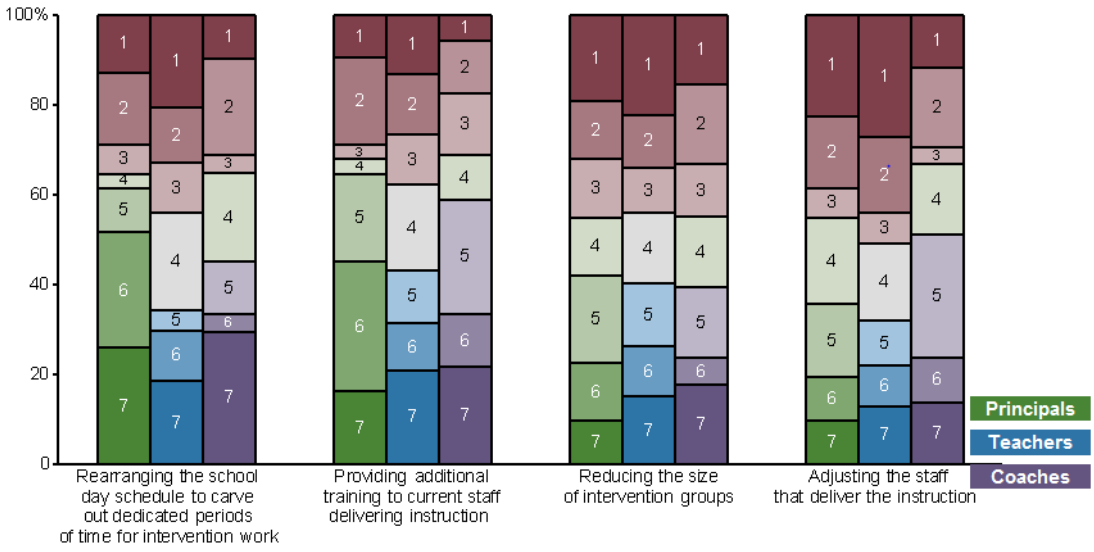
Survey feedback suggests that instructional assistants may be less effective than other educators at delivering Voyager instruction



% of Respondents Answering 6-7	Early Grade Literacy Coach	Elementary Literacy Coach	Classroom Teacher of Record	Special Education Instructional Assistant	General Education Instructional Assistant	Other teacher in the building (e.g. specials)
Principals	100%	100%	90%	67%	57%	50%
Teachers	75%	58%		67%	46%	46%

Elementary Intervention

Principals and coaches indicate that rearranging the schedule to facilitate interventions may lead to improvements in student achievement



% of Respondents Answering 6-7	Rearranging the school day schedule to carve out dedicated periods of time for intervention work	Providing additional training to current staff delivering instruction	Reducing the size of intervention groups	Adjusting the staff that deliver the instruction
Principals	52%	45%	23%	19%
Teachers	29%	31%	26%	22%
Coaches	33%	33%	24%	24%

10. Appendix: Parthenon Analysis – Instructional Assistants

Instructional Assistants

General education instructional assistants represent ~2% of the overall KCS budget and spend over half of their time on instructional activities

	Description	Summary
Costs of the Model	• Number of aides: 973 overall, 307 are general education assistants in elementary schools • **Total cost of elementary general education instructional assistants:** $6.4M • **Staffing ratios:** KCS utilizes more assistants per student than comparison districts	**$6.4M**
Fidelity of Implementation	• Principal survey data indicates there is **not a consistent way in which assistants are deployed across schools** • Teachers and Principals both report that **50% or more of their time is spent in small group instruction or intervention (including ~30% of time on implementation of Voyager)** • Teachers report higher use of assistants for clerical support overall, but principals and teachers both report using assistants for clerical or lunch duty • Principals and Teachers both report **an opportunity for greater training of instructional assistants**	
Benefits of the Model	• Because data on interventions is not collected at the system level, **it is difficult to link the presence/utilization of instructional assistants to improved student outcomes** • **The perceived benefit of assistants by both principals and teachers, particularly in intervention, is high** • KCS has an **opportunity to better define the role of instructional assistants** and to provide better training for that role	

Instructional Assistants

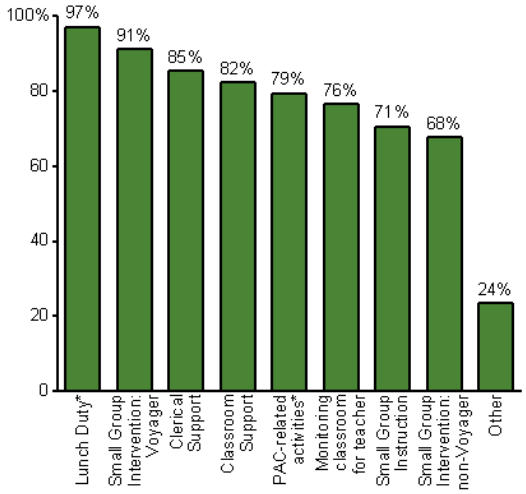
Summary of Key Takeaways

- KCS invests in higher number of general education instructional assistants relative to comparison districts
- Principals report high use of assistants across all functions (both instructional and non-instructional), but teachers report primarily Voyager instruction, clerical support, and monitoring the classroom when the teacher is not present
- Principals and teachers report assistants spend half of their time on small group instructional and intervention activities, including one quarter of their time on Voyager instruction
- Both principals and teachers identified an opportunity for greater training of assistants, with less than half of both groups reporting that aides are well prepared (answering a 6-7 on a scale of 1-7)
- Principals and teachers see the assistant role in delivering small group instruction as having the highest impact

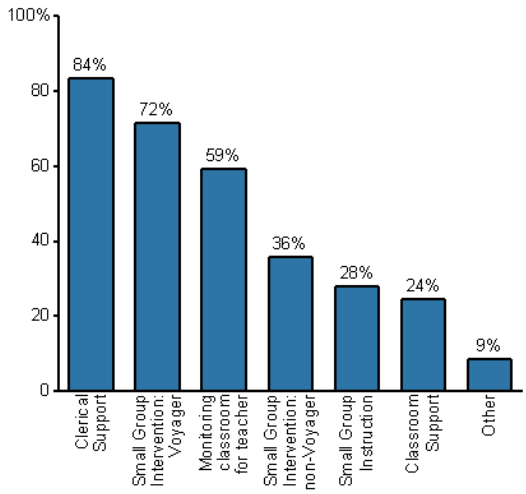
Instructional Assistants: Utilization

Assistants serve both instructional and clerical functions, with teachers reporting more specifically about assistant roles in their own classrooms

Q (Principal): Which of the following functions were performed by your instructional assistants?



Q (Teacher): In which of the following ways did instructional assistants support your classroom?



If selected, average % of time allocated

Principals:	14%	34%	13%	16%	7%	8%	15%	13%	4%	Teachers:	31%	52%	11%	36%	25%	24%	26%

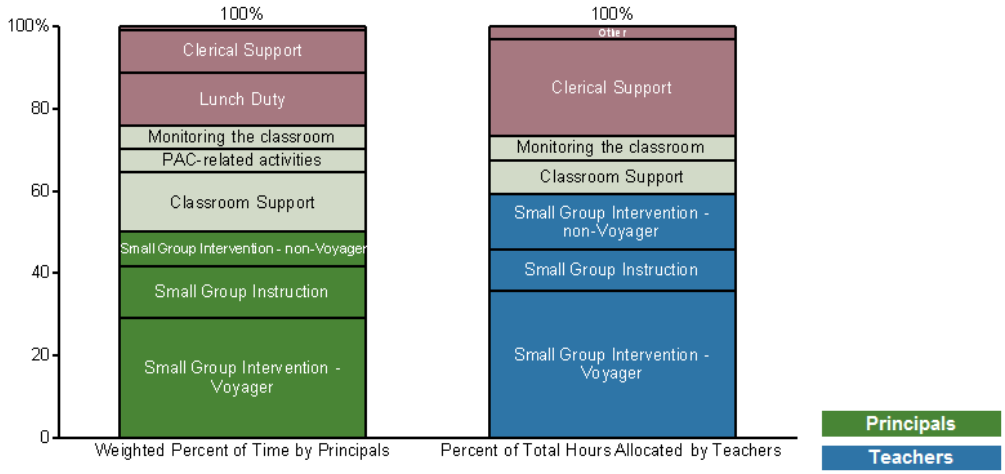
Note: *Indicates option was not included as option in teacher survey; the majority of teachers who listed "other" indicated assistants doing lunch duty, principals cited other coverage responsibilities.

Instructional Assistants: Utilization

Teachers and principals both report that one third of assistants time is spent leading Voyager groups and ~25% of the time is non-instructional

Q (Principal): How did your assistants spend their time? Thinking about your assistants collectively, please allocate 100% of their time during an average week across the functions you selected: (Principals)

Q (Teacher): Thinking about the assistants that supported your classroom collectively, please allocate 100% of the time they spent on each of the following functions when supporting your classroom (Teachers)



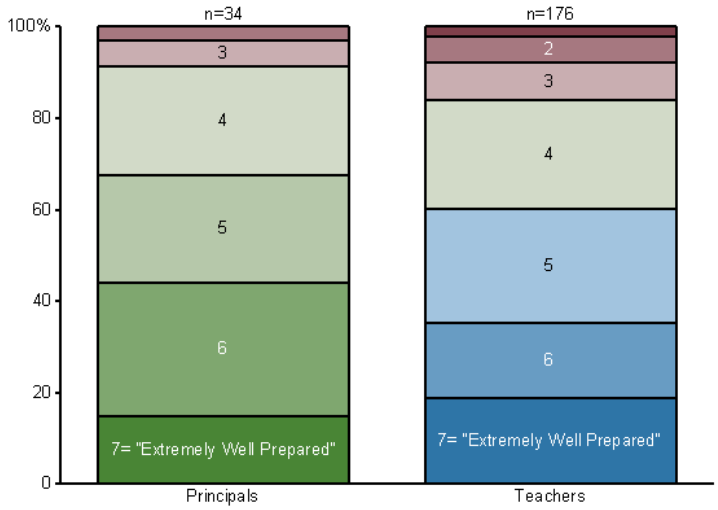
Percent of Time in Small Group Instruction and Intervention	50%	59%
Percent of Time on Coverage or Clerical Tasks	23%	26%

Parthenon/KCS Survey, Fall 2013; n = 34 principals, n=176 teachers

Instructional Assistants: Preparation

Principals and teachers both positively report assistant preparation, although there is room to improve training

Q (Both Principal and Teacher): Given the training that your instructional assistants received, how prepared do you feel they are to support student achievement in your classroom? Please rate on a scale of 1-7 where 1="Not well prepared at all" and 7="Extremely well prepared"

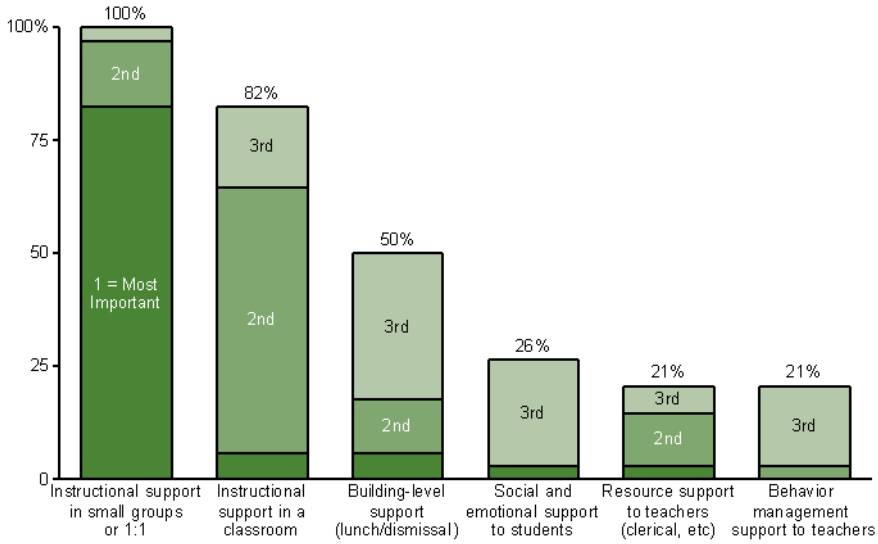


Percent of Respondents Answering 6-7	44%	35%

Instructional Assistants: Impact

Over 75% of principals report that small group instruction is the most valuable role that instructional assistants play in their schools

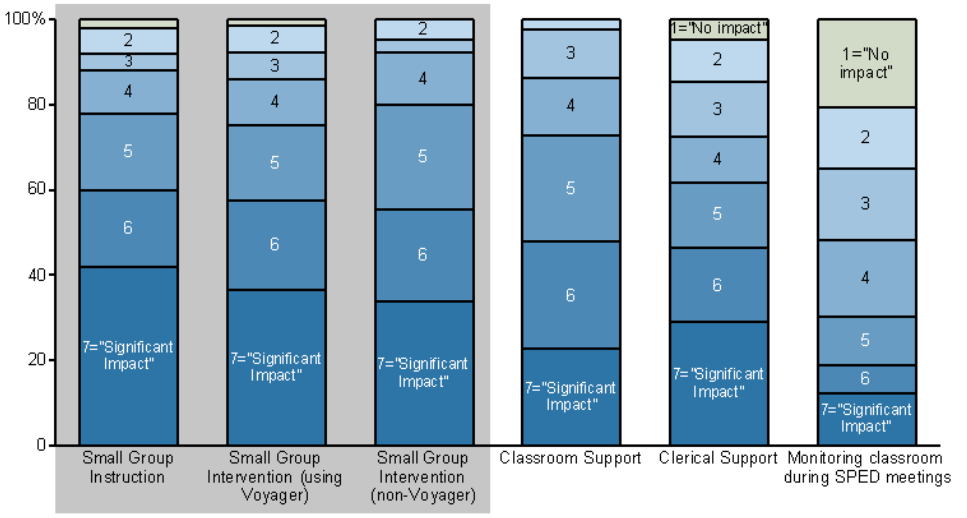
Q (Principal): In your opinion, what makes instructional assistants most valuable to your school? Please rank the options below from greatest to least value:



Instructional Assistants: Impact

Similarly, teachers see small group instruction work conducted by instructional assistants as having the most impact in their classrooms

Q (Teacher): In your opinion, which of the functions that assistants perform have the most impact in your classroom and/or with your students? Please rank on a scale of 1-7 where 1="No Impact" and 7="Significant Impact"

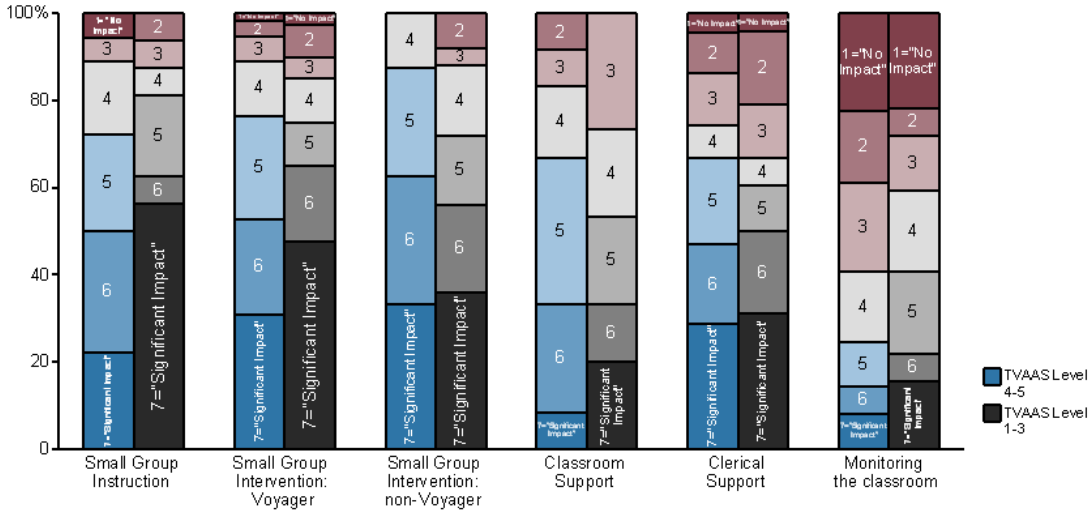


	Small Group Instruction	Small Group Intervention (using Voyager)	Small Group Intervention (non-Voyager)	Classroom Support	Clerical Support	Monitoring classroom during SPED meetings
Percent of Respondents Answering 6-7	60%	57%	55%	48%	46%	19%

Instructional Assistants: Impact

Higher performing teachers tend to rate the impact of assistants lower overall

Q (Teacher): In your opinion, which of the functions that assistants perform have the most impact in your classroom and/or with your students? Please rank on a scale of 1-7 where 1="No Impact" and 7="Significant Impact"



	Small Group Instruction		Small Group Intervention: Voyager		Small Group Intervention: non-Voyager		Classroom Support		Clerical Support		Monitoring the classroom	
Percent of Respondents Answering 6-7	50%	63%	53%	65%	63%	56%	33%	33%	47%	50%	14%	22%

Source: Parthenon/KCS Survey, Fall 2013; n = 130 with 2013 TVAAS (of 176 receiving assistant support)

11. Appendix: Enrichment Allocation Proposals

This appendix includes a sample of five proposals that schools sent in order to receive the enhanced learning grant. (See Enrichment Programs Management Report). There are two from elementary schools (Adrian Burnett and Brickey-McCloud) and three from secondary schools (Cedar Bluff Middle, South-Doyle Middle and West High).

11.1 Adrian Burnett Elementary

What: The district is providing the possibility for each school to receive up to a $3,000 allotment for the purpose of providing enhanced learning opportunities (academic enrichment) for its students. These opportunities should allow students the option of participating in activities such as the following:

- Science, Technology, Engineering and Mathematics (STEM) activities beyond traditional coursework
- School sponsored academic competitions
- School sponsored clubs related to STEM
- The above activities are not meant to be all encompassing. If you have ideas other than the ones listed above, please feel free to submit those as a part of your plan. Be CREATIVE!

Who: Select a target audience within your school:

Students in grades 3-5 whose TCAP scores are close to proficient in PS 2: (Motion, Forces, and Nature) will be invited. Proficient and Advanced students will be included based on TVAAS probability of success. Fifty students maximum will be served.

When: These funds are for an activity or series of activities to occur at a designated time between January and May of 2013.

Requirements: Each school will have to submit a site plan which should include, at a minimum, the following:

- What activities will you expend the funds on this year?
  - **Two AMSE Energy outreach programs: $440 ($110 each)**
  - **Two AMSE follow-up sessions facilitated by the GT Coach, the Math Coach, certified teachers, and PTSO volunteers: $320 (Stipends are for Knox County employees.)**
  - **Hands-on materials ($24 per child) for follow-up sessions: $1200**
  - **Hands-on Science materials to be used in lessons for all students in Grades 3-5 (to be facilitated by the Adrian Burnett Energy Academy students, coaches, and certified staff): $1040**

- What is the target student population for each type of activity?
  - **Energy Outreach: Up to 50 students as described above**
  - **Follow-up Sessions: Up to 50 students as described above**
  - **Hands-on Materials: Up to 50 students as described above**
  - **Interactive classroom lessons facilitated by academy members: All ABES students in Grades 3-5 (approximately 350 students)**

- What are the intended outcomes for each activity?
  - **Energy Outreach: Provide academy members with a foundation for learning to ultimately increase TCAP achievement as well as leadership skills.**
  - **Follow-up Sessions: Reinforce activities presented by AMSE and prepare students for leadership roles**
  - **Hands-on Materials: Appeal to a variety of learning styles to help students make real world personal connections and to consider careers in science and math.**
  - **Interactive classroom lessons: Provide all students in Grades 3-5 with a similar enrichment opportunity with the ultimate goal of increased achievement on the TCAP. Peer-to-peer interactions with student leaders will increase curiosity, inquiry skills, and motivation of learners.**

- How do the activities connect to your TSIP plan? **See excerpt from the Adrian Burnett TSIP below.**

  <u>Strategy</u>: A Four-week after school academy will focus on building skills necessary for students in Grades 3-5 to excel on the Science TCAP. This will be combined with two outreach programs facilitated by AMSE, follow-up sessions by staff members and parent volunteers, and classroom presentations led by academy members.

<u>Implementation Plan</u>: Teachers will work in PLCs to regularly assess data (students in programs will be tracked on a data wall). Two high-quality Science programs focusing on Motion, Forces, and Nature will be brought in to the school, and follow-up sessions will be held after each one. Outreach sessions will reinforce the activities in the after school club. Staff members will partner with PTSO volunteers to implement the program. The academy members will be trained to facilitate classroom activities. Students will be selected based on test scores. Pre and post testing will be conducted to evaluate students' readiness for TCAPs.

<u>Desired outcomes</u>: Adrian Burnett Elementary School 3rd-5th Grade TCAP Science Scores will increase 3%, with emphasis on students in the slightly Below Proficient, Proficient, and Advanced subgroups. Interest for careers in STEM will increase.

<u>Projected costs and funding sources</u>: Knox County Schools will provide up to $3000 to fund this initiative. Any other needed funding will come from the school and the parents.

<u>Describe how this specific strategy will help you achieve your goals for the 2012-13 school year and address areas of challenge from the past year</u>: This initiative will help raise student achievement in Science, and will inspire them to pursue the increased number of careers in this field that will be available in the future.

- How do the activities connect to the district's strategic plan?
  - **<u>Goal 1: Objective I</u>: High expectations and academic rigor are essential to ensuring Excellence for All Children.**
  - **<u>Goal 1: Objective II</u>: Individual Student Learning will be used to develop the whole child with varied academic support. Academic support will be accomplished through differentiated instruction in order to establish multiple pathways and strategies to success.**

- How will you monitor the whether or not the outcomes were achieved?
  - **Staff members will use TCAP and TVAAS predictive data to formulate Energy Academy groups.**
  - **Academy staff will create common assessments, maintain performance based portfolios (including interactive notebooks and response journals).**
  - **Staff and volunteers will provide quality academic feedback in order to monitor progress and provide meaningful differentiated instruction after each session.**
  - **Emphasis will be based on inquiry learning using S.T.E.M. initiatives to reinforce learning PS 2: (Forces and Motion in Nature).**
  - **Staff will assist Academy members with common assessments and implementation of interactive lessons in third, fourth and fifth grade classrooms.**
  - **All Academy members will develop and implement common pre and post-assessments for peer-to-peer instruction.**
  - **Presentation performances will determine success with expected outcomes. (Data response below will be used to see if outcomes were achieved.)**

- What kind of data will you use to monitor the success of these activities?

  Pre and post common assessments, Discovery Education Science Probes and D.E. Science Benchmark assessments, Presentations, Interactive Notebooks, TCAP Practice and TCAP tests, Constructed Response Assessments

- Include a complete budget sheet. **(see next page)**

The plan should be returned to Nancy Maland by November 28, 2012. (We will spend December arranging the budget payment.)

Adrian Burnett Energy Academy Budget

Item	Cost Per Unit	Total Cost
AMSE Energy Outreach Programs (4)	$110	$440
Stipends for 2 Certified Staff for $25.00 for 4 two-hour sessions ($50.00 x 4 sessions x 2 hours each)	$100	$400
Hands-on Materials for Follow-up Sessions	$24 per child	$1,120
Hands-on Materials for Classroom Lessons	TBA	$1,040

11.2 Brickey McCloud Elementary

Purpose of Grant: The purpose of this grant is to provide the students of Brickey McCloud an enhanced learning opportunity in mathematics, science and engineering.

Target Audience: The target audiences for these activities are our advanced students in grades 3, 4 and 5. Student lists are attached.

When: These activities will take place on Mondays (3rd grade students) and Fridays (4th/5th grade students) beginning February 1, 2013 and concluding approximately May 1, 2013 from 2:45 – 4:00 p.m. Additionally, students will be taking Saturday field trips that support the enhanced learning opportunity with parents providing the transportation.

Rationale: The activities support our school improvement plan to increase our TVAAS gains for all quintiles. In all subjects, our top quintile has not made the gains that we would like to see over the past three years. The activities will consider Common Core standards, as well as grade-level specific curriculum target skills in science, math, and engineering. Activities will focus on enriching the advanced learner in these areas.

Advanced students in 5th Grade did not make TVAAS math and science gains on the 2012 TCAP.

As far as **KCS Strategic Plan**, these activities support the following objective:
High Expectations and Academic Rigor
- High Expectations for All Students
- Student Advancement Based on Mastery
- Relationships
- Literacy and STEM
- High Quality Career and Technical Education
- Refine Curriculum Tools and Create Common Assessments

Plan of Implementation:
- Tammy Roberts, our Gifted/Talented coach, will take on the planning, organizing, and presentations of activities. Fourth grade teacher, Stacy Landers, will be a co-teacher and will implement her plans.
- The 2012 TCAP scores will identify 4th and 5th grade students who are advanced and 3rd grade advanced students will be identified by the 2nd grade 2012 Stanford 10. (See attached lists.)
- To monitor our students' progress and success, we will use the KCS Science benchmark tests, Discovery Education benchmark tests, and teacher-made tests for formative assessment information.

Budget:
- Tammy Roberts, Director - $1,500 (60 hours at a rate of $25.00 an hour)
- Certified Staff Member (TBD) - $1,000 (40 hours at a rate of $25.00 an hour)
- Materials - $500

11.3 Cedar Bluff Elementary

Enhanced Learning Opportunity Proposal
2012-2013 School Year

Activities:
*Science Bowl Competition at Roane State Oak Ridge Campus and Club Practices sponsored by Catherine Jennings, 7th Grade Science Teacher.
*Scholastic Math Competition at Pellissippi State Knoxville Campus and Club Practices sponsored by Shawna Wolbert, 6th Grade Math Teacher.
Funding for these programs would cover transportation, practice books and/or materials, team tee-shirts for identification during competition, substitute teacher coverage during competition day if needed, and sponsor stipends.

Target Student Population:
Students who are advanced in science and/or math as evidenced by selection into honors classes or other evidence of outstanding aptitude and interest in the areas of Science, Technology, Engineering, and/or Math.

Intended Outcomes and Connection to TSIP:
*Increased student proficiency on advanced math and science skills.
*Enhanced student interest in STEM.
*Improved ability for students to handle increased instructional rigor and transition to Common Core Standards

Connection to District Strategic Plan:
Goal 1: Focus on the Student
Objective I: High Expectations and Academic Rigor
Objective II: Individual Student Learning
The Science and Math Competitions support a STEM focus through Small Learning Communities developed within the club practice/competition groups. Working towards a goal of competing with other high achieving students will demonstrate high expectations and pave a pathway to increased academic rigor. These advanced students will be given the opportunity to develop individual learning plans based upon their interests in their chosen group.

Assessment Data:
Participating students will take pre- and post-tests to indicate growth/achievement. Successful completion of their chosen competition will also indicate student progress.
Students' grades in math and/or science classes will be monitored.
Student surveys will indicate levels of interest in STEM activities before and after club practices and competition.

11.4 South Doyle Middle

School Based Enhanced Learning Opportunities

2012-2013

- ***What activities will you expend the funds on this year?***
  - Science Olympiad: Providing a stipend to the coaches in blocks similar to ELP (25 hours=I block=$500)
  - Total of 6 blocks available to total $3000
- ***What is the target student population for each type of activity?***
  - All students grades 6-8 are privy to Science Olympiad. We target a diversity that reflects the school population
- ***What are the intended outcomes for each activity?***
  - Increased proficiency on the science portion of the TCAP assessment is the ultimate goal
  - Increased proficiency on the Discovery Ed assessment in science and/or science common formative assessments will be used to track progress toward TCAP
- ***How do the activities connect to your TSIP plan?***
  - This plan will directly impact increased proficiency for all students
  - Science Olympiad increases exposure to Common Core-type reading and math activities as well as enhancing science content
- ***How do the activities connect to the district's strategic plan?***
  - Goal 1: Focus on the Student-High expectations for all students; Individual Student Learning
  - Goal 4: Infrastructure-Enabling Student Learning-Provide an Instructional Settings Where All Student Are Encouraged to Learn
- ***How will you monitor the whether or not the outcomes were achieved?***
  - Discovery Education data and common formative assessments will be used to monitor data until we receive TCAP scores.
  - TCAP scores will be used to determine impact
- ***What kind of data will you use to monitor the success of these activities?***
  - Discovery Education data and common formative assessments will be used to monitor data until we receive TCAP scores.
  - TCAP scores will be used to determine impact

12. Appendix: Early Literacy Matched Pair Analysis

Measurement Type = NCE ACH

		Difference in Growth Scores: Voyager Students minus Non-Voyager Students	Voyager Student							
			No				Yes			
			Predicted Score	Observed Score	Growth		Predicted Score	Observed Score	Growth	
			Mean	Mean	Mean	Count	Mean	Mean	Mean	Count
School	A. L. Lotts Elementary	-3.5	57.5	54.7	-2.8	11	57.6	51.3	-6.4	11
	Adrian Burnett Elementary	0.2	45.5	44.3	-1.3	19	45.4	44.3	-1.1	19
	Amherst Elementary	-7.9	40.9	41.2	.3	9	40.8	33.2	-7.6	9
	Beaumont Elementary	3.6	44.2	34.6	-9.6	5	44.2	38.2	-6.0	5
	Belle Morris Elementary	4.0	52.0	59.0	7.0	1	52.0	63.0	11.0	1
	Blue Grass Elementary	-13.1	55.0	66.1	11.1	7	55.1	53.1	-2.0	7
	Bonny Kate Elementary	-6.3	49.3	40.0	-9.3	3	49.3	33.7	-15.7	3
	Brickey-McCloud Elementary	-7.9	48.1	55.2	7.1	20	48.0	47.2	-.8	20
	Carter Elementary	-16.5	49.5	43.5	-6.0	2	49.5	27.0	-22.5	2
	Cedar Bluff Elementary	-9.7	43.9	49.1	5.2	12	43.8	39.3	-4.5	12
	Chilhowee Intermediate	-7.0	42.2	55.2	13.0	5	42.4	48.4	6.0	5
	Christenberry Elementary	18.0	31.0	27.0	-4.0	1	32.0	46.0	14.0	1
	Copper Ridge Elementary	-10.0	46.0	53.8	7.8	4	46.0	43.8	-2.3	4
	Corryton Elementary	13.0	47.0	53.0	6.0	1	47.0	66.0	19.0	1
	Dogwood Elementary	-1.3	35.5	33.6	-1.9	12	35.3	32.1	-3.2	12
	East Knox County Elementary	-2.7	46.4	42.8	-3.6	18	46.4	40.1	-6.3	18
	Farragut Intermediate	-4.4	45.1	54.0	8.9	14	45.3	49.8	4.5	14
	Fountain City Elementary	-5.8	32.5	47.3	14.8	4	33.5	42.5	9.0	4
	Gibbs Elementary	-12.8	52.5	59.7	7.2	21	52.3	46.8	-5.6	21
	Halls Elementary	-0.6	42.8	48.6	5.9	20	42.6	47.9	5.3	20
	Hardin Valley Elementary	2.1	36.8	39.4	2.6	15	36.9	41.6	4.7	15
	Karns Elementary	-1.5	46.5	46.8	.3	11	46.5	45.3	-1.2	11
	Lonsdale Elementary	-3.7	34.0	42.0	8.0	3	34.3	38.7	4.3	3
	Maynard Elementary	-11.5	43.5	42.8	-.8	4	44.0	31.8	-12.3	4
	Mooreland Heights Elementary	1.4	38.6	35.8	-2.8	5	39.0	37.6	-1.4	5
	Mount Olive Elementary	-2.5	40.0	43.0	3.0	2	39.5	40.0	.5	2
	New Hopewell Elementary	-17.0	31.5	51.0	19.5	2	31.5	34.0	2.5	2
	Norwood Elementary	0.5	40.5	45.5	5.0	2	40.5	46.0	5.5	2
	Pleasant Ridge Elementary	0.0	54.0	42.0	-12.0	1	54.0	42.0	-12.0	1
	Powell Elementary	-7.0	40.1	46.4	6.3	26	40.0	39.4	-.7	26
	Ritta Elementary	-12.6	46.5	49.6	3.1	8	46.5	37.0	-9.5	8
	Rocky Hill Elementary	-23.3	49.3	76.3	27.0	3	49.0	52.7	3.7	3
	Sarah Moore Greene Elementary	0.7	33.6	34.3	.7	16	33.6	35.0	1.4	16
	Sequoyah Elementary	-18.0	55.0	61.0	6.0	1	55.0	43.0	-12.0	1
	Shannondale Elementary	-3.8	44.5	51.3	6.8	4	44.8	47.8	3.0	4
	Spring Hill Elementary	1.4	45.2	46.9	1.8	12	45.3	48.4	3.2	12
	Sterchi Elementary	-2.7	44.7	54.3	9.7	3	45.3	52.3	7.0	3
	West Haven Elementary	-11.5	33.5	47.0	13.5	2	33.0	35.0	2.0	2
	West Hills Elementary	-6.9	43.6	39.4	-4.1	7	43.7	32.7	-11.0	7
	Total	-4.7	44.0	47.4	3.4	316	44.0	42.7	-1.3	316

Measurement Type = Scale Score ACH

		Difference in Growth Scores: Voyager Students minus Non-Voyager Students	Voyager Student							
			No				Yes			
			Predicted Score	Observed Score	Growth		Predicted Score	Observed Score	Growth	
			Mean	Mean	Mean	Count	Mean	Mean	Mean	Count
School	A. L. Lotts Elementary	-6.8	753.7	758	4.5	11	753.8	752	-2.3	11
	Adrian Burnett Elementary	-15.1	751.2	749	-2.1	14	751.9	735	-17.3	14
	Amherst Elementary	-16.1	759.0	772	13.3	7	756.9	754	-2.9	7
	Ball Camp Elementary	-35.0	765.0	792	27.0	1	773.0	765	-8.0	1
	Bearden Elementary	6.0	750.0	751	0.0	1	752.0	758	6.0	1
	Beaumont Elementary	19.6	725.1	716	-9.1	8	725.6	736	10.5	8
	Belle Morris Elementary	13.5	729.5	728	-1.5	2	733.0	745	12.0	2
	Blue Grass Elementary	-9.0	759.2	768	8.3	10	757.2	757	-.7	10
	Bonny Kate Elementary	-10.0	739.0	757	17.5	2	736.5	744	7.5	2
	Brickey-McCloud Elementary	-12.3	748.8	756	7.4	17	747.1	742	-4.9	17
	Carter Elementary	-6.7	752.7	760	7.0	3	752.0	752	.3	3
	Cedar Bluff Elementary	-5.8	740.9	745	4.1	17	739.0	737	-1.8	17
	Chilhowee Intermediate	-8.8	742.4	757	14.1	12	741.9	747	5.3	12
	Christenberry Elementary	8.0	756.0	755	-1.0	1	755.0	762	7.0	1
	Copper Ridge Elementary	-11.7	749.0	749	-.3	3	750.0	738	-12.0	3
	Corryton Elementary	-29.3	755.3	769	14.0	3	753.7	738	-15.3	3
	Dogwood Elementary	-8.5	732.8	738	5.6	25	733.0	730	-2.9	25
	East Knox County Elementary	-10.4	726.3	730	3.9	11	727.6	721	-6.5	11
	Farragut Intermediate	-6.8	744.6	757	12.8	20	745.2	751	6.1	20
	Fountain City Elementary	-0.1	748.3	746	-2.7	12	749.9	747	-2.8	12
	Gibbs Elementary	-6.6	750.9	748	-2.7	16	750.3	741	-9.3	16
	Green Elementary	6.7	719.7	707	-12.3	3	713.3	708	-5.7	3
	Halls Elementary	-9.3	763.9	765	.8	21	764.2	756	-8.5	21
	Hardin Valley Elementary	7.9	739.1	738	-1.0	10	738.1	745	6.9	10
	Karns Elementary	2.2	749.3	747	-2.0	17	746.8	747	.2	17
	Lonsdale Elementary	-24.0	759.0	755	-4.0	1	756.0	728	-28.0	1
	Maynard Elementary	-25.0	736.0	755	19.0	1	740.0	734	-6.0	1
	Mooreland Heights Elementary	-24.4	755.2	754	-1.4	5	752.0	726	-25.8	5
	Mount Olive Elementary	-1.0	750.0	764	14.0	3	749.7	763	13.0	3
	New Hopewell Elementary	-10.0	774.0	784	10.0	1	765.0	765	0.0	1
	Norwood Elementary	-15.2	736.3	740	3.3	10	734.5	723	-11.9	10
	Pleasant Ridge Elementary	-7.0	739.6	757	17.4	5	740.2	751	10.4	5
	Pond Gap Elementary	14.0	770.0	755	-15.0	1	766.0	765	-1.0	1
	Powell Elementary	-12.5	753.7	748	-5.9	11	753.3	735	-18.4	11
	Ritta Elementary	-17.9	738.9	745	6.4	10	738.5	727	-11.5	10
	Rocky Hill Elementary	-6.6	766.3	776	9.5	8	766.6	770	2.9	8
	Sarah Moore Greene Elementary	9.9	722.4	711	-11.2	17	723.9	723	-1.3	17
	Sequoyah Elementary	-19.0	781.0	798	17.0	1	778.0	776	-2.0	1
	Shannondale Elementary	-10.3	760.3	774	13.5	6	760.2	763	3.2	6
	South Knoxville Elementary	23.0	755.0	745	-10.0	1	745.0	758	13.0	1
	Spring Hill Elementary	-56.5	767.0	808	40.5	2	768.5	753	-16.0	2
	Sterchi Elementary	-6.5	750.0	753	3.0	2	753.5	750	-3.5	2
	West Haven Elementary	-12.7	747.3	746	-1.0	3	744.7	731	-13.7	3
	West Hills Elementary	-15.2	761.3	770	9.1	17	760.0	754	-6.1	17
	West View Elementary	34.0	723.0	668	-55.0	1	720.0	699	-21.0	1
	Total	-7.2	746.5	750	3.5	353	746.0	742	-3.7	353

Measurement Type = Scale Score SAT10

		Difference in Growth Scores: Voyager Students minus Non-Voyager Students	Voyager Student							
			No				Yes			
			Predicted Score	Observed Score	Growth		Predicted Score	Observed Score	Growth	
			Mean	Mean	Mean	Count	Mean	Mean	Mean	Count
School	A. L. Lotts Elementary	1.4	568.0	577	8.6	25	567.1	577	9.9	25
	Adrian Burnett Elementary	3.8	555.9	553	-2.7	25	555.3	556	1.1	25
	Amherst Elementary	5.0	570.1	576	5.8	11	570.5	581	10.8	11
	Ball Camp Elementary	-22.2	568.1	589	20.8	9	567.1	566	-1.4	9
	Bearden Elementary	-12.9	567.4	576	8.5	8	562.8	558	-4.4	8
	Beaumont Elementary	-13.5	565.8	578	12.3	14	565.4	564	-1.2	14
	Belle Morris Elementary	-7.4	546.5	547	.5	3	546.2	539	-6.9	3
	Blue Grass Elementary	-16.0	574.4	583	8.6	12	573.8	567	-7.4	12
	Bonny Kate Elementary	13.1	563.3	559	-4.3	19	562.5	571	8.7	19
	Brickey-McCloud Elementary	-7.4	567.1	562	-5.2	21	566.9	554	-12.6	21
	Carter Elementary	6.8	579.7	577	-2.4	28	580.1	585	4.4	28
	Cedar Bluff Elementary	-4.6	569.2	572	2.6	36	569.6	568	-2.0	36
	Christenberry Elementary	31.0	597.0	587	-10.0	1	599.0	620	21.0	1
	Copper Ridge Elementary	-1.2	568.8	581	12.2	16	569.1	580	11.0	16
	Corryton Elementary	-15.1	586.1	606	19.7	7	583.9	588	4.6	7
	Dogwood Elementary	-5.3	556.1	555	-.7	28	555.9	550	-6.0	28
	East Knox County Elementary	-7.7	542.6	551	8.4	15	540.6	541	.7	15
	Farragut Primary	-2.9	567.1	573	6.0	58	565.8	569	3.1	58
	Fountain City Elementary	-10.7	553.6	559	5.3	10	554.8	549	-5.4	10
	Gap Creek Elementary	-10.7	580.9	601	20.4	3	579.6	589	9.7	3
	Gibbs Elementary	-3.7	551.1	557	5.9	35	551.3	554	2.2	35
	Green Elementary	-10.2	557.2	556	-1.2	4	556.7	545	-11.5	4
	Halls Elementary	-3.5	568.8	570	.9	15	571.3	569	-2.6	15
	Hardin Valley Elementary	-21.2	553.8	571	17.5	20	553.2	550	-3.7	20
	Karns Elementary	-17.5	563.7	578	14.4	27	561.8	559	-3.0	27
	Lonsdale Elementary	3.3	565.6	569	3.8	12	565.9	573	7.1	12
	Maynard Elementary	16.0	572.7	560	-13.0	7	573.4	577	3.0	7
	Mooreland Heights Elementary	7.3	555.4	558	2.6	10	553.6	563	9.8	10
	Mount Olive Elementary	-37.4	548.9	574	24.9	8	548.5	536	-12.5	8
	New Hopewell Elementary	4.9	570.8	588	17.3	4	567.8	591	22.2	4
	Norwood Elementary	-12.7	551.7	564	11.8	22	553.0	552	-.9	22
	Pleasant Ridge Elementary	11.8	551.4	556	4.4	9	550.9	567	16.2	9
	Pond Gap Elementary	8.2	588.3	594	5.0	6	588.1	602	13.2	6
	Powell Elementary	-4.8	566.6	572	5.2	30	565.4	566	.4	30
	Ritta Elementary	-19.2	564.7	580	15.4	13	561.9	558	-3.8	13
	Rocky Hill Elementary	8.9	577.9	584	6.1	10	580.2	595	15.0	10
	Sarah Moore Greene Elementary	3.4	563.3	555	-8.3	30	562.4	557	-5.0	30
	Sequoyah Elementary	0.6	579.4	592	12.6	5	577.2	590	13.2	5
	Shannondale Elementary	-19.4	580.0	602	21.9	7	578.9	581	2.4	7
	South Knoxville Elementary	-12.2	564.3	571	6.7	2	564.0	558	-5.5	2
	Spring Hill Elementary	13.4	568.4	578	9.7	16	566.3	589	23.1	16
	Sterchi Elementary	-0.7	566.5	568	1.7	5	565.6	567	1.0	5
	Sunnyview Primary	-13.0	555.9	570	13.6	22	555.1	556	.6	22
	West Haven Elementary	-3.4	572.9	582	8.7	7	573.9	579	5.3	7
	West Hills Elementary	7.9	597.2	604	6.9	21	596.7	611	14.8	21
	Total	-3.8	565.1	571	5.8	696	564.6	567	2.0	696