



2016 Educational Return on Investment Report

2014-2015 Program Evaluations



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About the Department

The Department of Research, Evaluation, and Assessment (REA) is a multi-faceted team within the Office of Accountability that serves the Knox County Schools. The REA department is comprised of the Director and Supervisor of Research and Evaluation, the Supervisor of Assessment, a senior data analyst, a data analyst, and two specialists. The department is responsible for communicating state accountability frameworks, oversight 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 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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Glossary of Frequently Used Terms

ELA	English/Language Arts.
FY	Fiscal Year. The investment analyses in this report refer to fiscal year 2014 (FY14) expenditures.
KCS	Knox County Schools. The KCS is the third largest school district in Tennessee. KCS serves approximately 58,000 students.
PBIS	Positive Behavior Intervention and Supports. A framework for establishing the social culture and behavior needed to achieve desired behavioral and academic outcomes for students.
PLE	Personalized Learning Environment (formerly referred to as the School Technology Challenge).
PreK	Prekindergarten.
REA	Department of Research, Evaluation, and Assessment (Knox County Schools).
RLA	Reading/Language Arts. RLA is a specific subject assessed by the Tennessee Department of Education.
RTI²	Response to Instruction and Intervention. A statewide initiative led by the Tennessee Department of Education that is based on a three-tier framework. RTI ² promotes recommended practices for integrated general and special education for students.
SY	School Year. This Educational Return on Investment Report evaluates the 2014-2015 school year, SY1415.
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.
VPK	Voluntary Prekindergarten program. The state program is referred to as TN-VPK whereas the KCS program is denoted by VPK.

Executive Summary

The Office of Accountability is committed to providing accurate, objective, relevant, and timely evaluations of district initiatives to measure the return on our educational investments and to advance a student-centered, data-driven culture. The following report is based on program evaluation and analysis conducted by the Department of Research, Evaluation, and Assessment (REA), a department within the Office of Accountability. This is the fourth iteration of the Educational Return on Investment (EROI) Report, which began in 2012. The EROI Report is an opportunity for the Knox County Schools (KCS) to reflect on its practices, learn from its successes and shortcomings, and plan for the future. This report presents analysis of various district programs of the 2014-2015 school year (SY1415).

What's Inside?

The 2015 EROI Report includes two sections that present an overview of themes and the findings and recommendations for each program evaluation. The **executive summary** outlines the programs evaluated and the most compelling themes and considerations that emerged from the evaluations. The **management reports** provide summary information about the programs, investment analyses, major findings, and recommendations. **Technical reports**, with details on methodology, statistical tests, and comprehensive survey results, are available by request and can also be found on the REA [website](http://www.knoxschools.org/Page/5455) (<http://www.knoxschools.org/Page/5455>).

Every program evaluated in the EROI Report is related to the goals of the Knox County Schools Strategic Plan. The district adopted a five-year strategic plan, *Excellence for Every Child*, in 2014 to span 2014 – 2019. The initiatives included in the 2015 EROI Report are as follows:

- The implementation across the district of the **Response to Instruction and Intervention** program under the framework provided by the state
- The implementation across certain schools in the district of the **Positive Behavior Intervention and Support** system, the behavioral component to improve student academic outcomes
- The elementary **Year-Long Reading course** for teachers and instructional coaches to improve reading instruction
- A continued evaluation of the **Personalized Learning Environment** program that provides students with technology in the classroom
- A study of the **Voluntary Prekindergarten** program in KCS as compared to a statewide study conducted by Vanderbilt University

Bright Spots

There were several successes uncovered in the 2015 EROI evaluation process. While there are always strengths and weaknesses to all programs, we want to highlight our successes so that district and school leaders can learn from these “bright spots.” We would like to commend the efforts of the entire district to achieve “Exemplary” status, awarded by the state Department of Education, for gains in achievement and gap closures.

- **Response to Instruction and Intervention (RTI²):** This state-wide initiative implemented by the district has been a massive undertaking. This was the first year of a multi-year analysis, but results showed that intervention placement decisions have been made with an appropriate balance of student data and classroom judgment. There was also evidence that the intervention students who were the most successful exhibited academic gains early in the intervention process.
- **Positive Behavior Intervention and Support (PBIS):** Perception data indicates that staff members agreed that PBIS serves a critical need in our schools and that it is an appropriate initiative to address the continuum of student behavioral needs.
- **Year Long Reading (YLR) Course:** Survey respondents overwhelmingly agreed that participation in the YLR course increased their reading content knowledge, the key goal of the program. Additionally, program leaders have made mid-year changes to the program to better meet the needs of the participants, in efforts to increase course effectiveness.
- **Personalized Learning Environment (PLE):** Teacher perception almost universally recognized increases in both the quantity and quality of the personalization of the learning environment, and quantitative data confirmed these beliefs. PLE continued to be largely viewed as the most effective method for teaching 21st century technology skills.
- **Voluntary Prekindergarten (VPK):** We found enough evidence to show that the Knox County School trends were different in grades three through eight for the VPK students than what the Vanderbilt comparison study students exhibited in grades Prekindergarten to three.
- **Updates from previous EROI reports**
 - We had previously reported that students and staff were occasionally placed in programs despite not being members of the target demographic for intervention or support. The RTI² analysis indicates that, for the most part, students were appropriately placed in intervention, though were perhaps held in intervention longer than was needed.
 - Data quality was a concern raised in the two previous EROI reports. Overall, data quality, in both content and collection processes, has improved across the district.

Operational Themes

As we celebrate our successes, it is important to take note of emerging patterns found in our program evaluations. The following operational themes show not only show growth but also opportunities for improvement.

The district has made gains in appropriately using data and should continue to hone this practice. The use of data should always be tempered with content-expert input and classroom judgment. The RTI² evaluation also demonstrated the psychometric limitations of testing instruments and resultant data.

Our district should continue to be strategic about utilizing the right staff for the right tasks. While it seems intuitive, use of specialized staff should be reserved for specialized tasks. Analysis indicated that content specialists often fulfill administrative or clerical tasks, which may not be the most effective use of resources.

The district must continue to support its initiatives in a way that our educators find meaningful. Schools and staff reported needing more support at the district level in terms of training for RTI², PBIS, and the PLE initiatives.

Management Reports

The following section contains management reports of the programs the REA evaluated. These reports offer overview information about the programs, a brief investment analysis, and the findings and recommendations related to each program evaluation. Program leaders and content specialists in the Curriculum and Instruction department aided in the qualitative and quantitative assessments. Recommendations were also made in concert with program leaders and stakeholders.

These management reports do not provide the details of any statistical analysis. Additional data about methodology or specific results can be found within individual technical reports, available by request and on the EROI [website](http://www.knoxschools.org/Page/5455) (<http://www.knoxschools.org/Page/5455>).

Differentiating and Personalizing Instruction



In order to achieve excellence for every child, instruction must be differentiated and, when possible, personalized. This is a priority for KCS and the state of Tennessee, as it is a key principle of its Response to Instruction and Intervention initiative. Personalized and differentiated education fulfills the first goal from the KCS strategic plan: *Focus on Every Student*. These efforts also include professional support for our educators, which comes from the second goal of the strategic plan: *Invest in Our People*. The following management reports are all related to providing differentiated instruction to meet the needs of our students. They include the following programs:

- **Response to Instruction and Intervention**
- **Positive Behavior Intervention and Support**
- **Year Long Reading Course**
- **Personalized Learning Environment**
- **Voluntary Prekindergarten**

Investment Analysis

The intervention programs were budgeted to support personnel expenditures, training, any necessary substitute costs, and materials.

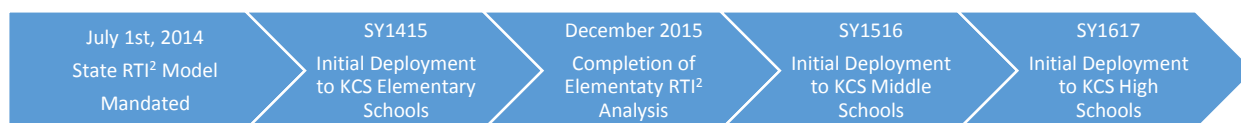
Initiative	FY15 Expenditures		Total FY15 Expenditures	Participants	Cost Per Participant
	State/Grant	General Purpose			
RTI ² (per student cost)		\$1,113,025	\$1,113,025	7,775	\$143
PBIS (per student cost)		\$535,701	\$535,701	18,948	\$28
YLR (per teacher cost)	\$69,895	\$10,000	\$79,895	266	\$300
PLE (per student cost)		\$1,061,832	\$1,061,832	8,438	\$126

Notes about the expenditures:

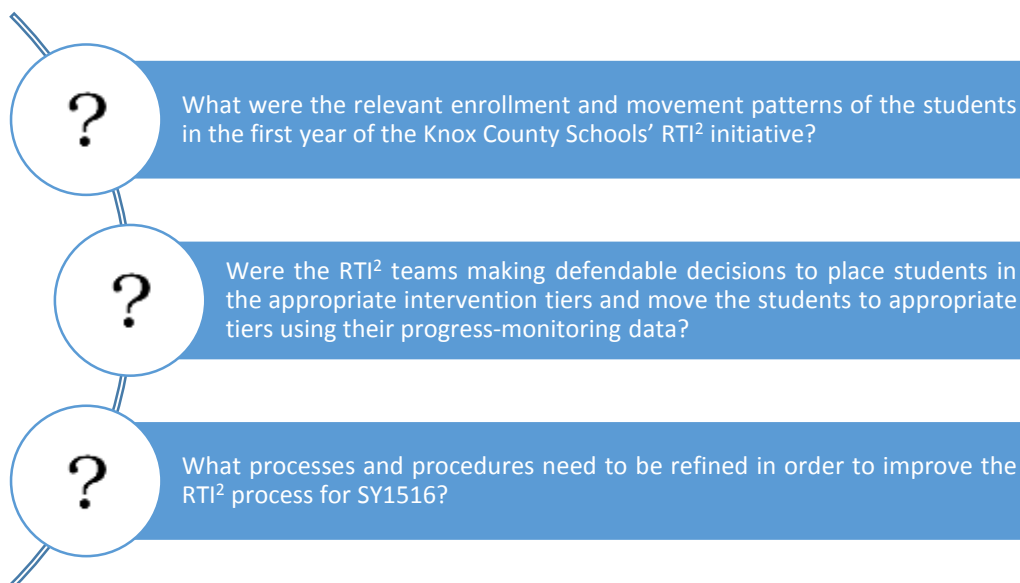
- The RTI² participant count reflects only those students who received intervention services.
- The PBIS costs shown here are for any schools that have PBIS staff or received PBIS stipends. However, the program evaluation only considered a subset of the schools included in the investment analysis.
- The YLR costs reflect the entire program, including the cost for all participants, but the program evaluation only assessed the elementary YLR program (not the secondary course).
- The PLE investment analysis reflects the costs at the 13 PLE schools, though the program evaluation only considered the initiative at 11 schools.

IMPLEMENTATION OF RTI²

In the 2014-2015 school year (SY1415), the state of Tennessee mandated the implementation of their Response to Instruction and Intervention (RTI²) framework at the elementary level. The state RTI² framework was created in order to standardize the disparate practices that were being used across the state to provide enrichment to high performing students, support struggling students, and ultimately determine if a student has a learning disability. The RTI² framework promotes individualization to meet student needs through core instruction and additional intervention, and is tiered in order to meet student needs from special education through general education.



The effective implementation of appropriate academic interventions is a key tenant of the district’s strategic plan, *Excellence for Every Child*. The district’s RTI² leadership team defined the following research questions to be answered after the initial year of RTI² implementation in order to determine if our strategic goals were being largely met:



Findings



What were the relevant enrollment and movement patterns of the students in the first year of the Knox County Schools' RTI² initiative?

It was clear from the KCS data that the district RTI² teams felt that foundational reading skills were the area of greatest need for our elementary students. There were more than four times as many students receiving intervention services in Reading/Language Arts (RLA) instruction when compared to Math. KCS was, and continues to be, a proponent of early intervention and the grade-level enrollment figures indicated that this philosophy was put into practice.

The percentage of students enrolled solely in Tier I, the least intensive instructional tier, increased with grade level. The number of students placed in Tiers II and III was highly variable across the schools of Knox County. This level of variation led to some unique challenges in scheduling and resource allocation. The variation may eventually lead to additional challenges as the intervention students matriculate to middle school.



Were the RTI² teams making defensible decisions to place students in the appropriate intervention tiers and move the students to appropriate tiers using their progress-monitoring data?

There were many indicators that, in general, the RTI² teams were making defensible decisions regarding intervention enrollment and movement between the intervention tiers. It was evident that the RTI² teams were making intervention placement decisions based on the RTI² data and also using classroom judgment to support most of the intervention enrollment decisions.

The longitudinal trends in the mean Tier II data seemed to suggest that the academic growth of the students who eventually graduated to Tier I occurred relatively early in the process. Some of the longitudinal Tier III data suggested that there were differences in performance between certain groups of students before any of the SY1415 intervention services were administered. This may mean that some of the students were misclassified early in the process and were thus enrolled in more intensive tiers than their academic progress truly warranted. Both quantitative and qualitative data seemed to indicate that the RTI² teams would generally err on the side of students remaining in more intensive tiers.

It is important to note that both the state and the district RTI² frameworks stress the use of data in the decision-making process. Because of the importance of the data, the RTI² teams must understand the psychometric limitations of the tools that they have been given and continue to use their professional judgment when making any decisions regarding intervention. The current progress-monitoring tools that KCS is utilizing are likely not sensitive enough to truly capture student growth at two-week intervals.



What processes and procedures need to be refined in order to improve the RTI² process for SY1516?

The largest hurdle to the implementation of the RTI² framework was the time requirements placed on the staff to implement the framework as intended. Our skilled educators (from teachers to academic coaches) were using planning time to compile attendance records and test results and complete paperwork for monthly RTI² team meetings. This does not seem like a wise use of time for our specialized staff when a centralized clerical position or specialized software could accomplish many of the same tasks.

The district must also ensure that the schools have proper tools for implementing RTI². The staff that were interviewed as part of this study were generally happy with the intervention programs offered in RLA but were less positive regarding the intervention programs available in Mathematics. In addition, the district currently has no large scale intervention to target non-cognitive skills. Non-cognitive deficits were commonly cited as a rationale for the poor performance of students on the progress-monitoring tools. However, continued enrollment in an intervention that targets foundational Math and Reading skills is unlikely to solve non-cognitive issues.

Finally, the number of data points required for a formal referral to special education is still largely viewed as a “wait to fail” model. Although it is understandable that the state requires quantitative evidence supporting the placement of students in special education, the RTI² teams want to make sure that students receive the services that they need without delay.

Recommendations

The results from this analysis indicated that, in a general sense, the KCS practitioners were implementing the RTI² framework as intended. The Knox County tier enrollment was similar to the state theoretical distributions. There were statistically significant differences between the mean performance of students in the various tiers, and students were generally exiting tiers when their progress-monitoring data indicated that they were ready for promotion to a less intensive tier.

As with all new initiatives, there were areas in which KCS could improve regarding their implementation of the RTI² initiative, including the following:

- The district should provide solutions that ease the administrative burden of RTI².
- KCS should investigate a holistic intervention model that includes non-cognitive supports for students as a complement to the academic RTI² framework.
- The district should decide how best to balance conservative decision-making to ensure that students who are academically ready to advance to a less intensive tier do so in a timely manner.
- KCS should use a common-sense approach to ensure students are referred to special education regardless of the number of progress-monitoring data points that have been collected.
- The district should determine if the current levels of school-to-school variation in the performance of intervention students are acceptable.
- The district should educate its decision-makers on the level of uncertainty that exists in each assessment that is being used to monitor student progress in the RTI² process and use this information to help protect students from over-testing.

POSITIVE BEHAVIOR INTERVENTIONS AND SUPPORT

Positive Behavior Intervention and Support (PBIS) is an evidence-based framework for establishing the social culture and behavior needed to achieve desired behavioral and academic outcomes for students. PBIS is not a prescribed curricular intervention but rather an intervention strategy that aims to alter a school’s organizational context to implement a multi-tiered behavioral prevention framework. Its procedures are rooted in basic and commonly understood behavioral, social learning, and organizational principles. At its core, PBIS consists of three tiers of interventions: all students receive basic preventive support in the lowest level tier. Moving through tiers results in increasingly intensive interventions that are designed to meet the needs of individual students. The intervention strategies applied in each of the three tiers are tailored by each site to meet the unique needs of their student bodies and to make the best possible use of available resources. PBIS falls under both the first and second goal of the KCS Strategic Plan: *Focus on Every Student* and *Invest in Our People*.

Knox County Schools began offering district-level training and support for the PBIS framework during the fall of SY1415 to schools that volunteered to participate. PBIS was piloted in SY1415. Initial results of the pilot were positive and the program was expanded. Following SY1415, Knox County offered a district-led, voluntary two-day training during the summer of 2015 on the subject of PBIS. Nine elementary schools, three middle schools, and most high schools sent staff members to attend. The elementary and middle schools that elected to attend the summer training also implemented school-wide PBIS at the start of SY1516.



Findings

Fidelity of implementation and program sustainability were the primary focus of this study since this is the first year that PBIS has been implemented in Knox County Schools and limited data is available for evaluation. However, a year-over-year comparison in the number of office discipline referrals revealed that they declined in 7 of 12 schools with substantial decreases at Sarah Moore Green, Lonsdale, Green, Beaumont, and Vine. Additionally, the number of discipline incidents that resulted in out-of-school suspensions was smaller in the first part of SY1516 compared to the same timeframe in the last school year at five PBIS schools. These results are preliminary, but they are encouraging signs for the program. To get a sense of teacher attitudes toward the program and the fidelity with which it was being implemented, a survey was administered at all twelve PBIS schools.

The main themes that emerged after the responses were analyzed are:

- Attitudes were generally positive regarding PBIS across the district
- Survey respondents at PBIS schools believed that the program served a critical need in their schools
- Survey respondents strongly believed that behavioral expectations were clearly communicated and that students understood the behavioral expectations at their school
- Nearly all PBIS schools had school-wide reward systems in place to reinforce positive student behavior
- All but two schools had strong agreement that a tiered system of behavior intervention was used at their school to address student behavior
- There was some contention between school administration and staff about which behaviors should be managed by principals
- There was strong agreement that each school had a PBIS team, but staff at some schools were unaware if student behavior data was being used in action planning
- There were several schools that did not agree that they had received an adequate amount of training on the subject of PBIS
- Opinions were less positive about district-level support for PBIS

Recommendations

Responses from the survey cast the current state of the program in a fairly positive light, but there are areas that could be improved upon as well as some things to consider for the future. First, large portions of respondents from three elementary schools did not feel that they had received adequate training in PBIS, and respondents at nearly all schools were less positive than they had been on most other items regarding the level of support they receive for PBIS from the district. Also, about ten percent of the written comments on the PBIS survey alluded to the need or desire for additional training at a particular school. One of the continuing challenges for this program will be to provide adequate support from the district level. It was clear that school personnel desired more ongoing professional development for PBIS, but the number of people that are dedicated to the program is limited. Providing support will become even more challenging in the future as more schools elect to take part in PBIS.

If PBIS is a strategic priority, then it may also be advisable to put fidelity checks in place to quickly identify teachers or schools that have strayed from the research-based practices that form the PBIS framework. One of the common themes heard during site visits was that consistency across the entire school is crucial to the proper functioning of PBIS and that it is easy “to fall back into old habits as a teacher.” Elements of the TEAM rubric are consistent with effective PBIS practices and could be emphasized by school administrators during teacher evaluations to address classroom-level fidelity. It may also be beneficial if a school-wide fidelity check were conducted once or twice each year. The SET (School-wide Evaluation Tool) is a widely used and freely available tool that can be used to assess critical components of PBIS at the school level. It is comprehensive and would require a fairly significant investment of time to apply at every PBIS school, so it would likely need to be adapted for use in Knox County.



From an evaluation standpoint, REA will continue the program evaluation for PBIS throughout the rest of SY1516 and into the next school year. The survey provided information about whether key components of PBIS were in place, but it did not address how effectively they were being used. To get a sense of how effectively key components of the program are being put to use, the program evaluator will conduct:

- More site visits in order to meet with school-level PBIS teams
- Focus groups with PBIS teachers
- Meetings with program leadership to determine which outputs are appropriate for analysis, which may include
 - academic outcome data
 - discipline data

YEAR-LONG READING COURSE

Students' ability to read has long been tied to academic success. Educational research has shown that children who read significantly below grade level by third grade are at high risk of academic failure and dropping out later. As such, students' ability to read has long been a concern across the nation and in Tennessee. In an effort to improve reading proficiency, the Tennessee Department of Education invited literacy educators to a year-long reading (YLR) course to help improve foundational reading skills.

During SY1314, KCS sent four literacy coaches to the state training. Secondary and elementary literacy coaches attended with the goal of learning more about decoding and language, English/Language Arts (ELA) standards, and engaging methods to improve student comprehension and writing. The KCS ELA department adapted the course materials and created its own YLR courses for SY1415 in order to teach higher-level reading instruction to KCS educators. The YLR program falls under the first and second goals and objectives of the KCS Strategic Plan: *Focus on Every Student: Guarantee Excellence in the Classroom* and *Invest in Our People: Build & Support Our Community of Learners*.

This report is an overview and program evaluation of the elementary YLR course in KCS. The scope was limited to the elementary level due to the heightened interest in foundational reading skills and ensuring students are reading at grade-level before entering secondary grades. Perception data indicated the program was successful in its goal of improving teacher reading skills and knowledge. An overwhelming majority of educators who responded to the survey somewhat agreed or strongly agreed that their reading content knowledge increased.



There were roughly 90 participants in the grades K-3 cohort and 70 in the grades 4-5 cohort during SY1415. It should be noted that the cohort numbers included coaches and supervisors who may have attended multiple sessions but were only counted once. Similarly, some administrators attended sessions but did not attend all sessions. The breakdown of participants was as follows:

Teachers	Coach/Facilitator	Administrators
117	36	8

Findings

In the process of the program evaluation, it became clear that there was not a single testing metric that was fully aligned with the stated goals of the program. Therefore, the program evaluation of the YLR course was based on qualitative measures.

Program leader feedback

Over a series of interviews and e-mails, the program leaders shared their reflections about the first year of the YLR course. Much of the feedback aligned with the perception data collected via survey. For example, the YLR coaches believed that there was more buy-in from the early elementary teachers who participated in the course and the survey data indicated participant agreement. One reason the YLR coaches felt that early elementary teachers may have exhibited buy-in is because there is not a state assessment tied to their level of effectiveness score and consequently, they were more free to experiment with lesson planning.

Participant survey

A nine-question survey was emailed to the educators who were enrolled for the SY1415 elementary YLR courses. Overall, the perception data reflected positive trends. Those who participated overwhelmingly agreed that the course was valuable and that it improved their foundational reading skills. Over 80 percent of the educators who responded agreed or strongly agreed that their content knowledge increased as a result of the YLR class. It is important to note that even those survey respondents who responded with “strongly disagree” or “somewhat disagree” to most of the survey questions still responded favorably to the question regarding reading content knowledge increase. While there were some disapproving responses and comments, the high response rate coupled with the significantly favorable responses indicated program success from among a broad spectrum of elementary educators.

Program capacity

Roughly 200 educators can go through the course each year, which would take ten years to train all elementary educators. Program leaders should consider the necessary time required to train all elementary staff members given the resources available.

Recommendations

The perception surrounding the elementary YLR course was positive from those who participated in the survey, which was almost two-thirds of the enrolled staff. Nonetheless, there is room for improvement. The program leaders have developed their own feedback tools (including a pre and post-test for teachers and internal surveys), but there are additional recommendations based on data needs and feedback from the participant survey. It should be noted that since this report was completed, there have been several changes to the YLR course.

Data Opportunities

- **Pre-testing and post-testing:** A pre-test and post-test should be administered to participants to assess how well course participants grasped the material.
- **Classroom observations:** An observation tool would be an appropriate method to track the implementation of the coursework and pinpoint areas of reinforcement and refinement.
- **Measures of progress:** Data from student assessments that are better aligned with the YLR course focus should be discovered. CBM assessments appropriately gauge reading fluency but are not administered to most Tier 1 and Tier 2 students. TNReady may also be an appropriate measure of progress.
- **Survey questions:** The next iteration of the YLR survey should include more identifying information in order to draw clearer conclusions about which type of educator perceived the course to be effective.

Process Changes

- **Information overload:** Program leaders may seek to revamp the schedule to reduce the number of topics covered per course or use the course time in such a way that participants can organize and debrief the lessons learned.
- **Tailor for grades:** Although the cohorts were grouped by early (K-3) and upper elementary (4-5) grades, it may be of benefit to group cohorts by individual grade in order to provide grade-specific information as related to standards, classroom work, and typical challenges.
- **Tailor for position:** The program leaders may wish to differentiate the curriculum for teachers and coaches.
- **Bridging skills:** The program leaders may wish to create more intentional connections between the reading skills in the course and how to apply them in other content area lessons.
- **Classroom visits:** The YLR coaches may wish to make classroom visits and observations an essential component of the course. Collecting observation data by way of a centralized, electronic database could make program reflection and evaluation easier in the future.
- **Lost classroom time:** Participants who responded both negatively and positively to the survey lamented loss of classroom time. The feasibility of a summer course or a series of after-school courses may be worthy of investigation.

PERSONALIZED LEARNING ENVIRONMENT

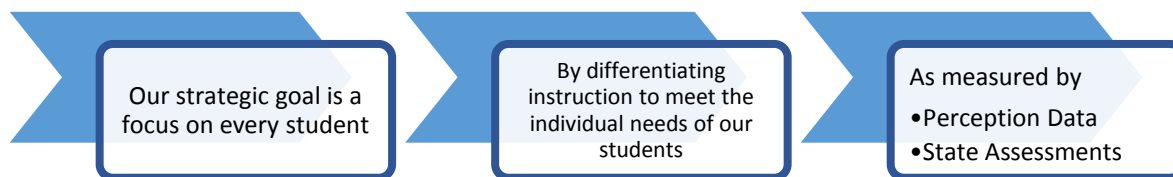
In SY1314, KCS made a significant investment in computing devices and associated professional development in order to fully integrate technology within 13 KCS schools. The resulting Personalized Learning Environment Initiative (PLE) created a 1:1 student-to-device ratio. The main objectives of the initiative are listed below:

1. Increase the individualization and differentiation of student-centered instruction
2. Increase student affinity, motivation, and engagement in the classroom
3. Increase the effectiveness of teaching through both of the above while integrating technology-based education aids



Findings

The SY1415 formative analysis indicated that the PLE remained a work in progress. The data collected through focus groups, surveys, and classroom observations indicated that the depth of technology integration and personalization had increased since the initial formative evaluation of the program, but the changes may still not have been deep enough to impact all areas of this study.



Teacher perception almost universally recognized increases in both the quantity and quality of the personalization of the learning environment, and quantitative data confirmed these beliefs. Those who conducted classroom observations were less likely to classify teachers in the lowest rankings of personalization in SY1415 when compared to SY1314. However, responses from the student surveys indicate that teachers and students perhaps held divergent views on how student-centered instruction and personalization should be deployed in the classroom.

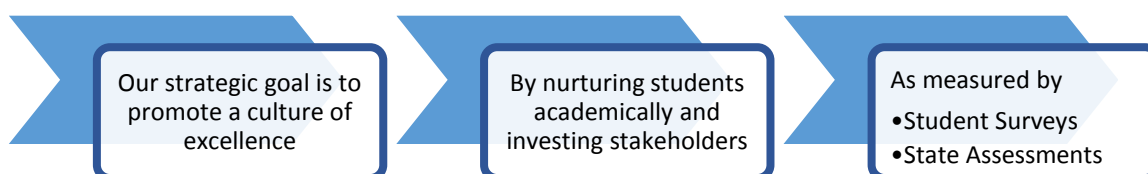
The results from the state assessments continued to show mixed results. There were few trends in the SY1415 growth and achievement measures that distinguished the PLE schools from their non-PLE peers. Despite the lack of systemic increases, there continued to be some positive trends in the data. For the second year in a row, the high school math data collected from the PLE schools exhibited increased growth among all ability levels of students. The middle school proficiency data illustrated positive trends in reducing the percentage of students at the PLE schools who fell in the bottommost classification of academic performance. The highest-

performing elementary students at PLE schools generally outpaced the growth of similar students at non-PLE schools. KCS is hopeful that these trends will continue into the SY1516 school year and expand to other areas.



Opinions tended to be divided regarding the effectiveness of the SY1415 professional development offerings that supported the PLE. The majority of survey respondents had a favorable view of professional learning opportunities, but there was a vocal minority of teachers who were less positive. A common complaint was that the professional learning offerings were not differentiated to meet the needs and learning styles of the adults involved in the PLE. In addition, there was still no formal KCS network of PLE practitioners that could help model classroom-scale strategies and share best practices from the field.

The Technology, Pedagogy and Content Knowledge (TPaCK) coach continued to be seen as the single best provider of PLE support in the district. The TPaCK coach position was generally viewed as being at least as beneficial as a teaching position in the building. However, the state Response to Instruction and Intervention (RTI²) initiative ended up competing with the PLE for coaches' time (at the elementary level). TPaCK coaches would execute administrative tasks associated with RTI², which may have diluted their impact on the SY1415 PLE.



The vast majority of the teachers and students at the PLE schools were proud to be a part of the PLE. The participants continued to see the value in teaching and learning 21st century skills. The majority of the students seemed to feel that their device had allowed them to take more ownership in their education and helped them to be more organized and prepared to learn. The participants remained largely convinced that the PLE was the key to student success in the modern classroom and that the technology deployed as part of the PLE was the tool that would make the PLE possible.

Recommendations

Though some new challenges arose in SY1516, the recommendations from SY1415 are largely echoes of the recommendations that stemmed from the initial formative evaluation of the PLE.

- The district should investigate methods to alleviate the administrative burden of competing initiatives in order to increase the time available for improving the PLE implementation.
- The district should personalize the professional learning opportunities for teachers at PLE schools to maximize their effectiveness and shorten the learning curve for high-quality PLE implementation. Additionally, the district should dedicate itself to forming a collaborative community of practitioners in order to model classroom-scale lessons and share best practices.
- The district must understand why teachers and students have divergent views regarding the definition of student-centered instruction in order to inform the district's long-term PLE strategy.
- The schools should collect data on the PLE and Technology Integration Matrix rubrics at regular intervals, as these are among the few leading indicators of success that are available in the PLE initiative.
- The district and PLE schools should ensure that parents are fully engaged stakeholders in the PLE.

VOLUNTARY PREKINDERGARTEN COMPARISON STUDY

The Vanderbilt Peabody Research Institute's 2015 study, *A Randomized Control Trial of a Statewide Voluntary Prekindergarten Program on Children's Skills and Behaviors through Third Grade*, has generated a great deal of interest in examining the short and long-term benefits of Prekindergarten (PreK) programs. Knox County Schools used longitudinal data to examine student academic and behavioral trends and see to what extent they match or differ from the Vanderbilt study.

While the Vanderbilt study found that all of the Voluntary Prekindergarten (VPK) programs were deemed to be "high-quality," there was some latitude as to what was involved in the PreK programming. Knox County Schools PreK personnel believe that their approach to PreK was better than most other programs in the state and that the KCS program did not necessarily contribute to some of the negative results that were found in the Vanderbilt study.

Investment Analysis

Although the VPK program is classified under the *Focus on Every Student* initiative of the strategic plan, the investment analysis is separate since the state funds the majority of the program. The VPK program is at 21 schools in the district with a total of 477 students, 32 teachers, one supervisor, and support staff (secretaries and educational assistants). Costs include salary and benefits for the associated staff, substitutes, and supplies.

Initiative	FY15 Expenditures		Total FY15 Expenditures	# of Students	Cost per Student
	State Funds	General Purpose			
VPK	\$1,865,003	\$625,232	\$2,490,235	477	\$5,220

Findings

We assessed results based on attendance, discipline, and academic performance. The following tables compare the results of the Vanderbilt study to the KCS study.

Item	Vanderbilt Study	KCS Study
Attendance	The study addressed subgroups of children and found that the TN-VPK attendance was not affected by subgroups.	We found that there was not a statistically significant difference in attendance, but we noted some evidence that students who attended our VPK program had slightly better attendance through the intermediate and middle school years.

Item	Vanderbilt Study	KCS Study
Behavior	The study used survey instruments that were given to teachers. The first grade teachers noted that the TN-VPK students had poorer work skills in the classroom and felt more negative about school. This general negativity continued into the third grade where the peer relations favored the TN-VPK students.	We used discipline referrals as our measure. This measure was less subjective than the one used in the Vanderbilt study. We found no statistical differences between the two groups and no evidential trends in the data.

Item	Vanderbilt Study	KCS Study
Academics	<p>The study used Woodcock-Johnson assessments and noted a significant difference between the TN-VPK students at the start of kindergarten but the control group closed the gap by the end of the kindergarten year. In the first grade, the groups performed in a similar manner. It was perplexing that during the second and third grades the control group performed significantly better on the achievement composite and on the math subtests.</p>	<p>We used TCAP achievement levels and Normal Curve Equivalents (NCE) for our measures. These are the measures that are used on the state report card and for accountability purposes. We considered the subjects of Reading/Language Arts, Math, and Science. We found no statistically significant difference between the two groups, but we did note that over the course of the intermediate and middle school years there was some evidence that the control group performed better in Reading/Language Arts. There was the same amount of evidence that the VPK students performed better in Science. There was slightly less evidence that the VPK students performed better in Math. This last result is the reverse of what the Vanderbilt study found for this subject.</p>

Recommendations

We found enough evidence to show that the Knox County School trends were different in grades 3-8 for the VPK students when compared to the TN-VPK students exhibited in grades PreK-3. It is possible that some of the TN-VPK trends will reverse in the coming years. It is also possible that while the Knox County Voluntary Prekindergarten program was one of the “high quality” programs in the Vanderbilt study, the nature of the program allowed for some better long-term results.

Possible future studies for KCS would include:

- Replicating this study with another cohort
- Replicating this study with more trials using replacement
- Analyzing the content of our VPK in order to note why our VPK students were somewhat stronger in Science and Math while being somewhat weaker in Reading/Language Arts