Multi-Tiered System of Support, 2016-17 to 2017-18

WAKE COUNTY PUBLIC SCHOOL SYSTEM

DATA, RESEARCH & ACCOUNTABILITY

Multi-Tiered System of Support, 2016-17 to 2017-18

Abstract

The Multi-Tiered System of Support (MTSS) framework, which uses a systems approach to promote school improvement and support all students in improving academics and behavior using data-based problem-solving, is a key part of the Wake County Public Schools System (WCPSS) Strategic Plan. As of 2017-18, MTSS schools were at the initial stages of MTSS implementation and showed no significant improvement in Grades 3 and 8 reading proficiency, overall achievement, or Education Value-Added Assessment System (EVAAS) growth ratings that could be attributed to MTSS implementation. Suspension rates and eligibility for special education in high incidence categories were not yet a focus for the practices or professional learning and were also not positively affected by MTSS. However, a higher percentage of teachers in treatment than control elementary schools reported that MTSS positively affected student achievement in their schools. Additionally, MTSS had a positive effect on Hispanic/Latino students' 2017-18 graduation rates and on reduction of their special education eligibility rates at elementary schools. The initial results suggest that MTSS should remain a district priority with an ongoing leadership support, expanded focus on tiered supports and on the behavioral component of MTSS.

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Summary

This evaluation report describes the progress made by the Wake County Public School System (WCPSS) towards meeting the long-term goals for Multi-Tiered System of Support (MTSS) as of 2017-18. WCPSS started exploration and installation of MTSS in 2014-15 by offering professional learning to WCPSS Senior Leadership and to a group of 28 schools (MTSS Cohort 1). To assign the rest of the district schools to MTSS cohorts for professional learning, a pool of 88 schools was created out of the schools that did not receive professional learning. Half of those were randomly assigned to Cohort 2 which received professional learning and started implementation in 2016-17, while the other half was assigned to Cohort 4 which started their professional learning and implementation two years later. The remaining schools became Cohort 3. While all four Cohorts received professional learning, this MTSS report is focused specifically on the schools randomly assigned to Cohort 2 and to their comparison, Cohort 4.

What is MTSS?

MTSS is a multi-tiered framework which promotes school improvement through engaging, research-based academic and behavioral practices. MTSS uses a systems approach to supporting students in improving both academics and behavior using data-based problem-solving to maximize growth for all (North Carolina Department of Public Instruction, n.d.).

MTSS addresses persistent academic and behavioral disparities among student subgroups, including gaps in student outcomes and the disproportionality in suspension rates. It strives to reduce the predictability of academic outcomes by helping students overcome early academic difficulties. The framework is also designed to address behavioral disparities that often present themselves in the form of high suspension rates for certain student subgroups. The MTSS framework is incorporated into WCPSS district policies and is a key part of the district's current Vision2020 Strategic Plan.

The MTSS framework encompasses six major components:

- Leadership
- Communication and Collaboration
- Building Capacity/Infrastructure for Implementation
- Three Tiers Instruction/Intervention
- Data-Based Problem Solving
- Data/Evaluation

MTSS emphasizes continuous school improvement through strengthening school leadership, building school capacity and infrastructure, and promoting data-evaluation processes (Self-Assessment of MTSS Implementation, 2015). According to the professional learning feedback and the Cohort 2 Self-Assessment of MTSS (SAM) ratings provided by the Instructional Leadership Teams (ILTs) at the schools, the implementation of most of these components in 2017-18 was still in progress. The primary emphasis of the professional learning and implementation to date has been on academics and particularly on Tier I (core instruction). Implementation of other components of MTSS took place with varying degrees of fidelity, but have not yet been the primary

focus of MTSS in WCPSS. As such, this study is focused more heavily on the components of MTSS which the district has addressed in these first years of implementation.

Results

This report addresses the student outcomes comprising the long-term MTSS goals. The outcomes presented in this report are based on two years of MTSS implementation by Cohort 2 and their comparison to Cohort 4 schools that did not begin implementation until 2018-19. Research shows that it generally takes three to five years for a school staff implementing a new approach with fidelity before the student outcomes begin to show some effect (Fixsen, Naoom., Blase, Friedman, & Wallace, 2005), even when all components of that system are in place. Therefore, all results reflecting the current state of MTSS implementation in WCPSS should be considered preliminary.

This report includes descriptive analyses for all student outcomes, as well as additional analyses to control for possible effects of prior student achievement, demographic characteristics, and school effects (see Appendix B for more detail). These additional analyses provide more confidence in attributing any possible change in the outcomes of interest to the implementation of MTSS rather than other outside factors. The 2017-18 outcomes did not reveal much in the way of changes in student outcomes related to MTSS implementation, with the exception of higher graduation rates for Hispanic/Latino students, and lower eligibility for special education support in high incidence disabilities for Hispanic/Latino students in elementary schools. Also, a higher percentage of elementary school teachers In Cohort 2 than in Cohort 4 felt implementation of MTSS had positively affected student outcomes in their school.

Recommendations

Recommendations focus on ways to further strengthen MTSS implementation through central services support and inter-departmental collaboration:

- The MTSS framework should remain a district priority. It is still being developed and is still at initial stages of implementation on some dimensions. The district needs to maintain consistent leadership team and inter-departmental support and collaboration at all levels to provide effective assistance to school leadership teams, school counselors, and intervention specialists.
- Early Warning System (EWS) data should be used more consistently to identify the schools with more barriers to implementation of MTSS and offer those schools additional implementation support.
- Additional emphasis on the behavioral component of MTSS is needed through district-level cross-departmental collaboration to improve implementation fidelity for behaviorally focused MTSS strategies; the adoption of a K-12 behavior assessment system will be helpful to further this work.

- School Improvement Plans (SIPs) have been restructured as a result of a year-long effort of the district's MTSS/SIP leadership team. District leadership should continue to monitor and strengthen implementation of the new school improvement process to maintain alignment with MTSS.

- Strengthen application of standardized procedures for tiered student support in Tiers II and III and more appropriate identification of students eligible for special education support in high incidence disability categories. Continued support and learning are needed to help schools prepare for the 2020 Specific Learning Disability (SLD) Eligibility policy.

- Since the MTSS logic model should be a living document, the district leadership should annually revisit and update the model to reflect implementation progress.

Background

MTSS is a complex multi-tiered framework which uses a systems approach to promoting school improvement and supporting all students in improving both academics and behavior using data-based problem-solving to maximize growth for all.

Following the extensive collaboration with the Florida's Problem Solving/Response to Intervention Project team in 2014-15, WCPSS worked in partnership with the North Carolina Department of Public Instruction (NCDPI) and the National Implementation Research Network (NIRN) to strengthen implementation of MTSS. NCDPI supported the WCPSS MTSS leadership team in completing the District Capacity Assessment (DCA) in 2016 to measure the district's overall capacity to support MTSS implementation and identified the standardized tools for implementing tiered support. NIRN introduced Implementation Science concepts to the MTSS leadership team and shared their generalized walkthrough tool in the fall of 2017.

As of 2017-18, in some respects, WCPSS was ahead of the state of North Carolina in terms of MTSS implementation:

- The district's MTSS leadership team was the first in the state to plan out the implementation process by charting out the strategies to address the district areas of need and by specifying the short-term, intermediate, and long-term goals.

- MTSS language was embedded in several district policies, including Student Promotion and Accountability and Student Behavior/Code of Student Conduct.

- The Early Warning System (EWS) was set up to identify groups of students in need of support and their areas of need. The EWS is currently used by the district schools, while NCDPI has delayed the official rollout of the statewide version of the system until the end of the 2018-19 school year.

- A *Standard Treatment Protocol* for the use of the replicable and empirically validated intervention for all students with similar academic or behavioral needs is being developed and introduced to the elementary and middle schools.

- A *Tiered Behavioral Resource Guide* is being developed by a collaborative central office group to help with tiered behavioral support.

- Professional learning was offered to the entire district with a four-year rollout.

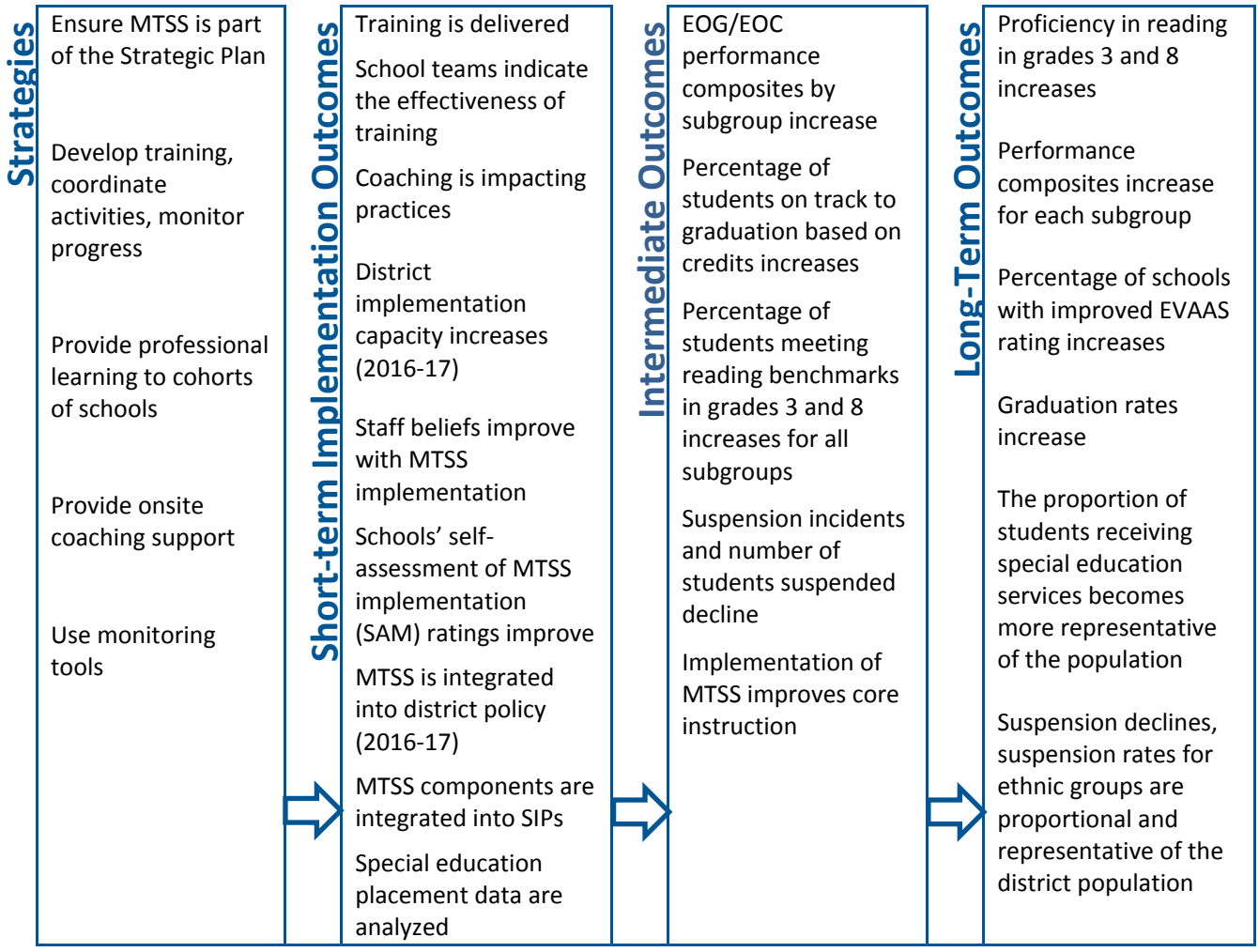
At the same time, it is important to note that according to SAM ratings completed by school leadership teams, the district is still at the initial stages of implementation. According to Implementation Science theory (see Figure A1 in Appendix A), any innovation goes through several stages of implementation, which include exploration, installation, initial implementation, and full implementation, before reaching sustainability (The National Implementation Research Network, n.d.). The district is yet to move to full implementation.

Program Goals

A pathway of change for MTSS is presented below. It is a concise version of the MTSS logic model designed in 2015-16, which delineated the needs, specified the short-term, intermediate, and long-term outcomes for MTSS and described the strategies for achieving those outcomes. According to the model, MTSS aims to overcome disparities in both achievement and behavior that exist among student subgroups, so that the district can reach the 2020 WCPSS goal of 95% graduation rate.

Figure 1
Pathway of Change

Effort: Multi-Tiered System of Support (MTSS)
Need: Disparities in achievement and behavior exist among student subgroups that create gaps in graduation rates and disproportionality in suspension rates. To reach the WCPSS goal for 2020 of a 95% graduation rate, these disparities and the predictability of graduation based on grade 3 reading scores must be reduced.



Methods

Data Sources

This report is primarily focused on implementation and student outcomes to date for MTSS Cohorts 2 and 4. Some potentially useful implementation data sources were not available or represented components of MTSS which have yet to be put in place. As such, Table 1 details the main components of MTSS and data sources that were examined for the study.

Table 1

MTSS Components and Data Sources Used for Implementation Outcomes

MTSS Components	Data Sources Available /Examined
Leadership	training attendance & training feedback, SAM
Communication and Collaboration	beliefs survey results, SAM
Building Capacity/Infrastructure for Implementation	SAM, coaching survey results
Three Tiers Instruction/Intervention	SAM
Data-Based Problem Solving (DPBS)	SAM
Data/Evaluation	initial student outcomes, SAM

Several key student performance indicators were examined in 2017-18 to determine whether there was any impact associated with the implementation of the MTSS framework. Various data sources available to Data, Research, and Accountability Department (DRA) were used for this evaluation. Those included student rosters containing student-level demographics information and End of Grade/End of Course (EOG/EOC) results, suspension data, and special education eligibility data. School-level data with EVAAS ratings, performance composites, and graduation results by school were also examined.

In 2017-18, while Cohort 2 was in the second year of implementation of MTSS, Cohort 4 schools were in their first year of training and were at the exploration stage of implementation of MTSS. Because schools were assigned randomly to Cohorts 2 and 4, differences in outcomes that might be found between the cohorts can be directly attributed to differences in implementation of MTSS rather than other factors. The key student outcome questions guiding the report and data sources used to address those questions are presented in Table 2.

Table 2

Key Outcome Questions and Data Sources

Research Question	Data Source
Did Grade 3 and 8 reading proficiency for Cohort 2 improve significantly by the end of year 2 of MTSS implementation?	Grades 3 and 8 EOG Reading scores
Did overall achievement measured by performance composite improve for Cohort 2 by the end of year 2 of MTSS Implementation?	Schoolwide achievement results (all tests/subjects)
Did Cohort 2 schools improve their EVAAS ratings compared to 2015-16 and compared to Cohort 4 schools?	NCDPI EVAAS growth ratings
Did graduation rates at Cohort 2 schools increase in 2017-18 overall and for subgroups of students compared to the previous two years and compared to Cohort 4 schools?	Four-year graduation rates
Did suspension rates and percentage of students suspended in 2017-18 decrease compared to 2015-16 for Cohort 2 more than in Cohort 4?	Suspension rates
Did the percentages of students with high incidence disabilities in Cohort 2 become more representative of the population from 2015-16 to 2017-18 and compared to Cohort 4?	Special education eligibility rates

Study Design

This evaluation is based on an experimental design where one of each pair of matched schools was randomly assigned to either the treatment (Cohort 2) or the control (Cohort 4) group. The randomized staggered rollout meant that the treatment cohort of schools (Cohort 2) started their professional learning in 2015-16 and implementation in 2016-17 and continued implementation in 2017-18, while the control cohort (Cohort 4) started their training two years later, in 2017-18. The report offers the analyses of the 2017-18 Cohort 2 outcomes and their comparisons to Cohort 4 schools.

Table 3

Nature of the Data Provided and Valid Uses

Research Design	Conclusions that Can be Drawn
☑ Experimental	We can conclude that the program or policy caused changes in outcomes because the research design used random assignment.
☐ Quasi-Experimental	We can reasonably conclude that the program or policy caused changes in outcomes because an appropriate comparison strategy was used.
☑ Descriptive ☑ Quantitative ☐ Qualitative	These designs provide outcome data for the program or policy, but differences cannot be attributed directly to it due to lack of a comparative control group.

Sources: List, Sadoff, & Wagner (2011) and What Works Clearinghouse (2014).

Implementation

As of spring 2017-18, year 2 of the MTSS implementation for Cohort 2, two of the eight implementation goals specified in the MTSS logic model were fully met. Four goals were mostly met, and two goals were still in progress (Bulgakov-Cooke, Lenard, & Singh, 2018). As of October 2018, the School Improvement Plans (SIPs) goal was fully met, and some evidence of implementation of MTSS was reflected in 2018 WCPSS Teacher Survey.

Table 4

Implementation Outcomes as of Spring and Fall 2018

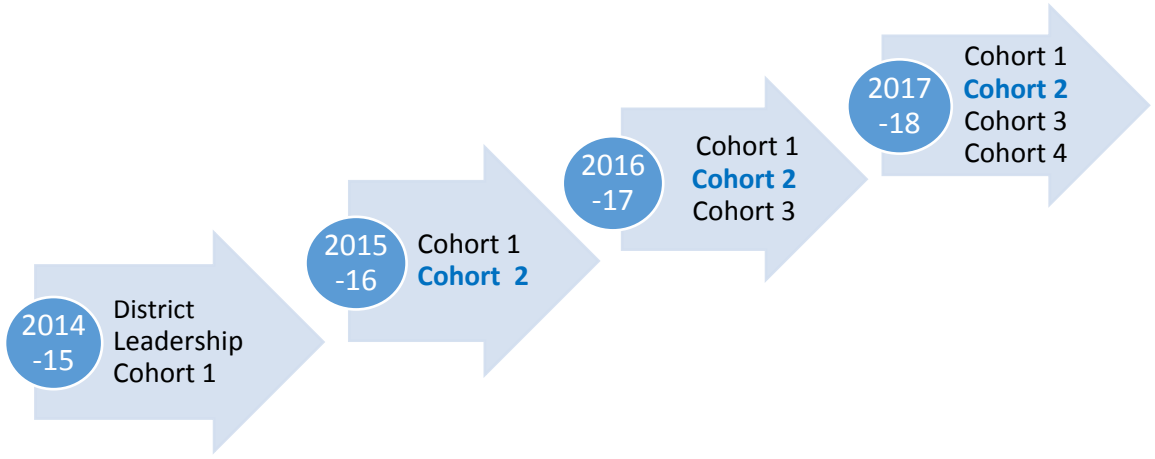
Implementation Outcomes	Spring 2018	Fall 2018
Professional Development		
Deliver four days of PL with 90% attendance	★★★	N/A
80% of staff indicate increased knowledge and potential effectiveness	★★☆	N/A
Coaching		
90% of ILT responses reflect regular coaching and technical support impacting practices	★★☆	N/A
Beliefs		
Certified school staff will have more positive beliefs (80% of beliefs items become more positive) in spring of year 2 than in the fall of year 1	★★☆	N/A
SAM		
By the third administration of SAM (2017-18), 90% of schools increase their school domain averages	★★★ second admininstration	N/A
Average rating of SAM items for 90% of schools will reflect expanded and increased use of the Team-Initiated Problem Solving model (second administration)	★★☆	N/A
SIPs		
An integration of MTSS components will be reflected in the SIP key processes or action steps	Available in October 2018	★★★
Core Instruction		
Evidence of implementation of MTSS in core instruction (Tier I)	Available in summer 2018	★☆☆

Goal Status: fully met ★★★ mostly met ★★☆ partially met ★☆☆ not met ☆☆☆

Training: Professional learning attendance records from 2018 showed that all four cohorts received professional learning with at least 90% attendance. However, due to the staggered implementation timeline, the amount of training differed by cohort (see Figure 2). While Cohort 2 received three years of professional learning, Cohort 4 had only received one year. According to the daily training feedback survey, almost 80% of Cohort 2 respondents indicated increased knowledge and potential effectiveness.

Figure 2

MTSS Cohort Training Timeline

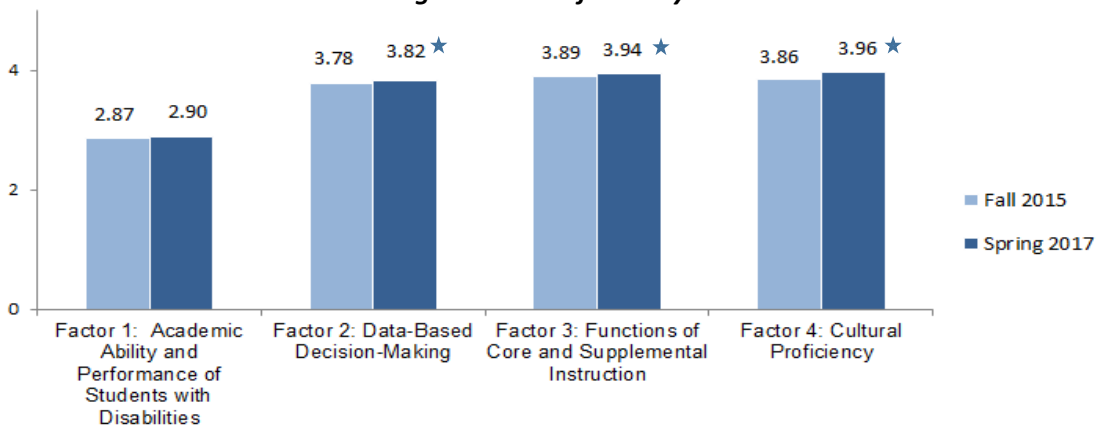


Coaching: As of 2017-18, based on the coaching survey results, the coaching goal of 90% of Instructional Leadership Team (ILT) responses reflecting regular coaching and technical support impacting practices was mostly met. Communication skills and ability to provide timely feedback were rated by ILT members the highest (86% to 90% agreement), followed by the ability to build trust and facilitate consensus. At least 83% of ILT members were satisfied with coaching support, and 78% considered the coach effective in helping their school with implementation of MTSS and action planning. The ability to provide technical assistance, support with decision-making and problem solving were rated the lowest (58% to 71%).

Beliefs: The goal for certified school staff to have more positive beliefs (for 80% of Beliefs Survey items to become more positive) in the spring of 2017 than in the fall of 2015 was mostly met. Cohort 2 teacher beliefs significantly improved in three of the four survey areas from 2015 to 2017. As another point of comparison, baseline (pre-implementation) beliefs ratings were actually higher for Cohort 4 than Cohort 2, but after two years of implementation for Cohort 2, those gaps largely disappeared.

Figure 3

2015 through 2017 Beliefs Survey Results



Note: Star indicates significant difference between Fall 2015 and Spring 2017.

Table 5

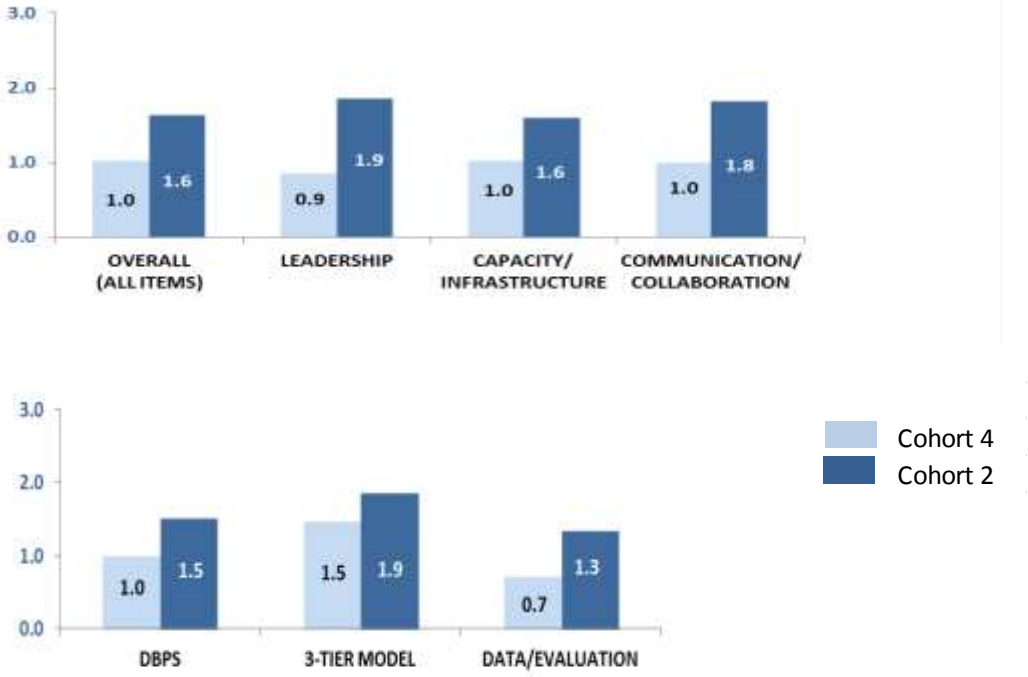
2015 through 2017 Beliefs Survey Results

Cohorts	Cohort 2 Difference 2015 to 2017	Cohort 2 vs. Cohort 4 Baseline Comparison	Cohort 2 vs. Cohort 4 2017 Comparison
Factor 1: Academic Ability and Performance of Students with Disabilities			
Cohort 2	Not Significant		
Cohort 4 & 2		**4 > 2**	
Cohort 4 & 2			**4 > 2**
Factor 2: Data-Based Decision Making			
Cohort 2	**Significant**		
Cohort 4 & 2		**4 > 2**	
Cohort 4 & 2			Not Significant
Factor 3: Functions of Core and Supplemental Instruction			
Cohort 2	**Significant**		
Cohort 4 & 2		**4 > 2**	
Cohort 4 & 2			Not Significant
Factor 4: Cultural Proficiency			
Cohort 2	**Significant**		
Cohort 4 & 2		**4 > 2**	
Cohort 4 & 2			Not Significant

SAM: The goal for 90% of schools increasing their school implementation domain averages by the third administration of SAM was measured using the second administration of SAM available in 2017, and showed significant increases in all SAM domains. The SAM scale, which ranges from zero to three (0 = not implementing, 1 = emerging/developing, 2 = operationalizing, and 3 = optimizing), showed an average implementation score of 1.6 overall (Figure 4). Cohort 2 schools, with an average overall rating of 1.6, were still moving from "emerging/developing" to

"operationalizing" levels and have not yet reached the "optimizing" levels of implementation. Cohort 4 schools, as expected, rated themselves much lower than Cohort 2 schools in all domains in 2017-18 as they were still in the beginning stages of the work.

Figure 4
Summary of the Self-Assessment of MTSS Implementation Domain Averages for Cohorts 2 and 4, 2017



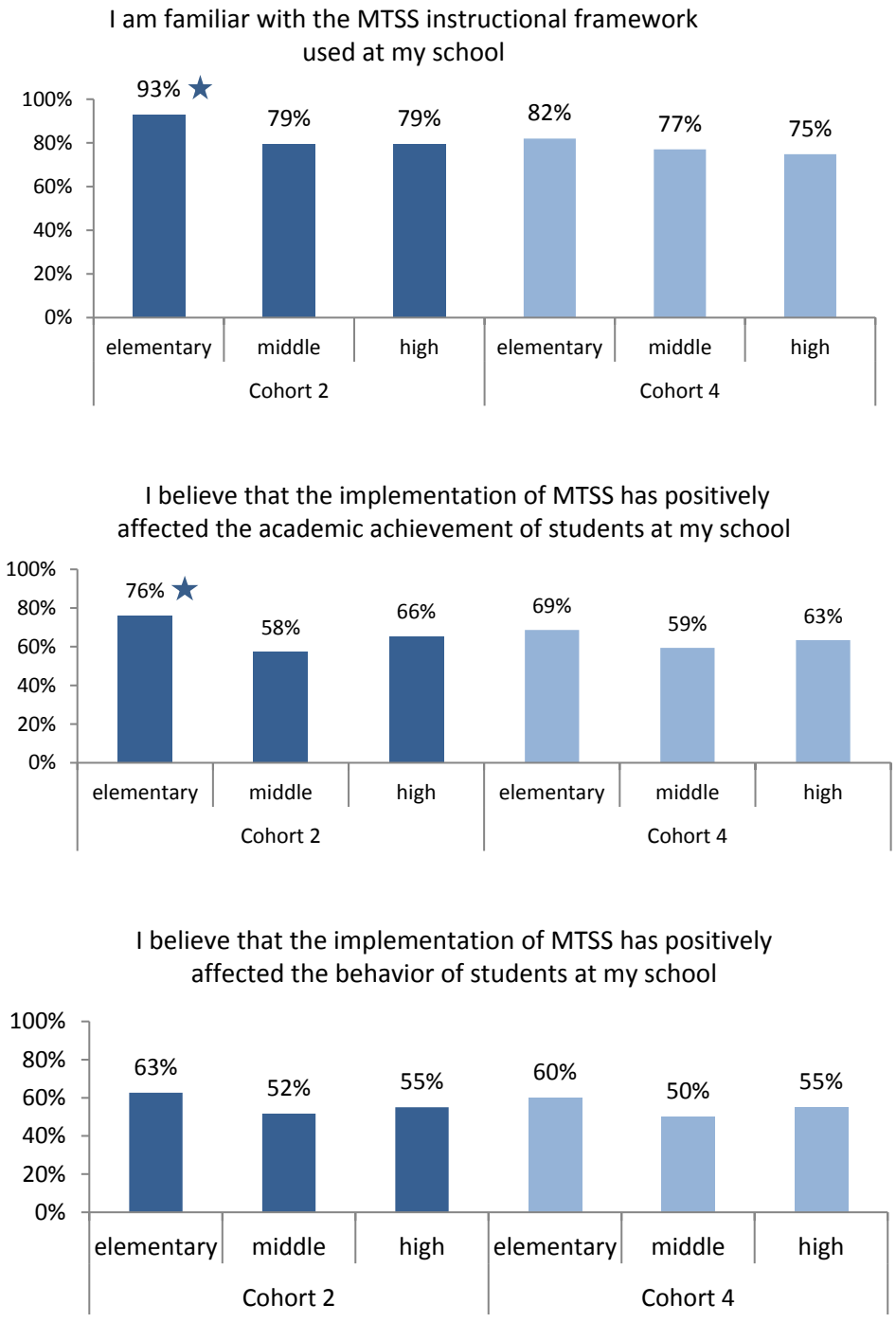
TIPS model: The goal for the average rating of SAM items for 90% of schools to reflect expanded and increased use of the Team-Initiated Problem Solving model (as indicated by the DPBS score) was mostly met by spring 2018. SAM showed that 71% of schools expanded and increased the use of the TIPS model during the second administration.

School Improvement Plans: The goal of the integration of MTSS components into SIPs was met by the end of October 2018.

Evidence of implementation of MTSS in core instruction (Tier I) data were collected through the annual WCPSS teacher survey due to lack of a "look-for" observational data. In the survey, teachers were asked how familiar they were with MTSS and about their perceptions of the effects of the MTSS instructional framework used at their school on students' academics and behavior. Significantly higher percentages of elementary school teachers in Cohort 2 than Cohort 4 stated that they were familiar with the MTSS instructional framework used at their school. Significantly higher percentages of elementary school teachers in Cohort 2 than Cohort 4 believed that the implementation of MTSS positively affected academic achievement. There was no difference between the cohorts in teacher perceptions of the effect of MTSS on student behavior.

Figure 5

Selected 2018 WCPSS Teacher Survey Responses for Cohorts 2 and 4



Note: Star indicates significant difference between Cohorts 2 and 4.

Student Outcomes

This section of the report describes the 2017-18 student outcomes for Cohort 2. Those included reading proficiency in grades 3 and 8, schoolwide achievement (i.e., performance composites), school EVAAS ratings, and graduation rates. This section also examines suspension rates for subgroups of students and eligibility rates for special education support in high incidence disability categories for subgroups of students.

Most of the expected long-term student outcome goals were not yet met as of 2017-18. However, two exceptions were observed: a significant graduation rate increase in 2017-18 compared to 2014-15 for Hispanic/Latino students in Cohort 2 and a decrease in special education eligibility rates in high incidence disabilities for Hispanic students at elementary schools. This is not unexpected at this point, because professional learning had not yet focused on all components of MTSS.

Table 6
Student Outcomes as of Fall 2018

Long-Term Student Outcomes	2017-18
Grade 3 and 8 Reading	
Proficiency in reading in grades 3 and 8 increases	☆☆☆
Performance Composite	
Performance composite for student subgroups increases	☆☆☆
EVAAS Ratings	
Percentage of schools with improved EVAAS ratings increases	☆☆☆
Graduation	
Graduation rates increase	★☆☆
Suspension	
The number of suspension incidents decline (overall and by ethnicity)	☆☆☆
The number of students suspended decline (overall and by ethnicity)	☆☆☆
Eligibility for SPED support in high incidence disability categories	
The proportion of students eligible for special education support in high incidence disability categories becomes more representative of the population	★☆☆

Goal Status: fully met ★★★ mostly met ★★☆ partially met ★☆☆ not met ☆☆☆

Did Grade 3 and 8 Reading proficiency improve significantly by the end of year 2 of MTSS implementation?

In Grade 3, Reading EOG results showed a slight decrease in grade level proficiency rates from 2014-15 to 2017-18 overall and by ethnic subgroup.

In Grade 8, the overall percentages of students demonstrating proficiency on Reading EOG increased slightly for both cohorts, and were flat for most subgroups.

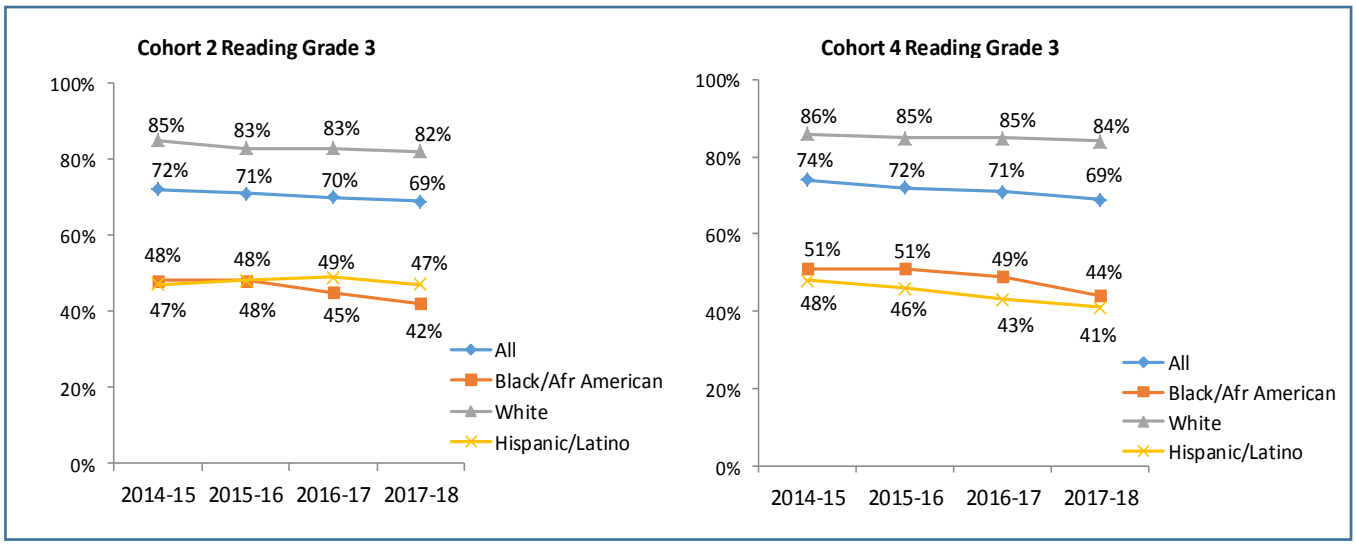
Analyses showed no significant difference between the cohorts.

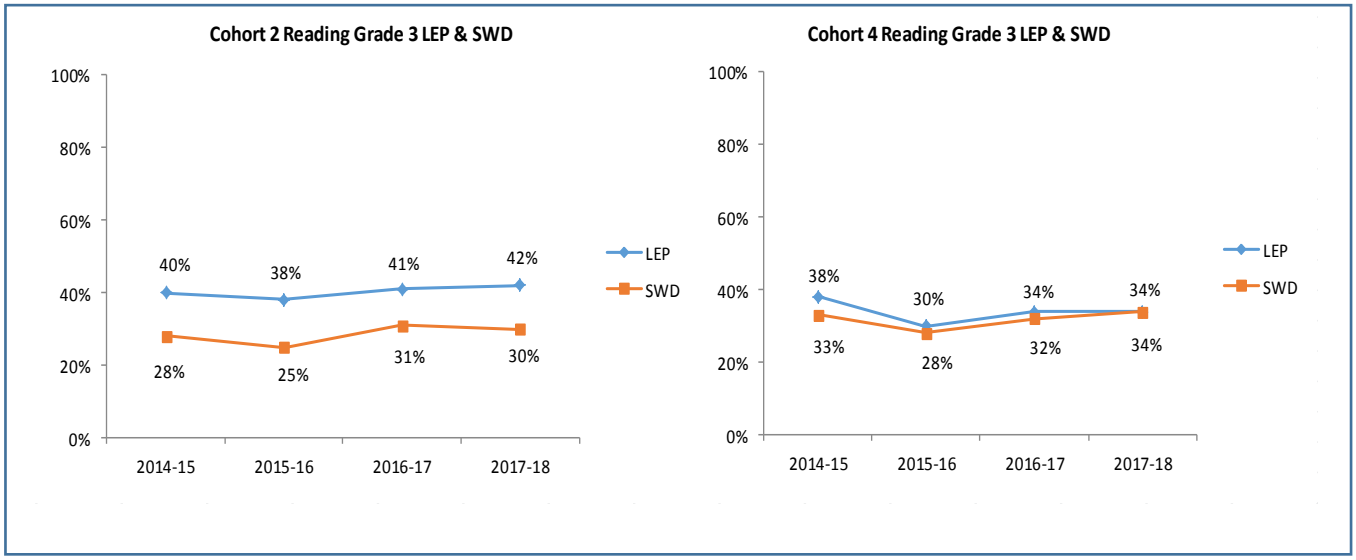
Grade 3

An analysis of Grade 3 Reading EOG results showed a slightly decreasing trend in the percentages of students demonstrating grade-level proficiency from 2014-15 to 2017-18 in both Cohorts 2 and 4. All student ethnic subgroups showed similar trends, except Hispanic/Latino students in Cohort 2, whose proficiency rates remained flat. Cohort 2 LEP and SWD students' proficiency rates were also flat. Black/African American students in both cohorts showed the largest percentage point decrease (see Figure 6). In addition to the descriptive data, multilevel analyses controlling for other school- and student-level factors, also did not show any statistically significant difference between Cohorts 2 and 4.

Figure 6

Cohorts 2 and 4: Percentages of Grade 3 Students Demonstrating Grade Level Proficiency in Reading





Grade 8

In Grade 8, the overall percentage of students demonstrating grade level proficiency in Reading started out slightly higher and remained slightly higher for Cohort 2 than Cohort 4. Both cohorts showed a slight improvement between 2014-15 and 2017-18, with flat rates for most subgroups. Multilevel analyses controlling for school- and student-level factors, did not show any statistically significant difference between Cohorts 2 and 4.

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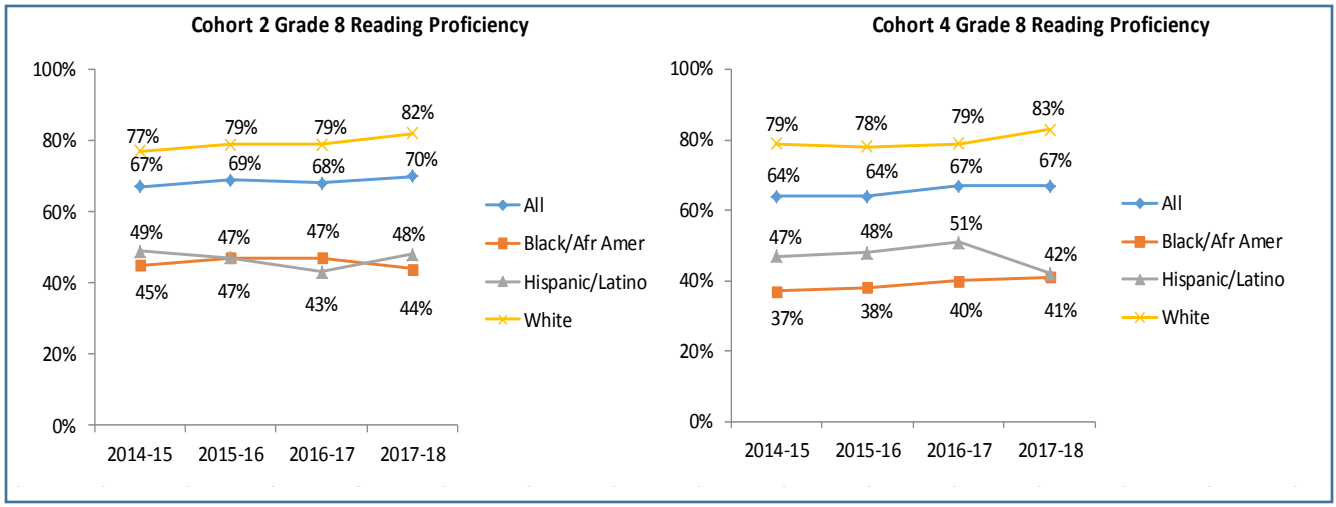
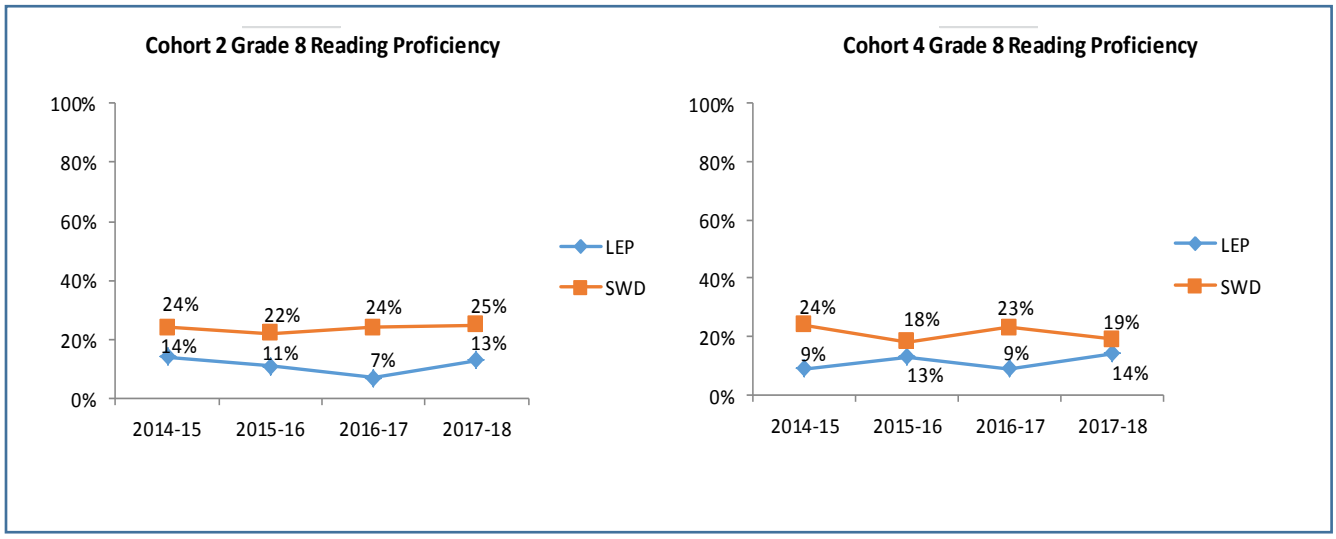
Figure 7

Cohorts 2 and 4: Percentages of Grade 8 Students Demonstrating Grade Level Proficiency in Reading





Data Source: 2017-18 Student Rosters

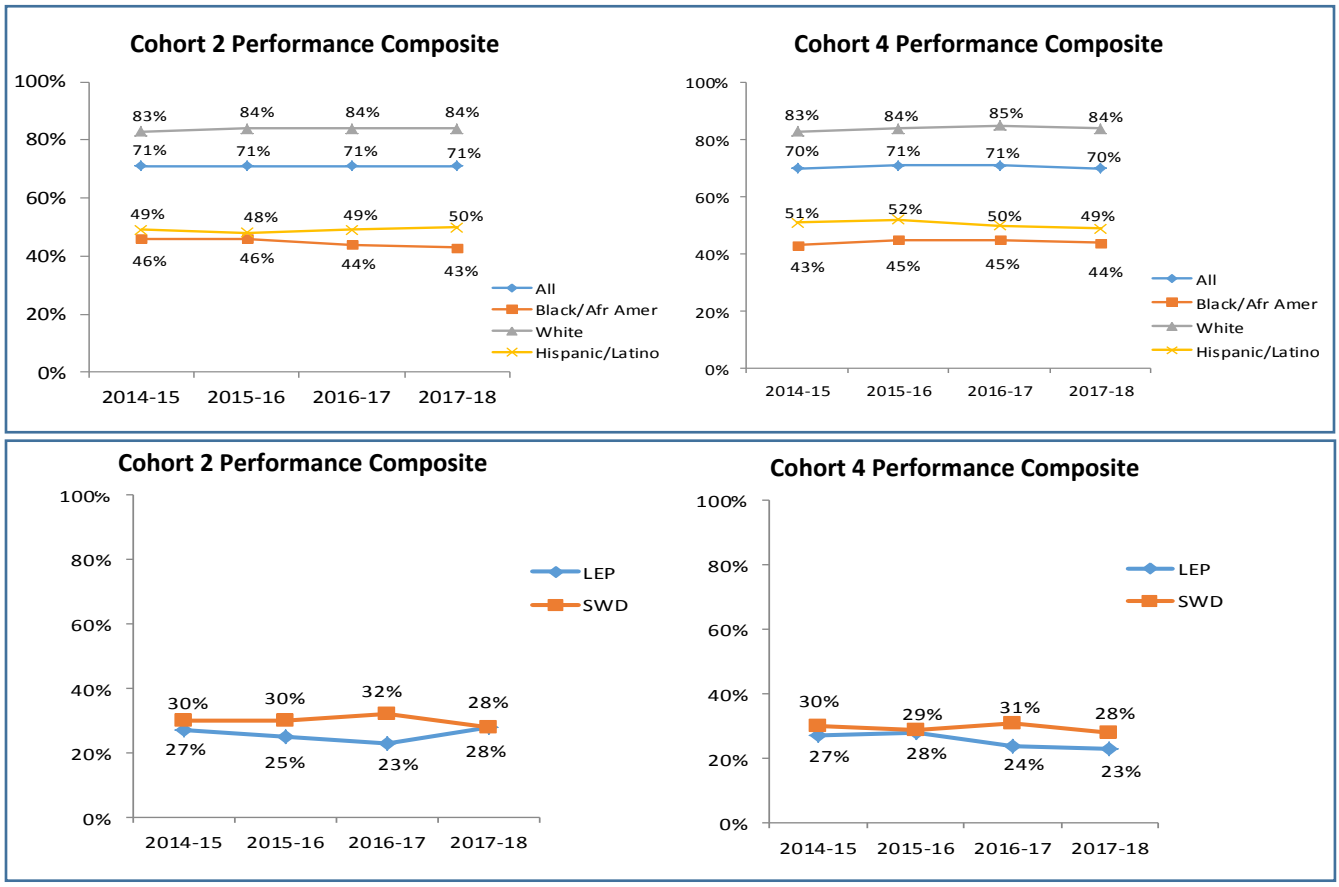
Did overall achievement measured by performance composite increase significantly by the end of year 2 of MTSS implementation?

There was no significant difference between the years 2014-15 to 2017-18, on performance composites for either Cohort 2 or Cohort 4 schools overall or across subgroups. There was no significant difference between the cohorts.

Performance composite is a statewide accountability measure that calculates the percent of scores of students in a school that are at or above proficiency. For our analyses, we used the percentage of test scores at level 3 or higher. There was no significant difference between the years 2014-15 and 2017-18, or between cohorts, on performance composite scores overall or across subgroups. Multilevel analyses similarly showed no significant difference between the cohorts.

Figure 8

Cohorts 2 and 4: 2014-15 to 2017-18 Percentages of Test Scores Proficient by Subgroup



Data Source: 2017-18 Student Rosters

Note: All results are reported at grade level proficiency

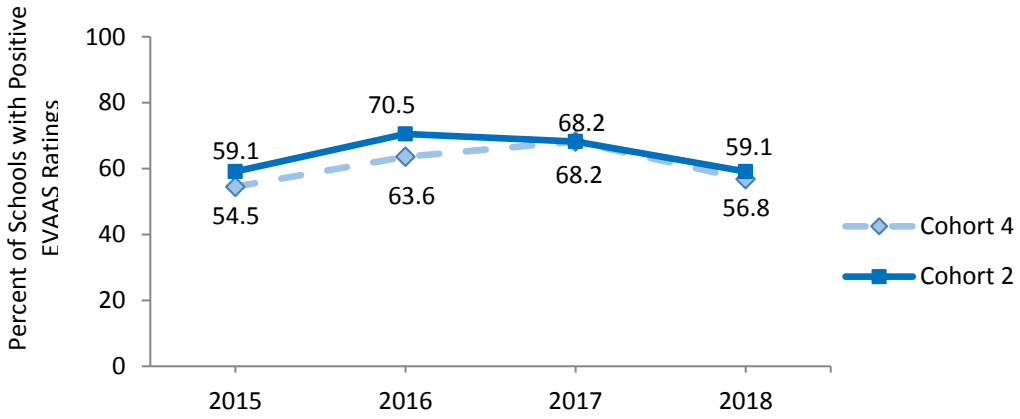
Did Cohort 2 schools improve their EVAAS ratings compared to 2014-15 and compared to Cohort 4 schools?

The 2017-18 EVAAS ratings for Cohort 2 schools remained at 2014-15 levels. There was no difference between the cohorts overall or for subgroups in 2017-18.

Prior to MTSS implementation, Cohort 2 schools' 2015 EVAAS ratings were 4.6 percentage points higher than those of Cohort 4. Both Cohorts first increased their EVAAS ratings, and both decreased in 2018. Multilevel analyses showed no significant difference between the Cohorts.

Figure 9

Cohorts 2 and 4 EVAAS Ratings from 2015 to 2017

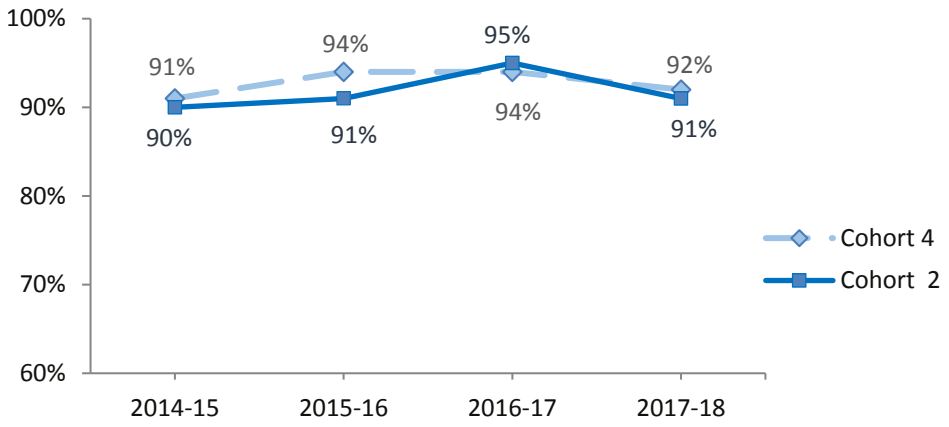


Did graduation rates at Cohort 2 schools increase overall and for subgroups of students compared to 2015-16 and to Cohort 4?

*In 2017-18, Cohort 2 had graduation rates similar to 2015-16 and similar to Cohort 4. However, Cohort 2 demonstrated **significantly higher** graduation rates for Hispanic/Latino students than those in Cohort 4.*

After an initial five-point graduation rate growth from 2014-15 to 2016-17, Cohort 2 schools showed a decrease in 2017-18 and overall graduation rates that were similar to Cohort 4.

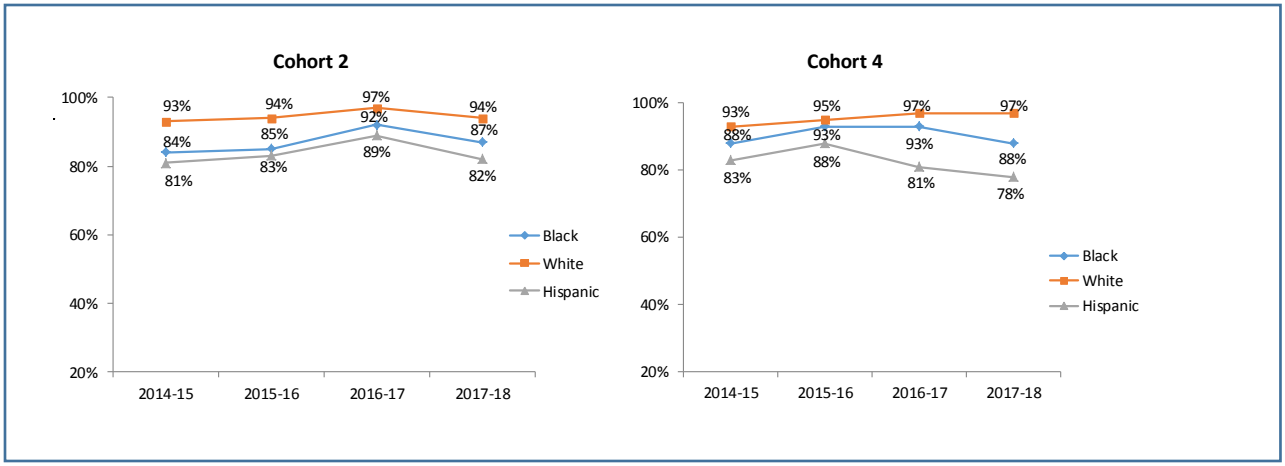
Figure 10
Cohorts 2 and 4 2014-15 to 2017-18 Graduation Rates

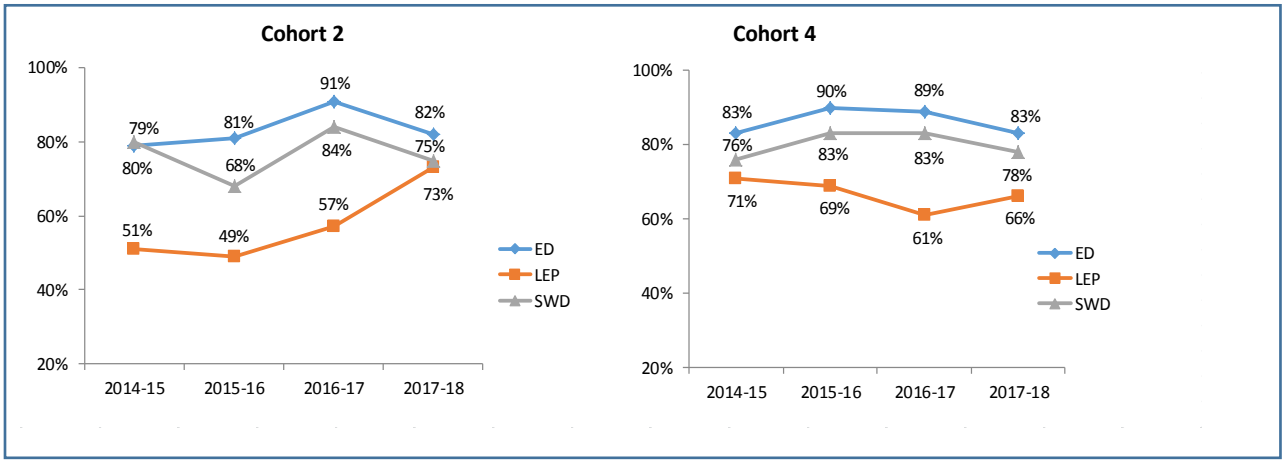


A closer look at subgroups showed a large 22 percentage point graduation rate increase for Cohort 2 LEP students (see Figure 11). However, this was related to the new LEP identification procedures developed by NCDPI. In 2017-18, Cohort 2 demonstrated four percentage points higher graduation rates for Hispanic/Latino students than Cohort 4. Multilevel analyses controlling for school- and student-level variables, showed that this difference was statistically significant.

Figure 11

Changes in the Percentages of Graduating Students in Cohorts 2 and 4 Over Four Years by Ethnicity and for LEP and SWD Subgroups





Did suspension rates and the percentage of students suspended in Cohort 2 decline overall and by subgroup compared to Cohort 4 by the end of Year 2 of MTSS Implementation?

In 2017-18, Cohort 2 suspension rates did not show any patterns of decline and remained the highest for Black/African American students and students with disabilities in both Cohorts. There was no significant difference between the Cohorts in suspension rates. This finding is not surprising because of the limited focus on implementation and no professional learning focus on behavior.

Suspension Rates

Since MTSS implementation was mostly focused on the Academics component and specifically targeted strengthening Tier 1 core instruction, it is probably too early to anticipate significant changes in student behavioral outcomes. Current suspension rates essentially should be considered baseline data, since Cohort 2 was not specifically trained on implementing any strategies to decrease suspension rates. Not surprisingly, by 2017-18, Cohort 2 suspension rates (number of suspension incidents per 100 students) did not show any patterns of decline attributable to MTSS implementation. Suspension rates remained the highest for Black/African American students and students with disabilities for both Cohorts. In 2017-18, there was no significant difference between the two Cohorts.

Table 7

Cohort 2 and 4 Suspension Rates (Number of Suspension Incidents per 100 Students) by Ethnic Group, LEP, and SWD Status, from 2014-15 to 2017-18

	Cohort 2					Cohort 4				
	2014-15	2015-16	2016-17	2017-18	change from 2014-15	2014-15	2015-16	2016-17	2017-18	change from 2014-15
All	5.2	5.7	5.7	5.9	0.7	5.1	5.8	5.4	5.4	0.3
Black/Afr American	15.9	16.3	16.6	17.1	1.2	15.7	17.9	16.6	15.8	0.1
White	1.8	2.2	2.4	2.4	0.6	1.5	1.7	1.7	2.0	0.5
Hispanic/Latino	5.3	7.1	6.0	6.9	1.6	4.1	4.9	5.1	5.1	1.0
Other	5.2	6.6	7.7	5.5	0.3	5.5	6.8	5.8	6.4	0.9
Asian	0.4	0.5	0.6	0.8	0.4	1.0	0.7	0.9	1.0	0.0
LEP	5.0	6.1	5.5	5.9	0.9	4.7	4.7	4.6	3.7	-1.0
SWD	19.7	20.8	22.8	21.9	2.2	17.5	21.3	18.3	20.5	3.0

Percentage of Unique Students Suspended

The percentages of Black/African American and SWD students who were suspended remained high in both Cohorts. As of 2017-18, MTSS professional learning had not focused on this component, so the results should only be considered a baseline.

Table 8

2014-15 to 2017-18 Percentages of Cohort 2 and 4 Students Who Were Suspended by Ethnic Subgroup, LEP, and SWD Status

	Cohort 2					Cohort 4				
	2014-15	2015-16	2016-17	2017-18	change from 2014-15	2014-15	2015-16	2016-17	2017-18	change from 2014-15
All	3.0%	3.4%	3.4%	3.4%	0.4%	3.3%	3.5%	3.3%	3.2%	-0.1%
Black/Afr American	8.4%	8.9%	9.1%	9.5%	1.1%	9.3%	9.9%	9.3%	8.7%	-0.6%
White	1.2%	1.5%	1.6%	1.5%	0.3%	1.2%	1.2%	1.2%	1.4%	0.20%
Hispanic/Latino	3.5%	4.3%	4.0%	4.5%	1.0%	3.2%	3.2%	3.5%	3.4%	0.2%
Other	3.3%	4.2%	3.8%	3.5%	0.2%	3.2%	4.6%	4.1%	3.9%	0.7%
Asian	0.4%	0.4%	0.5%	0.6%	0.0%	0.9%	0.5%	0.7%	0.7%	-0.2%
LEP	3.1%	3.7%	3.7%	4.0%	0.9%	3.5%	2.8%	3.1%	2.6%	-0.9%
SWD	9.6%	10.2%	10.6%	10.7%	1.1%	9.5%	10.1%	8.8%	9.5%	0.0%

Did the percentage of Cohort 2 students eligible for special education support in high incidence disabilities categories become more representative of the population from 2014-15 to 2017-18 and compared to Cohort 4?

Across years a significant reduction in eligibility for special education support in high incidence disability categories was only observed among Cohort 2 Hispanic/Latino students at elementary school level. Overall eligibility rates for special education services were similar for Cohorts 2 and 4. Black/African American and Hispanic/Latino students remained overrepresented in most high incidence disability categories. Since implementation in this area is still unfolding, these results should be considered a baseline.

Within the MTSS framework, special education services are provided to students who have a disability, do not respond to intervention, and have been determined to require specially designed instruction provided through an Individualized Education Program (IEP). Only students who have received sufficient academic support using evidence-based strategies and still did not show satisfactory progress, should be considered eligible for special education services. This is especially applicable to high incidence disabilities categories, which include Specific Learning Disability (SLD), Emotional Disability (ED), Intellectual Disability (ID), Traumatic Brain Injury (TBI), and Other Health Impairment (OHI).

The long-term goal set for MTSS includes the reduction of the percentages of certain subgroups of students with high incidence disabilities so they become more representative of the larger student population after three to four years of implementation of MTSS. Implementation of this particular aspect of MTSS in the district is still in the early stages in terms of structures, practices, and professional learning.

Over time, the proportions of students eligible for special education support in both cohorts decreased slightly; and the reduction over time was significant for Cohort 2 Hispanic/Latino students at elementary school level only, based on odds ratio analysis (although the overall percentage change was no different from Cohort 4). However, at all school levels, eligibility rates for special education services in high incidence disability categories among Black/African American and Hispanic/Latino students remained higher than the eligibility rates of White students. As an example, in 2017-18, in Cohort 2, at the elementary school level, 10% of Black/African American students were eligible for special education support compared to 5% of White students (see Table 9). This meant that in Cohort 2, the probability of being placed for special education services in the high incidence disabilities category for Black/African American students was twice as high as for White students.

Table 9

2014-15 to 2017-18 Comparisons of Cohort 2 Percentages of Elementary, Middle, and High School Students Eligible for Special Education Services in High Incidence Disabilities Categories

ELEMENTARY

	Cohort 2					Cohort 4				
	2014-15	2015-16	2016-17	2017-18	change from 2014-15 to 2017-18	2014-15	2015-16	2016-17	2017-18	change from 2014-15 to 2017-18
White	6.1%	5.7%	5.5%	5.1%	-1.0%	5.9%	5.5%	4.8%	4.3%	-1.6%
Hispanic/Latino	9.5%	9.1%	9.1%	7.9%	-1.6%	9.3%	9.9%	8.8%	7.7%	-1.6%
Black/Afr Amer	11.2%	10.5%	11.1%	10.3%	-0.9%	12.4%	11.5%	10.6%	9.5%	-2.9%
Asian	1.5%	1.4%	1.2%	1.0%	-0.5%	2.1%	2.0%	1.8%	2.1%	0.0%
Other	6.5%	8.6%	8.9%	7.4%	0.9%	7.4%	8.6%	8.2%	6.6%	-0.8%

Table continued at next page

Table 9 (continued)

2014-15 to 2017-18 Comparisons of Cohort 2 Percentages of Elementary, Middle, and High School Students Eligible for Special Education Services in High Incidence Categories

MIDDLE

	Cohort 2					Cohort 4				
	2014-15	2015-16	2016-17	2017-18	change from 2014-15 to 2017-18	2014-15	2015-16	2016-17	2017-18	change from 2014-15 to 2017-18
White	8.4%	8.0%	7.1%	6.4%	-2.0%	9.0%	8.6%	8.3%	7.9%	-1.1%
Hispanic/Latino	12.8%	13.3%	13.0%	13.3%	0.5%	14.3%	14.2%	14.7%	14.7%	0.4%
Black/Afr Amer	18.6%	17.5%	17.7%	16.6%	-2.0%	19.9%	18.9%	17.0%	16.4%	-3.5%
Asian	2.3%	2.1%	2.6%	2.2%	-0.1%	2.1%	1.7%	2.0%	1.5%	-0.6%
Other	10.2%	9.5%	8.2%	7.2%	-3.0%	11.3%	10.0%	10.4%	11.8%	0.5%

HIGH

	Cohort 2					Cohort 4				
	2014-15	2015-16	2016-17	2017-18	change from 2014-15 to 2017-18	2014-15	2015-16	2016-17	2017-18	change from 2014-15 to 2017-18
White	8.6%	8.1%	7.3%	6.8%	-1.8%	8.0%	8.0%	7.0%	6.8%	-1.2%
Hispanic/Latino	12.2%	10.9%	10.8%	11.2%	-1.0%	9.6%	10.2%	9.7%	8.8%	-0.8%
Black/Afr Amer	19.9%	17.9%	17.4%	18.0%	-1.9%	18.1%	16.8%	18.4%	16.8%	-1.3%
Asian	2.0%	2.2%	1.9%	2.1%	0.1%	1.8%	2.1%	1.9%	1.6%	-0.2%
Other	11.1%	11.8%	11.1%	10.9%	-0.2%	11.6%	10.5%	10.4%	9.6%	-2.0%

Discussion

As of 2017-18, student outcomes reflected varying levels of implementation of MTSS components. While more emphasis was placed on some critical components, others had not yet been implemented at the time of this report.

As of 2017-18, implementation of MTSS did not show any significant impacts on long-term student outcomes, except for the improved graduation rates for the Cohort 2 Hispanic/Latino subgroup compared to Cohort 4. According to Implementation Science, the time it takes for an innovation to move from initial to full implementation will vary depending upon the complexity of the new program or innovation, as well as the development of the infrastructure to support teachers and the availability of implementation supports and resources (National Implementation Research Network, n.d.). Research also shows that it generally requires three to five years of implementation with fidelity for the outcomes to show (Fixsen et al., 2005).

In WCPSS, the MTSS framework initial implementation is still unfolding. Much has been accomplished, but much more still needs to be done to move to the full implementation stage such that longer-term student outcomes should begin to be positively affected. Since MTSS is a complex framework with many components, it takes time to fully implement all six critical components. Thus, it will be important for the district to "stay the course" to ensure that MTSS can be implemented with fidelity.

As of fall of 2018, the School Improvement Plan (SIP) redesign team has finished aligning the school improvement process with the MTSS framework. A Cross-Departmental Behavior Team developed and presented the Tiered Behavior Resource (TBR) to elementary school principals and planned to share it with middle and high school principals some time in 2018-19.

A Standard Treatment Protocol (i.e., Tier II and III Intervention Systems and Structures) for literacy, math, behavior, and attendance is being developed. The district is currently using an Early Warninng System (EWS) for monitoring response to instruction in order to develop academic and behavior plans and will transition to the state's system in summer 2019. The district is also aligning systems and structures of support by creating tiers of supports for schools from Central Services. As more and more of these components fall into place, the district's ability to examine the effects of MTSS will increase.

Recommendations

Recommendations focus on ways to strengthen further MTSS implementation through Central Services support and inter-departmental collaboration:

- The MTSS framework should remain a district priority. It is still being developed and is at initial stages of implementation on some dimensions. The district needs to maintain consistent leadership team and inter-departmental support and collaboration at all levels, to provide effective assistance to school leadership teams, school counselors, and intervention specialists.

- Early Warning System (EWS) data should be used more consistently to identify the schools with more barriers to implementation of MTSS and offer those schools additional implementation support.

- Additional emphasis on the behavioral component of MTSS is needed through district-level cross-departmental collaboration to improve implementation fidelity for behaviorally focused MTSS strategies; the adoption of a K-12 behavior assessment system will be helpful to further this work.

- School Improvement Plans have been restructured as a result of a year-long effort of the district's MTSS/SIP leadership team. District leadership should continue to monitor and strengthen implementation of the new school improvement process to maintain alignment with MTSS.

- Strengthen application of standardized procedures for tiered student support in Tiers II and III and more appropriate identification of students eligible for special education support in high incidence disability categories. Continued support and learning are needed to help schools prepare for the 2020 Specific Learning Disability (SLD) Eligibility policy.

- Since the MTSS logic model is a living document, the district leadership should annually revisit and update the document to reflect implementation progress.

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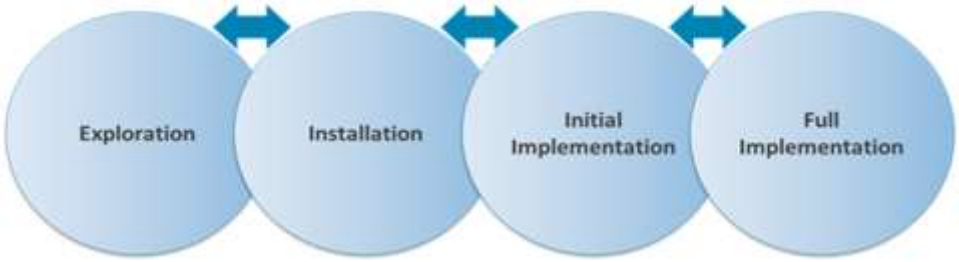
Appendix A

Figure A1
Implementation Stages



Source: National Implementation Research Network (NIRN).

- **The exploration stage** involves acquiring information about the innovation and creating awareness about an innovation, identifying the district needs, assessment of the fit, exploring resources, and assessing the readiness to replicate. In 2014-15, the researchers from the *Florida Problem Solving/Response to Intervention Project* housed at the Florida Department of Education and the University of South Florida, introduced the MTSS framework to the district and trained the district senior leadership team, outlined the content of professional learning for the schools, and helped select resources to measure implementation progress. For Cohort 2 most exploration took place in 2015-16, which was also their first training year.

- **The installation stage** includes ensuring funding for the innovation, hiring staff, policy development, ensuring other structural support, and defining expectations of the outcomes. At the installation stage, the MTSS district leadership team designed the district implementation process including professional learning, created a planning tool (the MTSS logic model), utilized NCDPI support in measuring the district capacity to implement the framework by completing the District Capacity Assessment, and identified the tools for implementing tiered support. An Early Warning System was introduced to MTSS trained Cohorts. For Cohort 2, 2016-17 became both an installation and the initial implementation year with continued professional learning.

- **Initial Implementation**, or the "initial awkward stage," creates changes in organizational capacity, culture, and skill levels. At that stage, the MTSS cohorts which received their professional learning examined their staff beliefs about learning and teaching, conducted self-assessment of MTSS implementation, and outlined their school-specific action plans. For Cohort 2, 2017-18 included continued professional learning and became the second initial implementation year. Analysis of the Self-Assessment of MTSS (SAM) completed by Cohort 2 schools before and after a year of implementation showed increased readiness and overall increased levels of implementation of the six MTSS components. However, it is important to note that the significant increase that took place moved the schools from "not implementing" to "emerging/developing" levels; some schools reached the "operationalizing" level, but none reached "optimizing" levels by the end of 2017-18.

- **Full Implementation** is based on new learning being integrated into daily practice, a framework becoming fully operational (National Implementation Research Network, n.d.). At this stage, schools should start viewing new practices as "a routine or accepted practice," and staff gain skills to implement the initiative (Fixsen et al., 2010).

Appendix B

Multilevel Analyses

In addition to descriptive analyses conducted throughout, we conducted a series of multilevel analyses to control for possible effects of prior student achievement, student demographic characteristics, and school effects. Such statistical control allowed for a more precise measurement of outcomes and gave us the ability to attribute any positive results to the implementation of MTSS, even when the treatment effects were small.

To explore whether MTSS had any differential effects on students, we included cross-level interactions between the school-level predictor (Cohort 2 vs. Cohort 4) and student-level predictors, such as Limited English Proficient (LEP) status and special education (SWD) status in our multilevel model.

The one statistically significant result detected was related to the graduation rates for Hispanic/Latino students. The odds for Hispanic/Latino students in Cohort 2 high schools to graduate was 73% higher (odds ratio: 1.73) than Hispanic/Latino students in Cohort 4 high schools (95 Confidence Limits (CL): 1.30, 2.32) keeping other factors the same.

A representative model showing only the subgroup of Hispanic/Latino students is provided below for illustrative purposes. The school random and student error are identified by the following two terms, u_{0_j} and e_{ij} in the equation, respectively. The coefficient γ_{01} represents the Cohort's main impact and the coefficient, γ_{11} represents the Cohort's impact on the ethnic subgroups, which is the focus of this subgroup analysis.

$$ln(\frac{p_i}{1-p_i})_{ij} = \gamma_{00} + \gamma_{10}\text{Hispanic}_{ij} + \gamma_{01}\text{Cohort}_j + \gamma_{11}\text{Hispanic*Cohort}_j + u_{0_j} + e_{ij}$$

where i = ith student
j = jth school and
p_i = is the probability of the *i*th student graduating.