MEMORANDUM May 27, 2020

TO: Montra Rogers, Ed.D.
Officer, Secondary Curriculum and Development

FROM: Allison Matney, Ed.D.
Officer, Research and Accountability

SUBJECT: **A QUASI-EXPERIMENTAL STUDY ON THE USE OF SECONDARY TEACHER DEVELOPMENT SPECIALISTS TO IMPROVE TEACHERS' INSTRUCTIONAL COMPETENCIES AND STUDENT ACHIEVEMENT, 2019–2020**

This program evaluation examined the perceptions of secondary Teacher Development Specialists (TDS) regarding their coaching competencies in key content areas along with the perceptions of teachers regarding the impact of secondary TDS on their instructional practices and student achievement. Propensity score matching allowed for measurement of intensive treatment effects (at least 80% to 90% of time spent coaching) using District-level Assessment (DLA) data. DLAs are aligned to STAAR Blueprints and the Texas Essential Knowledge and Skills (TEKS).

Key findings include:

- The study samples were comprised of 53 secondary TDS and 254 teachers coached by secondary TDS at 41 struggling schools in HISD.
- Teachers, overwhelmingly, expressed that secondary TDS displayed expertise and credibility, listening, objectivity, and clear and effective communication skills as coaches.
- Teachers consistently noted that secondary TDS were knowledgeable about curriculum and instruction, pushed them to change and expand their practices, and helped them meet the individual needs of their students.
- When controlling for students' background characteristics and eighth-grade performance on content-related STAAR tests, the effects of intensive secondary TDS treatment led to mostly comparable or higher performance of students in schools with large proportions of at-risk students compared to schools with considerably less at-risk students on Algebra 1, Biology, English language arts (ELA), and U.S. History DLAs.
- Considering the alignment of DLAs with STAAR, intensive secondary TDS treatment resulted in mean passing rates that advanced closer to the STAAR Meets Grade level standard in the content areas measured in this evaluation, reflecting academic benefits for students in struggling schools.

Further distribution of this report is at your discretion. Should you have any further questions, please contact me at 713-556-6700.

Allison E Matney

AEM

Attachment
cc: Grenita Lathan, Ph.D. Silvia Trinh Yolanda Rodriguez

HOUSTON INDEPENDENT SCHOOL DISTRICT

RESEARCH

Educational Program Report

A QUASI-EXPERIMENTAL STUDY ON THE USE OF SECONDARY TEACHER DEVELOPMENT SPECIALISTS TO IMPROVE TEACHERS' INSTRUCTIONAL COMPETENCIES AND STUDENT ACHIEVEMENT, 2019-2020

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EVALUATION REPORT

BUREAU OF PROGRAM EVALUATION

A Quasi-experimental Study on the Use of Secondary Teacher Development Specialists to Improve Teachers' Instructional Competencies and Student Achievement, 2019–2020

Prepared by Venita R. Holmes, Dr.P.H.

Abstract

This program evaluation examined the perceptions of secondary Teacher Development Specialists (TDS) regarding their coaching competencies in English language arts (ELA), mathematics, science, social studies, literacy, and instructional technology. Moreover, the study assessed the extent secondary TDS' coaching practices improved teachers' instructional competencies to support student achievement. The study samples were comprised of 53 TDS and 254 teachers at 41 struggling schools in the Houston Independent School District (HISD). Intensive coaching was provided, with at least 80% to 90% of TDS' time spent delivering coaching services in the targeted schools during the 2019–2020 academic year. Pearson correlations revealed a strong positive association between TDS' listening behavior and their ability to be objective and provide clear and effective communication to teachers. Teachers, overwhelmingly, expressed that TDS displayed expertise and credibility, listening, objectivity, and clear and effective communication skills as coaches. Moreover, teachers consistently noted that TDS were knowledgeable about curriculum and instruction, pushed them to change and expand their practices, and helped them meet the individual needs of their students. Propensity score matching allowed for measurement of intensive TDS treatment effects at targeted schools using non-randomized District-level Assessment (DLA) data, while controlling for students' background characteristics (economic status, gender, at risk, gifted/talented, special education, and eighth-grade performance on content-related State Assessment of Academic Readiness (STAAR)) tests. The effects of intensive TDS treatment led to mostly comparable or higher performance of students in schools with large proportions of at-risk students compared to schools with considerably less at-risk students based on students' fall DLA results in Algebra 1, Biology, ELA, and U.S. History, with passing rates advancing closer to the STAAR Meets Grade level standard. Consequently, intensive TDS treatment appeared to have benefits for students in struggling schools.

Background

High-quality teacher professional development is widely-recognized as an important factor to facilitate student learning and help students attain their academic goals (Addimando, 2019; Darling-Hammond, 2000; Wray, Medwell, Fox, & Poulson, 2000). "Teacher coaching has emerged as a promising alternative to traditional models of professional development" (Kraft, Blazar, & Hogan, 2017, p. 1). Teacher coaches function as experts to novice teachers (Poglinco et al., 2003) and help them think critically about their practices to benefit all students, including students with special needs (Hasbrouck & Denton, 2007). With emphasis on content and pedagogy-building, teacher coaches foster effective learning communities, whole-school reform, leadership development, and improvements in resource utilization in schools (Hershfeldt et al., 2012) (**Figure 1**). Student-centered models allow coaches and teachers to work in partnership to set learning targets and work collaboratively to meet those targets (Sweeney, 2013).

Figure 1: ELA TDS modeling a Read Aloud Think Aloud for teachers during early release professional development

THEORY OF ACTION: *Secondary Teacher Development Specialists spending at least 80% to 90% of their time providing direct, peer, instructional coaching to content teachers will yield improvements in teacher competencies, instructional practices, and student achievement.*

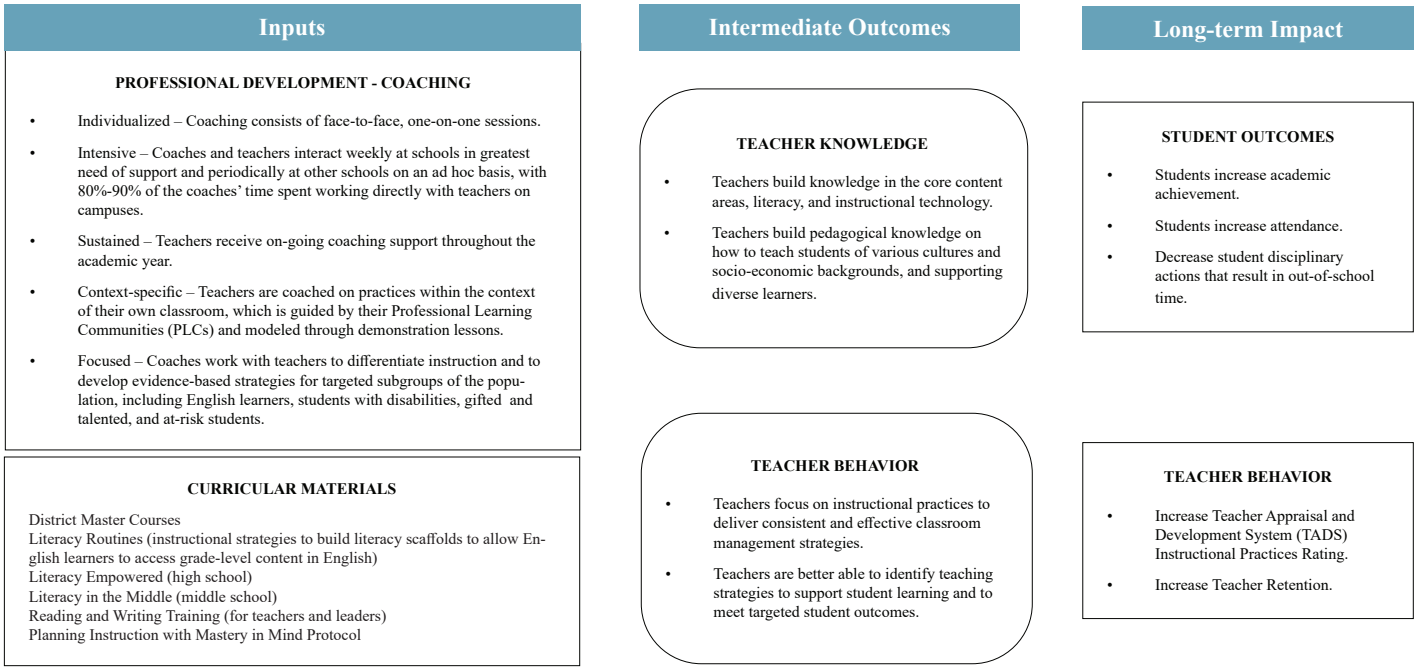

Figure 2: HISD Secondary Teacher Development Specialists Theory of Action, HISD Secondary Curriculum and Development, 2019–2020

Over the years, Teacher Development Specialists (TDS), at the secondary level, have been used as a coaching model to improve teacher quality, teacher retention, and student achievement in the Houston Independent School District (HISD). While most coaching models focus on single targets for change (Dufrene et al., 2014; Dudek, Reddy, Lekwa, Hua, & Fabiano 2019), the HISD TDS model addresses multiple areas where teachers may struggle. In alignment with Kraft, Blazar, and Hogan (2017), the secondary TDS theory of action incorporates individualized, intensive, sustained, context-specific, and focused coaching along with instructional strategies and curricular materials to support literacy and attainment of content-knowledge (**Figure 2**).

For the past two years, Secondary Curriculum and Development TDS have engaged in the work of Sweeney (2013) to actualize a student-centered coaching model. The TDS is not charged with "fixing" the teacher; they work collectively to ensure student success. Teachers improve their practice because the focus is intentionally on students' actions and outcomes.

Competencies are the skills and knowledge that enable teachers to be successful (Jackson, 1990). The best teachers are proficient in instructional delivery, formative assessment, and classroom management (Hattie, 2009) (**Figure 3** through **Figure 5**). Few studies have focused on coaches' perceptions of their competencies to work with teachers and teachers' perceptions of how coaches impacted their instructional practices to increase student achievement. Moreover, few studies have sought to link student achievement with the implementation of intensive teacher coaching, where coaches spent at least 80% to 90% of their time in struggling schools (Desimone, 2009). To that end, this study examined gaps in the research by addressing the following questions.

Research Questions:

1. To what extent did secondary Teacher Development Specialists perceive their coaching as beneficial toward improving teachers' instructional competencies to support student achievement?
2. What were teachers' perceptions regarding the impact of secondary TDS' coaching practices toward improving their instructional skills and increasing student achievement?
3. What was the effect of the intensive secondary TDS coaching model on student performance in mathematics, science, reading, and social studies at targeted schools?

Limitations

There were several limitations to the study. Secondary TDS and teacher participation in surveys was voluntary. This may have resulted in selection bias due to the underrepresentation of educators in specific content areas. To mitigate this limitation, the survey time was extended and multiple attempts were made to communicate the intent of the survey and deliver the survey links to targeted participants. In addition, low student participation on District-level Assessments (DLAs) was evident in the data, and

Figure 3: Social studies TDS leading PLC at Sugar Grove Academy

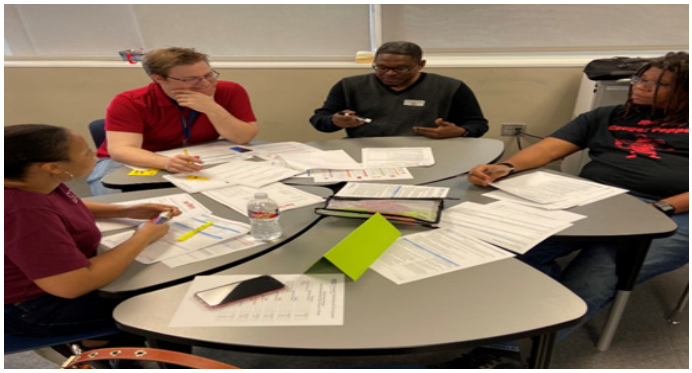

Figure 4: Math TDS leading teachers through the Planning Instruction with Mastery in Mind protocol during Achieve 180 PD

participation in DLAs was not randomized. To mitigate these limitations, propensity-score matching techniques were used to select students who completed the assessments to generate treatment and control groups from two distinct study populations, controlling for previous performance on aligned content area tests and students' background characteristics.

Review of the Literature

The research has shown that teacher professional development has the potential "to empower educators and communities of educators to make complex decisions; identify and solve problems, connect theory to practice, and improve student outcomes" (Katamei & Omwono, 2015, p. 112). A study conducted by The New Teacher Project found that school districts spend an average of nearly $18,000 per teacher, per year, or about six to nine percent of their annual budgets on resources, including time and money toward training, mentoring, evaluating, and ongoing job-embedded experiences to help teachers improve. The challenge for many educational institutions is to identify how best to support teachers using the most cost-effective methods (Quintero, 2019).

A variety of professional development methods have been used to support teacher quality. Specifically, traditional methods employ experts to deliver face-to-face or online professional development (Limongelli, Sciarrone, Temperini, & Vaste, 2011; Zhang, Liu, & Wang, 2017). While traditional approaches have the potential to adapt to teachers' learning styles, teachers may not consistently benefit in acquiring high-level skills and applying pedagogies in practice (Limongelli, Sciarrone, Temperini, & Vaste, 2011). Workshop-style professional development models are limited in helping teachers learn, implement, and receive support during implementation of new skills (Carlisle & Berebitsky, 2011; Gulamhussein, 2013). They assume that the difficulty in teachers' learning is due to their lack of knowledge rather than transferring knowledge and implementing the skill in the classroom (Dudek et al., 2019). Student-centered models have promise toward ensuring that students have met all academic standards by framing coaching conversations on students' learning targets, conducting regular analysis of students' work, and providing evidence of students' learning, while co-planning and co-delivering instruction (Sweeney, 2013). The process is on-going, involving individual teachers, teams of teachers, and school leaders (Sweeney, 2013).

Figure 5: Secondary science TDS creating high-quality assessments

Personalized learning, such as peer coaching and instructional coaching models, has become increasingly prevalent to develop teachers' expertise in content areas, strategies, and to address their individual learning needs. Coaches provide assistance, feedback, and support, and share their expertise to enhance learning (Ackland, 1991; Kohler, Crilley, Shearer, & Good, 1997).

Kraft, Blazar, and Hogan's (2017) meta-analysis of 60 instructional coaching evaluations found large, positive effects on student achievement. Gregory et al. (2016) found more engagement among minority students using coaching. Ma, Xin, and Du (2018) conducted a quasi-experimental design study involving 20 Mandarin teachers to determine the effectiveness of a personalized learning approach that consisted of peer coaching. The study found that the peer coaching-based personalized learning approach had a positive effect on teachers' participation in learning opportunities, learning design skills, and in-practice teaching abilities.

Abbasian and Matin (2018) conducted a study using teachers whose experience ranged from ten to fifteen years, along with a experimental group of 156 students and a control group of 151 students. The study found a significant change in students' achievement test scores due to peer coaching. Other studies posted similar findings relative to the positive effects of peer coaching on student achievement (Prince, Snowden, & Matthews, 2010; Richards, 2003; Sunderman & Kim, 2007).

Methods

Study Population and Sample

There were two study populations in this program evaluation. The first study population consisted of approximately 75 secondary TDS who coached teachers in ELA, mathematics, science, social studies, instructional technology, and literacy during the 2019–2020 academic year. Literacy and technology were included considering that teachers incorporated related practices when coaching in the content areas. The second study population was comprised of approximately 425 teachers who were coached by secondary TDS over the same time frame. These groups were selected because teachers were direct recipients of TDS coaching, and could provide reliable data on TDS impact. The identities of TDS and teachers coached by TDS were provided by Secondary Curriculum and Development administrators. These study populations were used to generate a TDS sample and a teacher sample based on survey participation.

A total of 54 secondary TDS completed a survey administered using Google Forms. An inspection of the data led to the removal of one respondent due to extreme values that could seriously influence the analyses. Consequently, survey data for 53 secondary TDS were used in the study, yielding a response rate of 72%. A total of 254 teachers completed the teacher survey, resulting in a response rate of 60%. Teachers at 19 HISD schools located in low-income, high-risk school communities were targeted for the study.

However, teachers who completed surveys indicated that they taught at 41 schools. (See **Appendix A** on p. 12 for background characteristics of the study samples.)

Data Collection/Data Analyses

Surveys administered to secondary TDS and teachers coached by the TDS were adapted from Coaching for Change: Tools for Assessing Instructional Coaching Competencies (Insight Education Group, 2011). The questions on both surveys were aligned. The TDS survey consisted of four indicators: *Credibility*, *Listening*, *Objectivity*, and *Clear and Effective Communication*. The indicators measured in the teacher survey were *Expertise and Credibility*, *Listening*, *Objectivity*, *Clear and Effective Communication*, and *Overall Impact*. (See **Appendix B** on p. 13 for definition of terms.)

The TDS survey allowed respondents to self-reflect on their confidence as coaches to improve teachers' instructional competencies and student achievement. Additional information was captured on the TDS survey, including their content area and years of teaching experience. Open-ended questions allowed TDS to document challenges in providing TDS support and to indicate what helped them to be successful as a TDS. The teacher survey measured their perceptions of secondary TDS' coaching practices toward improving their instructional skills and student achievement. Teachers were asked open-ended questions, including what challenges they encountered, if any, working with secondary TDS as a coach and how working with secondary TDS as a coach helped them to be more successful as an educator.

Descriptive statistics were calculated to determine the level of confidence perceived by secondary TDS on survey items. Using a Likert-type scale, a coding system was established: "completely confident" = "4", "fairly confident" = "3", "somewhat confident" = "2", "slightly confident" = "1", and "not at all confident" = "0". A likert scale measuring agreement was used on the teacher survey: "strongly agree" = "4", "agree" = "3", "disagree" = "2", "strongly disagree" = "1", and "N/A" (not applicable). The percentage of TDS and teachers who rated the items on each indicator, the means, and standard deviations were presented in this evaluation. Missing and not applicable data were not included in calculations.

Pearson's correlation (r) was used to examine the relationship among the indicators. According to Cohen (1988), the effect size is low if the value of r varies around 0.1, medium if r varies around 0.3, and large if r varies more than 0.5. Non-parametric statistics (Kruskall-Wallis test) assessed differences in TDS and teachers' confidence across years of experience at four levels ("less than 1 year", "1 up to 2 years", "2 up to 3 years", and "more than 3 years") and across content areas. The level of statistical significance was $p < .05$.

Fall 2019 HISD DLA (Part 1, multiple choice) ELA, Algebra I, Biology, and U.S. History results were used to determine the impact of the intensive secondary TDS model (at least 80% to 90% of the time coaching) on student achievement. DLAs were used as an alternative academic performance measure considering that the spring 2020 STAAR tests were not administered to students due to the coronavirus pandemic. Moreover, literacy and instructional technology were not measured considering that there were no associated DLAs. DLAs were developed by HISD curriculum experts. DLA test items were aligned to the Texas Essential Knowledge and Skills (TEKS) and STAAR Blueprints. DLAs helped HISD administrators determine how well students mastered the curriculum at the point in time the assessment was administered. While low participations rates are common at the high-school level, a study conducted in 2014–2015 found a large, positive correlation between DLAs and STAAR End-of-Course (EOC) performance in all subjects (Houston Independent School District, Student Assessment Department (personal communication, 1/8/2020)). An alignment of DLAs were discussed based on STAAR performance categories (Approaches Grade Level, Meets Grade Level, and Masters Grade Level). Calculations related to STAAR were based on the group mean DLA score divided by the maximum number of items for the test.

Table 1: Type of power analysis: A priori - compute required sample size for independent samples

Input Parameters		Output Parameters	
Effect size d	0.5	Noncentrality parameter	3.623
α error prob (Tupe I error rate	0.05	Critical t	1.971
Power (1 - β err prob).	0.95	Df	208
		Sample size group 1	105
		Sample size group 2	105
		Total sample size	210

IBM Cognos was used to extract students' DLA scores. G*Power software was used to estimate the sample size needed prior to the study to detect a statistically significant difference in students' test performance, considering that a difference truly existed (Faul, Erdfelder, Lang, & Buchner, 2007; Pitner, Yu, & Brown, 2013). For a two-tailed independent t-test, G*Power determined that a sample size of 105 was needed for the treatment and control groups, with a critical t-value at 1.971, a significance factor of 0.05, beta value equal to 0.5, and degrees of freedom equal to 208 (**Table 1**). An effect size (d) of .5 is considered medium effect (Cohen, 1988). There was a 95% chance of correctly rejecting the null hypothesis that there was no difference in the academic performance of students at schools with intensive secondary TDS and schools without intensive secondary TDS. While the student samples varied for each test, there was more than sufficient data to conduct the analyses.

Propensity score matching was conducted using SPSS software to adjust for treatment effects. Propensity score matching is considered an alternative to the commonly used regression adjustment (Stuart, 2010). For this analysis, nearest-neighbor matching with replacement was used. The logic behind propensity score methods is that balance on observed covariates is achieved through careful matching on a single score – the estimated propensity of selecting the treatment (Stuart, 2010). The propensity score is defined as the probability of receiving treatment based on measured covariates. Covariates used for matching in this evaluation were gender, economic status, at risk, gifted/talented, and special education, along with students' eighth-grade STAAR reading (ELA DLA), math (Algebra I DLA), science (Biology DLA), and social studies (U.S. History DLA) scores. The quality of matches can be affected by the order in which subjects were selected for matching and the maximum permitted difference between matched subjects (the "caliper") (Lunt, 2014). The caliper used in the analyses was .25 standard deviations considering that Rosenbaum and Rubin (1985) used this caliper based on Cochran and Rubin's (1973) logistic regression model to predict exposure. Matches were selected with replacement to improve imbalance between the groups, and in a randomized order.

Results

To what extent did secondary Teacher Development Specialists perceive their coaching as beneficial toward improving teachers' instructional competencies to support student achievement?

TDS' confidence to improve teachers' instructional competencies to support student achievement was based on their responses to survey items on four indicators: (1) *Expertise and Credibility*, (2) *Listening*, (3) *Objectivity*, and (4) *Clear and Effective Communication*. The findings are depicted in **Table 2** through **Table 5** (**Appendix C**, pp. 14–15). Results depict the percentages of TDS who indicated that they were completely confident", "fairly confident", "somewhat confident", "slightly confident", and "not at all confident". Descriptive statistics, including mean confidence scores and standard deviations (S.D.) were included.

On the *Expertise and Credibility* indicator (Table 2, Appendix C, p. 14), the majority of respondents perceived that they were "completely confident" on all survey items. The findings ranged from 54.7% (I have connected with my coaching mentor to get support in my current position) to 83.0% (I share what I have learned in professional development with my staff). *Expertise and Credibility* confidence ratings ranged from 2.85 out of 4 ("less than fairly confident") to 3.77 out of 4 ("more than fairly confident") (**Table 2a)**. TDS perceived themselves as "more than fairly confident" on five out of eight items (62.5%).

Table 3 provides TDS perceptions on the *Listening* indicator (Appendix C, p. 14). The majority of TDS respondents perceived that they were "completely confident" on all items, except one (90.9%). The findings ranged from 49.1% (I effectively use facilitative processes that draw out reluctant participants) to 83.0% (I give teacher and staff concerns and ideas serious consideration). *Listening* confidence ratings are depicted in **Table 3a**. The ratings ranged from 3.28 ("less than slightly confident") to 3.83 ("more than fairly confident"). TDS perceived themselves as "more than fairly confident" on eight out of eleven items (72.7%).

TDS perceptions on the *Objectivity* indicator are depicted in **Table 4** (Appendix C, p. 15). The majority of TDS respondents perceived that they were "completely confident" on eight out of nine items (88.9%). The findings ranged from 41.5% (I use a variety of techniques to challenge staff to acknowledge their own assumptions) to 77.7% (I ask clarifying questions to draw out details and help teachers synthesize information). *Objectivity* confidence ratings are depicted in **Table 4a** (p. 6). The ratings ranged from 3.15 ("less than slightly confident") to 3.75 ("more than fairly confident"). Overall, TDS perceived themselves as "more than fairly confident" on six out of nine items (66.7%).

Table 5 illustrates TDS' perceptions on the *Clear and Effective Communication* indicator (Appendix C, p. 15). The majority of respondents perceived that they were "completely confident" on 100% of the twelve survey items. The findings ranged from 64.2% (I model the process of articulating goals that will elicit specific outcomes) to 84.9% (I am open to feedback on my communication style and am willing to change my practices in order to meet the needs of teachers and staff). **Table 5a** (p. 6) shows confidence ratings ranged from 3.57 to 3.85 ("more than fairly confident"). Consequently, TDS perceived themselves as "more than fairly confident" on each of the twelve items (100.0%).

Table 2a: TDS Expertise and Credibility confidence ratings, spring 2020

Expertise and Credibility Indicator (n = 53)	Confidence Ratings	S.D.
	μ	σ
More than Fairly Confident		
I share what I have learned in professional development with my staff.	3.77	0.542
I bring my own knowledge to bear in conversations while acknowledging and integrating the knowledge of others.	3.75	0.515
I am aware of the classroom realities at my site, and adapt my coaching accordingly.	3.70	0.607
I have the credibility to help teachers reflect deeply on their own practices.	3.62	0.627
I guide teachers and other colleagues to-wards relevant and meaningful professional development activities.	3.60	0.716
Less than Slightly Confident		
The teachers I work with find my experience relevant to their own needs.	3.49	0.775
I regularly observe in classrooms at my own site and at other sites so that I can identify instructional patterns and best practices.	3.32	1.173
I have connected with my coaching mentor to get support in my current position.	2.85	1.537

Table 3a: TDS Listening confidence ratings, spring 2020

Listening Indicator (n = 53)	Confidence Ratings	S.D.
	μ	σ
More than Fairly Confident		
I give teacher and staff concerns and ideas serious consider-ation.	3.83	0.379
When I have conversations with teachers, I avoid distractions and devote my full attention to their needs at that particular time.	3.77	0.466
I ask clarifying questions when appropriate to ensure that I understand what teachers are saying.	3.75	0.515
I provide safe opportunities for teachers and staff to reflect honestly on their practice.	3.75	0.477
I can hear and process an issue from multiple perspectives (i.e., teacher, student, administrator, etc.).	3.72	0.568
I regularly provide a forum for teachers to express concerns and ask questions.	3.68	0.673
I effectively listen to and synthesize what teachers and staff say.	3.68	0.547
I am able to distinguish between concerns that simply need validation and those that require action.	3.64	0.591
Less than Slightly Confident		
I provide opportunities for teachers to dialogue with each other, not just with me.	3.47	0.799
I can ensure that all participants are heard by their colleagues during group processes.	3.42	0.719
I effective use facilitative processes that draw out reluctant paticipants	3.28	.863

Correlation analyses examined the strength of the relationships between the indicators used in this evaluation (**Table 6a**, p. 6). There were large, positive associations among the indicators, with the largest association found between TDS' perceptions of their listening practices and objectivity when coaching teachers, $r = .872$, $p < .001$ (Table 6a). The second largest association was found

Table 4a: TDS Objectivity confidence ratings, spring 2020		
Objectivity Indicator (n = 53)	Confidence Score	S.D.
	μ	σ
More than Fairly Confident		
I balance feedback that I give to teachers and staff between positive and constructive.	3.75	0.434
I ask clarifying questions to draw out details and help teachers synthesize information.	3.72	0.568
I can listen to my collaborating teacher's plans and observe his/her actions without judgment, analysis, or critique.	3.55	0.607
I make sure that I have all the relevant information about a situation before.	3.55	0.539
I actively solicit input from multiple stakeholders before taking action on an issue.	3.53	0.823
When facilitating a controversial conversation between more than one party, I am able to remain neutral even when my personal beliefs might place me on one side of the dialogue.	3.53	0.608
Less than Slightly Confident		
I am able to dialogue with teachers without projecting my own values and beliefs on the conversation.	3.45	0.774
I am effective in pushing staff members to change/expand their practices while simultaneously acknowledging their successes.	3.42	0.77
I use a variety of techniques to challenge staff to acknowledge their own assumptions.	3.15	0.949

among TDS' perceptions of their listening practices and their ability to deliver clear and effective communication to teachers, r = .870, p < .001. These findings suggest that the more confidence TDS perceived in their listening behavior, the more objectivity displayed in their coaching relationships with teachers. Moreover, the more objectivity displayed in coaching, the clearer and more effective communication perceived by TDS in their coaching practices.

The Kruskal-Willis test was conducted to determine whether there was a statistically significant difference in TDS' perceptions on the indicators, taking into account years as a TDS (**Table 6b**). The test revealed no statistically significant differences in years as a secondary TDS and TDS' perceptions on *Credibility* (H(3) = .979, p = .806); *Listening* (H(3) = 3.508, p = .320); *Objectivity* (H(3) = 5.769, p = .123); and *Clear and Effective Communication* indicators (H(3) = .906, p = .824) (Table 6b). However, the mean rank was highest on the *Objectivity* indicator among TDS with 2 to 3 years (Mean Rank = 32.6) and 1 to 2 years of experience (Mean Rank = 31.5), meaning that these TDS groups perceived themselves as more confident coaching teachers relative to these indicators.

The Kruskal-Wallis test was also conducted to determine whether there was a difference in TDS' perceptions on indicators based on the content area (**Table 6c**, p. 7). The test found no statistically significant differences relative to *Credibility* (H(3) = 6.68, p = .246); *Listening* (H(3) = 8.94, p = .111); *Objectivity* (H(3) = 8.51, p = .130); and *Clear and Effective Communication* indicators (H(3) = 2.88, p = .719). However, the mean rank was highest on the *Credibility* indicator among TDS who coached in math and social studies; highest on the *Listening* indicator among TDS who coached in science and social studies; highest on the *Objectivity* indicator among TDS who coached in science and instructional technology; and highest on the *Clear and Effective Communication* indicator among TDS who coached in science and social studies.

Table 5a: TDS Clear and Effective Communication confidence ratings, spring 2020		
Clear and Effective Communication Indicator (n = 53)	Confidence Score	S.D.
	μ	σ
More than Fairly Confident		
I am open to feedback on my communication style and am willing to change my practices in order to meet the needs of teachers and staff.	3.85	0.361
I keep professional conversations with teachers and staff focused on the achievement of agreed-upon outcomes.	3.83	0.379
During conversations with teachers, I deliberately choose to use language that is clear, non- threatening, and objective.	3.81	0.395
I use communication formats that are convenient for teachers and staff (i.e., bulletin boards, email, paper memos).	3.77	0.466
I disseminate written information in a timely fashion.	3.77	0.423
I return phone calls and emails in a timely fashion (within 24 hours, when possible).	3.74	0.486
When appropriate, I share agendas and planning tools with teachers and staff prior to meetings.	3.72	0.533
I provide clear, specific, and accurate feedback to teachers about classroom observations.	3.72	0.495
I model ways to communicate effectively.	3.72	0.495
I provide clear processes and agendas for meetings and group conversations.	3.68	0.51
I meet face to face with teachers in a timely fashion following classroom observations to debrief the observation and clarify written feedback.	3.62	0.686
I model the process of articulating goals that will elicit specific outcomes.	3.57	0.665

Table 6a: Pearson product-moment correlation between measures of perceived coaching confidence

Scale	**1**	**2**	**3**	**4**
1. Credibility	-			
2. Listening	.626**	-		
3. Objectivity	.586**	.872**	-	
4. Clear and Effective Communication	.631**	.870**	.820**	-
Mean	3.514	3.636	3.516	3.733
S.D.	.4739	.4162	.5022	.3311

**p < .001 (2-tailed) (N = 53)

Table 6b: Non-parametric Kruskal-Willis test comparing years as a TDS with confidence indicators, spring 2020

	Mean Rank					
Indicator	**Less than 1 year**	**1 to 2 years**	**2 to 3 years**	**More than 3 years**	**Chi-square**	**p**
1. Credibility	23.3	28.8	26.8	28.1	.979	.806
2. Listening	20.0	29.7	26.9	29.5	3.508	.320
3. Objectivity	18.6	31.5	32.6	27.1	5.769	.123
4. Clear and Effective Communication	24.0	27.3	30.5	27.2	.906	.824
N	12	12	8	21		

Table 6c: Non-parametric Kruskal-Willis test comparing TDS by content areas and perceptions on confidence indicators, spring 2020

	Mean Rank							
	ELA	Instructional Technology	Literacy	Math	Science	Social Studies	Chi-square	p
Indicator								
Credibility	22.2	20.3	22.8	34.9	29.3	34.2	6.68	.246
Listening	27.8	15.9	15.2	25.3	33.9	31.5	8.94	.111
Objectivity	24.5	32.4	21.8	17.4	35.8	28.8	8.51	.130
Clear and Effective Communication	25.1	26.1	24.0	23.5	33.0	27.9	2.88	.719
N	17	4	6	7	12	7		

What were teachers' perceptions regarding the impact of secondary TDS' coaching practices toward improving their instructional skills and increasing student achievement?

Teachers' perceptions of secondary TDS' coaching practices were based on their responses to survey items on five indicators: *Expertise and Credibility*, *Listening*, *Objectivity*, *Clear and Effective Communication*, and *Overall Impact*. The findings are depicted in **Table 7** through **Table 11** (**Appendix D**, pp. 16–17). Results show the percentages of teachers who indicated that they "strongly agree" = "4", "somewhat agree" = "3", "somewhat disagree" = "2", and "disagree" = "1" to survey items. Descriptive statistics, including means and standard deviations are presented.

Table 7 (Appendix D, p. 16) shows teachers' perceptions on the *Expertise and Credibility* indicator. An overwhelming majority of teachers responded that they "strongly agree" on 100% of the items. The findings ranged from 71.0% (the TDS has guided me towards relevant and meaningful professional development activities) to 83.8% (the TDS is knowledgeable about curriculum and instruction). **Table 7a** shows that agreement ratings on this indicator ranged from 3.59 to 3.80, revealing that teachers "more than somewhat agree" that TDS demonstrated expertise and credibility as a coach.

Table 8 (Appendix D, p. 16) shows teachers' perceptions on the *Objectivity* indicator. The vast majority of teachers responded that they "strongly agree" on 100% of the items. The findings ranged from 70.8% (the TDS is able to dialogue with me without projecting his/her own values and beliefs onto the conversation) to 75.5% (the TDS effectively pushes me to change/expand my practice while simultaneously acknowledging my successes). The agreement ratings ranged from 3.51 to 3.63 (**Table 8a**). In general, teachers revealed they "more than somewhat agree" that TDS displayed objectivity as a coach.

Table 9 (Appendix D, p. 16) depicts teachers' perceptions on the *Listening* indicator. The vast majority of teachers responded that they "strongly agree" on 100% of the items. The findings ranged from 74.9% (the TDS ensures that I am heard by my colleagues during group processes) to 82.0% (when we are having conversations, the TDS avoids distractions and devotes full attention to me at that particular time). The agreement ratings ranged from 3.64 to 3.76 (**Table 9a**, p. 8). Teachers revealed they "more than somewhat agree" that TDS exhibited listening behavior.

Table 7a: Teachers coached by TDS, Expertise and Credibility agreement ratings, spring 2020 (n = 254)

Expertise and Credibility Indicator	Agreement Ratings	S.D.
	μ	σ
More than Somewhat Agree		
The TDS is knowledgeable about curriculum and instruction.	3.80	0.507
The TDS is aware of my classroom realities and adapts accordingly.	3.63	0.743
The TDS acknowledges what I know while adding his/her own expertise to our discussions.	3.62	0.755
I find the TDS's experience relevant to my needs.	3.62	0.699
The TDS has guided me towards relevant and meaningful professional development activities.	3.59	0.739

Table 8a: Teachers coached by TDS, Objectivity agreement ratings, spring 2020 (n = 254)

Objectivity Indicator	Agreement Ratings	S.D.
	μ	σ
More than Somewhat Agree		
The TDS effectively pushes me to change/expand my practice while simultaneously acknowledging my successes.	3.63	0.745
The TDS provides me with a balance of positive and constructive feedback.	3.63	0.76
The TDS is able to dialogue with me without projecting his/her own values and beliefs onto the conversation.	3.56	0.806
I feel that the TDS is my partner.	3.51	0.873

Table 10 (Appendix D, p. 16) reflects teachers' perceptions on the *Clear and Effective Communication* indicator. The vast majority of teachers responded that they "strongly agree" on the three items. The findings ranged from 75.6% (the TDS is open to feedback on his/her communication style and is willing to change practices in order to meet the needs of teachers and staff) to 78.6% (the TDS keeps professional conversations with me and other staff focused on the achievement of agreed-upon outcomes). The agreement ratings ranged from 3.59 to 3.68 (**Table 10a**, p. 8). Teachers revealed they "more than somewhat agree" that TDS demonstrated clear and effective communication skills as a coach.

Table 11 (Appendix D, p. 17) depicts teachers' perceptions on the *Overall Impact* indicator. The vast majority of teachers

Table 9a: Teachers coached by TDS, Listening agreement ratings, spring 2020 (n = 254)

Listening Indicators	Agreement Ratings μ	S.D. σ
More than Somewhat Agree		
When we are having conversations, the TDS avoids distractions and devotes full attention to me at that particular time.	3.76	0.593
The TDS regularly provides forums for me to express concerns and ask questions.	3.63	0.777
The TDS provides safe opportunities for me to reflect honestly on my practice.	3.63	0.76
The TDS listens attentively to understand my needs.	3.68	0.703
The TDS is responsive to my questions and concerns.	3.69	0.735
The TDS is accessible.	3.75	0.59
The TDS gives my concerns and ideas serious consideration.	3.62	0.822
The TDS ensures that I am heard by my colleagues during group processes.	3.64	0.712
The TDS effectively listens to and synthesizes what teachers and staff say.	3.64	0.77

Table 10a: Teachers coached by TDS, Clear and Effective Communication agreement ratings, spring 2020 (n = 254)

Clear and Effective Communication Indicator	Agreement Ratings μ	S.D. σ
More than Somewhat Agree		
The TDS keeps professional conversations with me and other staff focused on the achievement of agreed-upon outcomes.	3.68	0.708
The TDS provides me with clear, specific, and accurate feedback about classroom observations.	3.64	0.736
The TDS is open to feedback on his/her communication style and is willing to change practices in order to meet the needs of teachers and staff.	3.59	0.831

responded that they "strongly agree" on the seven items. The findings ranged from 74.0% (the TDS has helped me develop my lessons to better meet the individual needs of my students) to 78.0% (I feel the TDS provided high-quality support). **Table 11a** shows agreement ratings on this indicator ranged from 3.59 to 3.63. In summary, teachers revealed they "more than somewhat agree" that TDS had a positive impact on their professional practice and helped them meet the individual needs of their students.

Correlation analyses examined the strength of the relationships between the indicators used in the teacher survey (**Table 12**). There were large, positive associations evident in the data, with the largest association found among teachers' perceptions of TDS' objectivity when coaching and their overall impact on their instructional practices, $r = .950$, $p < .001$ (Table 12). The second largest association was found among teachers' perceptions of TDS listening behavior and their ability to deliver clear and effective communication, $r = .944$, $p < .001$.

Finally, teachers were asked to provide their perceptions regarding how working with TDS as a coach helped them be more successful. A graphical depiction of responses are shown in **Figure 6** (p. 9). Teachers' comments were, mostly, positive. A sample of the comments follows.

Table 11a: Teachers Coached by TDS, Overall Impact agreement ratings, spring 2020 (n = 254)

Overall Impact Indicator	Agreement Ratings μ	S.D. σ
More than Somewhat Agree		
Coaching from TDS has made me more reflective about my practice.	3.63	0.747
Coaching from TDS has positively impacted my professional practice.	3.63	0.763
I feel the TDS provided high-quality support.	3.63	0.798
The TDS has helped me implement the instructional goals identified by the school.	3.62	0.776
The TDS has helped me develop my lessons to better meet the individual needs of my students.	3.60	0.781
The impact of the coaching from TDS on my practice justifies the time I spent working with the coach.	3.59	0.831
Coaching from TDS has helped my grade-level team/department focus its work more effectively.	3.59	0.806

Table 12: Pearson product-moment correlation between teacher indicators

Scale	1	2	3	4	5
1. Expertise and Credibility	-				
2. Listening	.893**	-			
3. Objectivity	.586**	.908**	-		
4. Clear/Effective Commun.	.852**	.919**	.944**	-	
5. Overall Impact	.902**	.937**	950**	.938**	-
Mean	2.936	3.706	3.595	3.652	3.635
S.D.	.4834	.5999	.7425	.7025	.7296

**p < .001 (2-tailed) (N = 53)

- "I feel more confident in my teaching and now have more knowledge of the content to better help my students."
- "Working with the TDS as a coach has given [me] the confidence, drive and energy to become a better teacher."
- "If I am uncertain about anything she takes the time to make sure that I fully understand before I attempt to get in front of my students to deliver the material."
- "She has helped me to prepare for my classes and make sure I have the materials I need to service my students."

What was the effect of the intensive secondary TDS coaching model on student performance in mathematics, science, reading, and social studies at targeted schools?

Propensity score matching allowed for measurement of intensive secondary TDS treatment effects using non-randomized data, controlling for whether or not students were economically-disadvantaged, at risk, gifted/talented, male or female, receiving special education services, and their eighth-grade performance on content-related STAAR tests. Baseline characteristics (before matching) of TDS and non-TDS student groups are presented in **Appendix E** (**Tables 13a–16b**, pp. 18–19). Students at schools

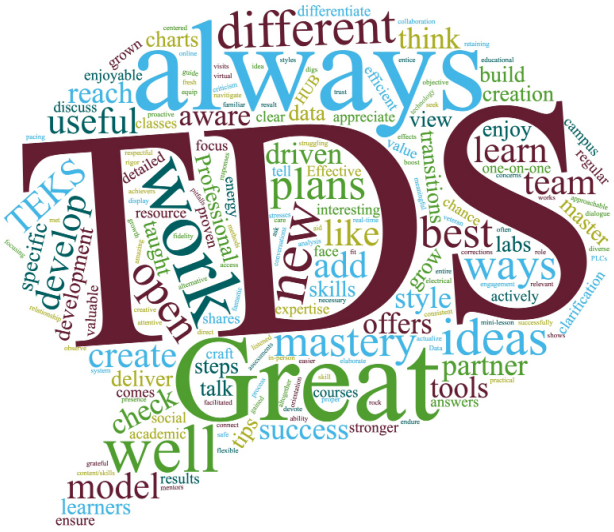

Figure 6: Graphical depiction of teachers perceptions of how secondary TDS' helped them be more successful teachers, spring 2020

with secondary TDS were matched with students at schools that did not deliver intensive secondary TDS coaching practices. It should be noted that students at non-TDS intensive schools tended to have substantially lower percentages of students who were at risk of dropping out of school and much higher percentages of students who are gifted/talented. A total of 1,942 matches were found for students who completed the Algebra 1 DLA; 2,212 matches for the Biology DLA; 3,161 matches for the ELA DLA, and 1,730 matches for the U.S. History DLA, taking into account the covariates. Findings related to the alignment of DLA with STAAR are discussed. Passing rates comparable to STAAR were derived by dividing the mean DLA score in the content area by the maximum score. (See **Appendix F**, p. 20 for information about the tests.)

Figure 7 shows that the mean Algebra 1 DLA was lower for the TDS treatment group relative to the control group before matching (M = 12.66, S.D. = 5.261 vs. M = 12.82, S.D. 5.117). After matching, the mean Algebra 1 DLA exceeded the control group mean (M = 12.85, S.D. = 5.358 vs. M = 12.82, S.D. = 5.117). On average, the mean Algebra I DLA score progressed closer toward the Meets Grade Level standard with intensive TDS treatment (46.9% to 47.6% passing).

Figure 8 shows that the mean Biology DLA was much lower for the treatment group compared to the control group before matching (M = 14.68, S.D. = 5.758 vs. M = 16.34, S.D. 5.732). After matching, there was a reduction in the gaps between the Biology DLA treatment group and the control group (M = 15.204, S.D. = 5.923 vs. M = 15.485, S.D. = 5.585) from 1.67 points to .028 points. On average, the mean Biology DLA score moved closer toward the Meets Grade Level standard with intensive TDS treatment (48.9% to 50.7% passing).

The mean ELA DLA was moderately lower for the treatment group relative to the control group before matching (M = 17.495, S.D. = 5.795 vs. M = 21.174, S.D. = 5.429) (**Figure 9**). After matching, there was a reduction in the gap between the ELA DLA treatment group and the control group (M = 18.361, S.D. = 5.730 vs. M = 21.061, S.D. = 5.427), from 3.68 points to 2.70 points. On average, the mean ELA DLA score advanced toward the Meets Grade Level standard with intensive TDS treatment (56.4% to 59.2% passing).

The mean U.S. History DLA was slightly lower for the treatment group than the control group before matching (M = 14.055, S.D. = 4.795 vs. M = 14.188, S.D. = 5.298) (**Figure 10**, p. 10). After matching, the mean U.S. History DLA for the treatment group exceeded the mean score for the control group (M = 14.292, S.D. = 4.748 vs. M = 13.901, S.D. = 5.304). The difference between the groups was statistically significant ($p < .05$). Moreover, on average, the mean U.S. History DLA score progressed toward the Meets Grade Level standard with intensive TDS treatment (56.2%

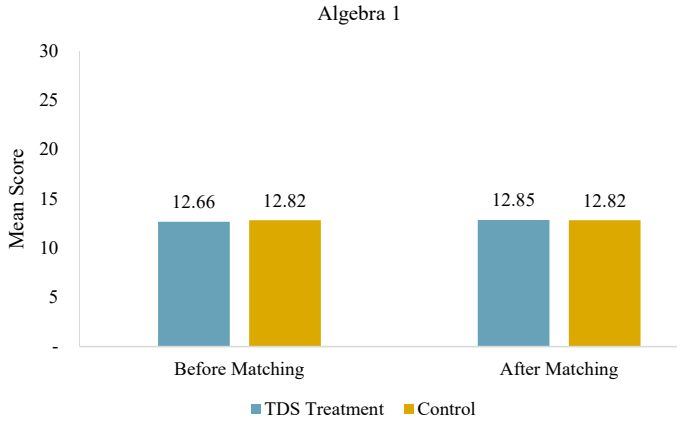

Figure 7: Math propensity-score matching results using fall 2019 Algebra 1 DLA as an outcome measure (Max. score = 27)

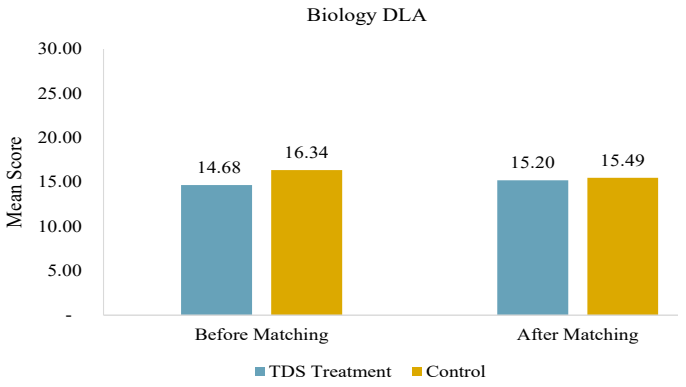

Figure 8: Science propensity-score matching results using fall 2019 Biology DLA as an outcome measure (Max. score = 30)

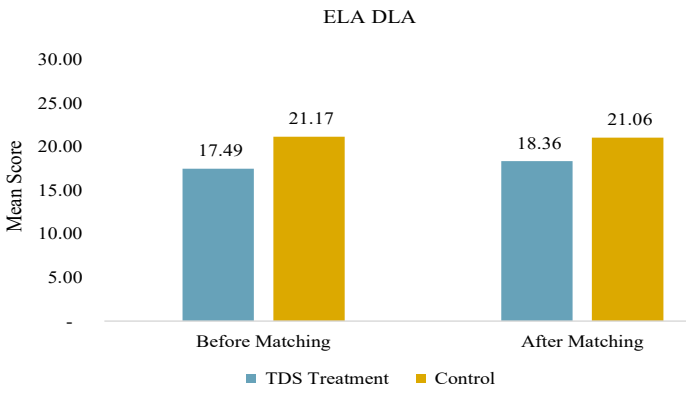

Figure 9: Reading propensity-score matching results using fall 2019 ELA DLA as an outcome measure (Max. score = 31)

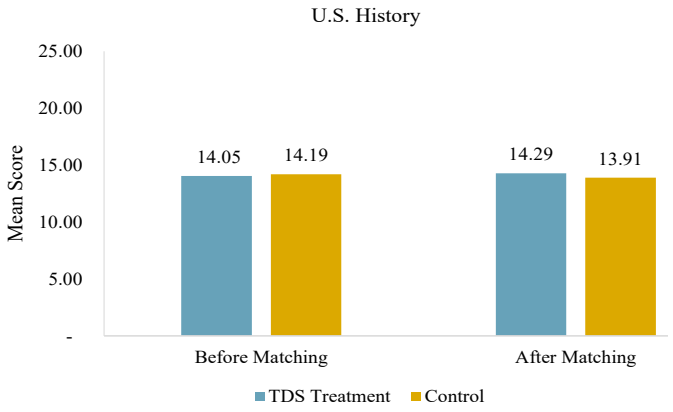

Figure 10: Social studies propensity-score matching results using fall 2019 U.S. History DLA as an outcome measure (Max. score = 25)

to 57.2% passing).

In summary, the effects of intensive secondary TDS treatment led to mostly comparable or higher performance levels for students in schools with large proportions of at-risk students compared to schools with considerably less at-risk students based on students' fall DLA Algebra 1, Biology, ELA, and U.S. History results. Consequently, secondary TDS treatment appeared to have benefits for students in struggling schools.

Discussion

Teacher coaching has emerged as a promising alternative to traditional professional development models to help teachers improve their instructional practices and to facilitate student achievement. Secondary Teacher Development Specialists have embraced a theory of action that is student-centered, collaborative, and that incorporates individualized, intensive, sustained, context-specific, and focused coaching along with instructional strategies and curricular materials to support literacy at each academic level. This program evaluation examined the perceptions of secondary TDS regarding their coaching competencies in key content areas. Moreover, the study assessed the extent secondary TDS coaching practices improved teachers' instructional competencies to support student achievement at struggling schools in HISD.

Pearson correlations revealed a strong, positive association between secondary TDS' listening behavior and their ability to be objective and provide clear and effective communication to teachers. Teachers coached by secondary TDS, overwhelmingly, strongly agreed that they displayed expertise and credibility, listening, objectivity, and clear and effective communication skills as coaches. Moreover, teachers consistently noted that secondary TDS were knowledgeable about curriculum and instruction, pushed them to change and expand their practices, and helped them meet students' individual needs.

Propensity score matching allowed for measurement of intensive secondary TDS treatment effects (at least 80% to 90% of time spent coaching) at targeted schools using DLAs, controlling for students' background and eighth-grade performance on content-related tests. The effects of secondary TDS treatment led to more comparable performance of at-risk students compared to students in schools with considerably less at-risk students in key content areas. Most notably, the mean U.S. History DLA was slightly lower for the TDS treatment group compared to the control group before matching, but significantly exceeded the control group's mean score after matching. On average, the mean Algebra I, Biology, ELA, and U.S. History DLA scores advanced toward the Meets Grade Level standard with intensive secondary TDS treatment.

There were several limitations to the study. Specifically, secondary TDS and teacher participation in surveys was voluntary and there were low DLA student participation rates. However, time was extended for survey completion and propensity-score matching techniques were used to select students who completed the assessments to establish treatment and control groups. The study mainly assessed high-school performance outcomes; however, middle-school outcomes were used as covariates for each content area. Future research may consider assessing the direct impact of TDS in middle-school environments.

Research emphasizes that when practitioners experience new information as learners, the transfer of the new learning is evident in practices and routines. Leaders must provide opportunities for TDS to grow and develop by investing sufficient time and funding. Learning opportunities should focus on the specific needs of secondary TDS relative to specific content, pedagogy, and instructional coaching to maintain and accelerate positive student outcomes evident in this evaluation.

Considering these findings, a true student-centered model should continue to underpin the work of HISD secondary TDS. Moreover, curriculum administrators should consider using these types of teacher coaching models to mitigate the social and economic barriers that students often face in high-risk school environments. Monitoring program implementation, test performance of students, and gathering feedback from stakeholders will help to ensure that the model is delivered by experts in the field as designed, continues to be useful to teachers, and has a positive impact on student achievement.

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Appendix A

Background chaaracteristics of the study samples, 2019–2020				
	Secondary TDS Sample		Teachers Coached by TDS Sample	
	N (53)	%	N (254)	%
Content Areas				
English Language Arts	17	32.1	71	28.0
Instructional Technology	4	7.5	2	0.8
Literacy	6	11.3	0	0.0
Math	7	13.2	47	18.5
Science	12	22.6	67	26.4
Social Studies	7	13.2	65	25.6
Other	-	-	2	0.8
Years as a Teacher				
1	-	-	71	28.0
2	-	-	48	18.9
3	-	-	33	13.0
4	-	-	102	40.2
Source: Secondary TDS and teacher surveys				
41 secondary schools were represented in the data				

Appendix B

Coaching Competencies Definition of Terms

Clear and effective communication: Coaches are able to provide safe, structured opportunities for individual reflection; be transparent in their intention and approach, and thoughtful about the processes they utilize to do their work. Coaches should also maintain an objective presence in group interactions; know and apply theories of group formation to maximize collaborative opportunities; and have a robust arsenal of tools and structures for moving groups towards their goals.

Expertise and Credibility: coaches should have credible and relevant classroom experience; have knowledge beyond their classroom experience, through research, reading, and professional development; anticipate realities of implementation in the classroom; and help teachers make connections and synthesize their experiences. Coaches should also understand and apply theories of organizational change and systems thinking, anticipate realities of implementation across multiple classrooms, identify and synthesize patterns of practice across a school, and be prepared to facilitate and/or coordinate professional development.

Listening: Coaches act as a mirror that reflects the teacher's plans and actions without judgment, analysis, or critique; draw out and help the teacher synthesie that information. Coaches should also maintain a balanced nd objective perspective in the face o onflict or controversy; validate multiple perspectives and approaches, while challenging staff to critically examine the impct of their classroom practices.

Objectivity: Coaches have the ability to act and respond without judgment or critique, maintaining a balanced perspective in the coaching relationship.

Adapted from:
Insight Education Group. (2017). Coaching for change: 3 tools for assessing coaching competencies. Retrieved from http://www.insighteducationgroup.com/instructional-coaching-competencies-tools

Appendix C

Table 2: Teacher Development Specialists' Expertise and Credibility indicator responses, spring 2020 (n = 53)							
Expertise and Credibility Indicators	I am completely confident about this.	I am fairly confident about this.	I am somewhat confident about this.	I am slightly confident about this.	I am not at all confident about this.	Confidence Score	Std. Devia.
	%	%	%	%	%	μ	σ
I am aware of the classroom realities at my site, and adapt my coaching accordingly.	77.4	15.1	7.5	-	-	3.70	.607
The teachers I work with find my experience relevant to their own needs.	64,2	22.6	11.3	1.9	-	3.49	.775
I have the credibility to help teachers reflect deeply on their own practices.	69.8	22.6	7.5	-	-	3.62	.627
I share what I have learned in professional development with my staff.	83.0	11.3	5.7	-	-	3.77	.542
I guide teachers and other colleagues towards relevant and meaningful professional development activities.	67.9	28.3	1.9	0.0	1.9	3.60	.716
I regularly observe in classrooms at my own site and at other sites so that I can identify instructional patterns and best practices.	64.2	20.8	5.7	1.9	7.5	3.32	1.173
I have connected with my coaching mentor to get support in my current position.	54.7	13.2	11.3	3.8	17.0	2.85	1.537
I bring my own knowledge to bear in conversations while acknowledging and integrating the knowledge of others.	79.2	17.0	3.8	-	-	3.75	.515

Table 3: Teacher Development Specialists' Listening indicator responses, spring 2020 (n = 53)							
Listening Indicators	I am completely confident about this.	I am fairly confident about this.	I am somewhat confident about this.	I am slightly confident about this.	I am not at all confident about this.	Confidence Score	Std. Devia.
	%	%	%	%	%	μ	σ
I regularly provide a forum for teachers to express concerns and ask questions.	77.4	15.1	5.7	1.9	-	3.68	.673
I give teacher and staff concerns and ideas serious consideration.	83.0	17.0	-	-	-	3.83	.379
I am able to distinguish between concerns that simply need validation and those that require action.	69.8	24.5	5.7	-	-	3.64	.591
I ask clarifying questions when appropriate to ensure that I understand what teachers are saying.	79.2	17.0	3.8	-	-	3.75	.515
I provide safe opportunities for teachers and staff to reflect honestly on their practice.	77.4	20.8	1.9	-	-	3.75	.477
When I have conversations with teachers, I avoid distractions and devote my full attention to their needs at that particular time.	79.2	18.9	79.2	-	-	3.77	.466
I effectively use facilitative processes that draw out reluctant participants.	49.1	35.8	9.4	5.7	-	3.28	.863
I can ensure that all participants are heard by their colleagues during group processes.	52.8	37.7	7.5	1.9	-	3.42	.719
I can hear and process an issue from multiple perspectives (i.e., teacher, student, administrator, etc.).	77.4	17.0	5.7	-	-	3.72	.568
I provide opportunities for teachers to dialogue with each other, not just with me.	64.2	20.8	13.2	1.9	-	3.47	.799
I effectively listen to and synthesize what teachers and staff say.	71.7	24.5	3.8	-	-	3.68	.547

Note: This survey was adapted from Insight Education Group. (2017). Coaching for change: 3 tools for assessing coaching competencies. Retrieved from http://www.insighteducationgroup.com/instructional-coaching-competencies-tools.

Appendix C (cont'd)

Table 4: Teacher Development Specialists' Objectivity indicator responses, spring 2020 (n = 53)							
Objectivity Indicators	I am completely confident about this.	I am fairly confident about this.	I am somewhat confident about this.	I am slightly confident about this.	I am not at all confident about this.	Confidence Score	Std. Devia.
	%	%	%	%	%	μ	σ
I can listen to my collaborating teacher's plans and observe his/her actions without judgment, analysis, or critique.	60.4	34.0	5.7	-	-	3.55	.607
I ask clarifying questions to draw out details and help teacers synthesize information.	77.4	17.0	5.7	-	-	3.72	.568
I am able to dialogue with teachers without projecting my own values and beliefs on the conversation.	60.4	26.4	11.3	1.9	-	3.45	.774
I make sure that I have all the relevant information about a situation before.	56.6	41.5	1.9	-	-	3.55	.539
I actively solicit input from multiple stakeholders before taking action on an issue.	67.9	20.8	9.4	-	1.9	3.53	.823
When facilitating a controversial conversation between more than one party, I am able to remain neutral even when my personal beliefs might place me on one side of the dialogue.	58.5	35.8	5.7	-	-	3.53	.608
I use a variety of techniques to challenge staff to acknowledge their own assumptions.	41.5	41.5	9.4	5.7	1.9	3.15	.949
I am effective in pushing staff members to change/expand their practices while simultaneously acknowledging their successes.	54.7	35.8	5.7	3.8	-	3.42	.770
I balance feedback that I give to teachers and staff between positive and constructive.	75.5	24.5	-	-	-	3.75	.434

Table 5: Teacher Development Specialists' Clear and Effective Communication survey responses, spring 2020 (n = 53)							
Clear and Effective Communication Indicators	I am completely confident about this.	I am fairly confident about this.	I am somewhat confident about this.	I am slightly confident about this.	I am not at all confident about this.	Confidence Score	Std. Devia.
	%	%	%	%	%	μ	σ
I provide clear, specific, and accurate feedback to teachers about classroom observations.	73.6	24.5	1.9	-	-	3.72	.495
I meet face to face with teachers in a timely fashion following classroom observations to debrief the observation and clarify written feedback.	71.7	20.8	5.7	1.9	-	3.62	.686
I model the process of articulating goals that will elicit specific outcomes.	64.2	30.2	3.8	1.9	-	3.57	.665
I keep professional conversations with teachers and staff focused on the achievement of agreed-upon outcomes.	83.0	17.0	-	-	-	3.83	.379
During conversations with teachers, I deliberately choose to use language that is clear, non-threatening, and objective.	81.1	18.9	-	-	-	3.81	.395
When appropriate, I share agendas and planning tools with teachers and staff prior to meetings.	75.5	20.8	3.8	-	-	3.72	.533
I model ways to communicate effectively.	73.6	24.5	1.9	-	-	3.72	.495
I return phone calls and emails in a timely fashion (within 24 hours, when possible).	75.5	22.6	1.9	-	-	3.74	.486
I am open to feedback on my communication style and am willing to change my practices in order to meet the needs of teachers and staff.	84.9	15.1	-	-	-	3.85	.361
I disseminate written information in a timely fashion.	77.4	22.6	-	-	-	3.77	.423
I use communication formats that are convenient for teachers and staff (i.e., bulletin boards, email, paper memos).	79.2	18.9	1.9	-	-	3.77	.466
I provide clear processes and agendas for meetings and group conversations.	69.8	28.3	1.9	-	-	3.68	.510

Note: This survey was adapted from Insight Education Group. (2017). Coaching for change: 3 tools for assessing coaching competencies. Retrieved from http://www.insighteducationgroup.com/instructional-coaching-competencies-tools.

Appendix D

Table 7: Teachers Coached by TDS Expertise and Credibility indicator agreement responses, spring 2020 (n = 254)						
Expertise and Credibility Indicators	Strongly agree	Somewhat agree	Somewhat disagree	Disagree	Mean	Std. Devia.
	%	%	%	%	μ	σ
The TDS is aware of my classroom realities and adapts accordingly.	74.7	17.4	4.0	4.0	3.63	.743
I find the TDS' experience relevant to my needs.	71.7	22.0	3.1	3.1	3.62	.699
The TDS has guided me towards relevant and meaningful professional development activities.	71.0	20.2	5.6	3.2	3.59	.739
The TDS acknowledges what I know while adding his/her own expertise to our discussions.	73.9	18.2	3.6	4.3	3.62	.755
The TDS is knowledgeable about curriculum and instruction.	83.8	13.0	2.4	0.8	3.80	.507

Table 8: Teachers Coached by TDS Objectivity indicator agreement responses, spring 2020 (n = 254)						
Objectivity Indicators	Strongly agree	Somewhat agree	Somewhat disagree	Disagree	Mean	Std. Devia.
	%	%	%	%	μ	σ
I feel that the TDS is my partner.	70.9	15.5	7.6	6.0	3.51	.873
The TDS is able to dialogue with me without projecting his/her own values and beliefs onto the conversation.	70.8	18.8	5.6	4.8	3.56	.806
The TDS effectively pushes me to change/expand my practice while simultaneously acknowledging my successes.	75.5	16.5	4.0	4.0	3.63	.745
The TDS provides me with a balance of positive and constructive feedback.	75.4	16.3	4.0	4.4	3.63	.760

Table 9: Teachers Coached by TDS Listening indicator agreement responses, spring 2020 (n = 254)						
Listening Indicators	Strongly agree	Somewhat agree	Somewhat disagree	Disagree	Mean	Std. Devia.
	%	%	%	%	μ	σ
The TDS is responsive to my questions and concerns.	81.0	12.3	2.0	4.8	3.69	.735
The TDS is accessible.	81.0	15.1	2.0	2.0	3.75	.590
The TDS listens attentively to understand my needs.	78.7	14.6	3.2	3.6	3.68	.703
The TDS regularly provides forums for me to express concerns and ask questions.	76.4	14.8	4.0	4.8	3.63	.777
The TDS gives my concerns and ideas serious consideration.	77.8	12.3	4.0	6.0	3.62	.822
The TDS provides safe opportunities for me to reflect honestly on my practice.	76.5	14.3	5.2	4.0	3.63	.760
When we are having conversations, the TDS avoids distractions and devotes full attention to me at that particular time.	82.0	14.4	1.2	2.4	3,76	.593
The TDS ensures that I am heard by my colleagues during group processes.	74.9	18.0	3.8	3.3	3.64	.712
The TDS effectively listens to and synthesizes what teachers and staff say.	77.5	14.1	3.6	4.8	3.64	.770

Table 10: Teachers Coached by TDS Clear and Effective Communication indicator agreement responses, spring 2020 (n = 254)						
Clear and Effective Communication Indicators	Strongly agree	Somewhat agree	Somewhat disagree	Disagree	Mean	Std. Devia.
	%	%	%	%	μ	σ
The TDS provides me with clear, specific, and accurate feedback about classroom observations.	75.7	15.4	5.7	3.2	3.64	.736
The TDS keeps professional conversations with me and other staff focused on the achievement of agreed-upon outcomes.	78.6	14.5	3.2	3.6	3.68	.708
The TDS is open to feedback on his/her communication style and is willing to change practices in order to meet the needs of teachers and staff.	75.6	14.2	4.1	6.1	3.59	.831

Note: This survey was adapted from Insight Education Group. (2017). Coaching for change: 3 tools for assessing coaching competencies. Retrieved from http://www.insighteducationgroup.com/instructional-coaching-competencies-tools.

Appendix D (cont"d)

Table 11: Teachers Coached by TDS Overall Impact indicator agreement responses, spring 2020 (n = 254)						
Overall Impact Indicators	Strongly agree	Somewhat agree	Somewhat disagree	Disagree	Mean	Std. Devia.
	%	%	%	%	μ	σ
Coaching from TDS has made me more reflective about my practice.	75.0	16.9	4.0	4.0	3.63	.747
Coaching from TDS has positively impacted my professional practice.	75.5	16.1	4.0	4.4	3.63	.763
The impact of the coaching from TDS on my practice justifies the time I spent working with the coach.	75.3	13.8	5.3	5.7	3.59	.831
The TDS has helped me implement the instructional goals identified by the school.	75.4	15.3	4.8	4.4	3.62	.776
The TDS has helped me develop my lessons to better meet the individual needs of my students.	74.0	16.4	5.2	4.4	3.60	.781
I feel the TDS provided high-quality support.	78.0	11.6	5.6	4.8	3.63	.798
Coaching from TDS has helped my grade-level team/department focus its work more effectively.	74.8	14.6	5.7	4.9	3.59	.806

Note: This survey was adapted from Insight Education Group. (2017). Coaching for change: 3 tools for assessing coaching competencies. Retrieved from http://www.insighteducationgroup.com/instructional-coaching-competencies-tools.

Appendix E

Table 13a: Math propensity score matching - background covariates

	Before Matching							After Matching						
	N	Eco. Disadv.	Sp. Ed.	At Risk	G/T	Male	Female	N	Eco. Disadv.	Sp. Ed.	At Risk	G/T	Male	Female
		%	%	%	%	%	%		%	%	%	%	%	%
TDS Treatment Group	3594	93.6	10.8	87.2	6.9	52.2	47.8	1942	89.2	10.1	65.1	25.4	52.8	47.2
Control Group	1942	76.0	7.6	65.1	25.4	45.6	54.4	1942	76.0	7.6	82.0	10.9	45.6	54.4

Table 13b: Math propensity score matching - assessment covariate and outcome measure

	8th Grade Math Covariate (Spring 2019)							Algebra I DLA (Fall 2019) Outcome Measure						
Before Matching	n	Mean Scale Score	Std. Devia.	Mean Diff	t	df	p	n	Mean Score	Std. Devia.	Mean Diff	t	df	p.
TDS Treatment Group	3591	1642.55	128.941	64.874	16.935	5531	.000	3594	12.66	5.261	.163	1.108	5534	.268
Control Group	1942	1707.42	148.165					1942	12.82	5.117				
After Matching	n	Mean Scale Score	Std. Devia.	Mean Diff	t	df	p	n	Mean Score	Std. Devia.	Mean Diff	t	df	p.
TDS Treatment Group	1942	1651.88	133.968	55.542	12.253	3882	.000	1942	12.85	5.358	.033	.196	3882	.845
Control Group	1942	1707.42	148.165					1942	12.82	5.117				

Table 14a: Science propensity score matching - background covariates

	Before Matching							After Matching						
	N	Eco. Disadv.	Sp. Ed.	At Risk	G/T	Male	Female	N	Eco. Disadv.	Sp. Ed.	At Risk	G/T	Male	Female
		%	%	%	%	%	%		%	%	%	%	%	%
TDS Treatment Group	3157	93.1	6.7	43.5	11.2	44.2	55.8	2212	90.2	6.1	72.6	15.7	51.7	48.3
Control Group	2867	65.0	3.5	80.0	46.6	50.6	49.4	2212	76.2	4.2	53.1	35.1	44.9	55.1

Table 14b. Science propensity score matching - assessment covariate and outcome measure

	8th Grade Science Covariate (Spring 2019)							Biology DLA (Fall 2019) Outcome Measure						
Before Matching	n	Mean Scale Score	Std. Devia.	Mean Diff	t	df	p	n	Mean Score	Std. Devia.	Mean Diff	t	df	p.
TDS Treatment Group	3156	3712.75	507.389	494.282	34.144	6020	.000	3157	14.677	5.7580	1.6646	11.230	6022	.000
Control Group	2866	4207.04	614.747					2867	16.342	5.7318				
After Matching	n	Mean Scale Score	Std. Devia.	Mean Diff	t	df	p	n	Mean Score	Std. Devia.	Mean Diff	t	df	p.
TDS Treatment Group	2212	3744.90	525.224	295.577	17.983	4422	.000	2212	15.204	5.9229	.2807	1.622	4422	.105
Control Group	2212	4070.48	567.195					2212	15.485	5.5850				

Appendix E (cont'd)

Table 15a: Reading propensity score matching - background covariates

	Before Matching							After Matching						
	N	Eco. Disadv.	Sp. Ed.	At Risk	G/T	Male	Female	N	Eco. Disadv.	Sp. Ed.	At Risk	G/T	Male	Female
		%	%	%	%	%	%		%	%	%	%	%	%
TDS Treatment Group	4433	93.0	9.8	80.6	12.9	51.4	48.6	3161	91.0	8.2	74.5	17.7	55.0	45.0
Control Group	3161	77.4	4.9	51.5	40.5	44.2	55.8	3161	77.4	4.9	51.5	40.5	44.2	55.8

Table 15b: Reading propensity score matching - assessment covariate and outcome measure

	8th Grade Reading Covariate (Spring 2019)							ELA DLA (Fall 2019) Outcome Measure						
Before Matching	n	Mean Scale Score	Std. Devia.	Mean Diff	t	df	p	n	Mean Score	Std. Devia.	Mean Diff	t	df	p.
TDS Treatment Group	4433	1618.32	130.714	106.208	34.694	7688	.000	4433	17.4948	5.7953	3.6793	28.251	7688	.000
Control Group	3257	1724.53	135.228					3257	21.1741	5.429				
After Matching	n	Mean Scale Score	Std. Devia.	Mean Diff	t	df	p	n	Mean Score	Std. Devia.	Mean Diff	t	df	p.
TDS Treatment Group	3161	1647.49	126.844	72.019	22.021	6320	.000	3161	18.3614	5.72956	2.699	19.230	6320	.000
Control Group	3161	1719.51	133.115					3161	21.0607	5.42738				

Table 16a: Social studies propensity score matching - background covariates

	Before Matching							After Matching						
	N	Eco. Disadv.	Sp. Ed.	At Risk	G/T	Male	Female	N	Eco. Disadv.	Sp. Ed.	At Risk	G/T	Male	Female
		%	%	%	%	%	%		%	%	%	%	%	%
TDS Treatment Group	2110	92.8	8.7	88.0	5.6	54.4	45.6	1730	91.4	7.1	85.4	6.8	51.4	48.6
Control Group	2008	71.8	4.0	62.3	29.2	48.9	51.1	1730	77.6	4.5	68.1	21.8	49.7	50.3

Table 16b: Social studies propensity score matching - assessment covariate and outcome measure

	8th Grade Social Studies Covariate (Spring 2017)							U.S. History DLA (Fall 2019) Outcome Measure						
Before Matching	n	Mean Scale Score	Std. Devia.	Mean Diff	t	df	p	n	Mean Score	Std. Devia.	Mean Diff	t	df	p.
TDS Treatment Group	2110	3428.69	359.389	349.336	25.145	4116	.000	2110	14.0548	4.7945	.1332	.847	4116	.397
Control Group	2008	3778.02	492.938					2008	14.1880	5.2980				
After Matching	n	Mean Scale Score	Std. Devia.	Mean Diff	t	df	p	n	Mean Score	Std. Devia.	Mean Diff	t	df	p.
TDS Treatment Group	1730	3475.45	406.669	233.156	15.605	3458	.000	1730	14.2918	4.7481	.3865	2.258	3458	.024
Control Group	1730	3708.61	469.991					1730	13.9053	5.3042				

Appendix F

DLA and STAAR Alignment (Source: Houston Independent School District, Student Assessment Department (personal communication, 1/8/2020))							
	Approaches	**Meets**	**Masters**		**Approaches**	**Meets**	**Masters**
	%	%	%		%	%	%
ELA DLA	60	69	88	Biology DLA	39	61	83
Algebra I DLA	39	63	78	U.S. History DLA	44	65	81

State of Texas Assessments of Academic Readiness (STAAR®) Performance Labels and Policy Definitions

Masters Grade Level*
Performance in this category indicates that students are expected to succeed in the next grade or course with little or no academic intervention. Students in this category demonstrate the ability to think critically and apply the assessed knowledge and skills in varied contexts, both familiar and unfamiliar.
* For Algebra II and English III, this level of performance also indicates students are well prepared for postsecondary success.

Meets Grade Level**
Performance in this category indicates that students have a high likelihood of success in the next grade or course but may still need some short-term, targeted academic intervention. Students in this category generally demonstrate the ability to think critically and apply the assessed knowledge and skills in familiar contexts.
** For Algebra II and English III, this level of performance also indicates students are sufficiently prepared for postsecondary success.

Approaches Grade Level
Performance in this category indicates that students are likely to succeed in the next grade or course with targeted academic intervention. Students in this category generally demonstrate the ability to apply the assessed knowledge and skills in familiar contexts.

Did Not Meet Grade Level
Performance in this category indicates that students are unlikely to succeed in the next grade or course without significant, ongoing academic intervention. Students in this category do not demonstrate a sufficient understanding of the assessed knowledge and skills.

Citation: Texas Education Agency. (2017). Student Assessment Division. State of Texas Assessments of Academic Readiness (STAAR®) Performance Labels and Policy Definitions. Retrieved from https://tea.texas.gov/sites/default/files/STAAR_Performance_Labels_and_Policy_Definitions.pdf