

MEMORANDUM

December 16, 2020

TO: Shannon L. Verrett, Ph.D.
Executive Director, Special Education

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

SUBJECT: **SUPPORTING STUDENTS WITH DISABILITIES: AN EVALUATION OF TEACHER PROFESSIONAL DEVELOPMENT AND IMPLEMENTATION OF SENSORY LABS IN HISD SCHOOLS, 2019–2020**

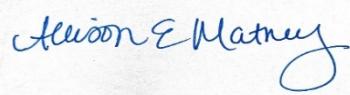
The Office of Special Education Services through Autism and Behavioral Services provides support to teachers and students with disabilities. The evaluation presents an overview of teachers' perceptions of professional development services and supports provided by Autism and Behavioral Services. These services are designed to improve the efficacy of teachers who educate students with disabilities. Also, the evaluation examines the impact of the implementation of sensory labs at selected campuses on the academic performance and behavioral outcomes of students with disabilities and students who may be experiencing behavioral challenges. Data were drawn from the Autism and Behavioral Services Teacher Survey administered during the 2019–2020 academic year and student academic performance and behavior outcomes.

Key findings include:

- There was a 6.9 percent increase from the previous year in the number of students with disabilities in the district (16,923 vs. 15,831, respectively).
- Compared to the previous year, in the 2019–2020 academic year, there was an increase in the number of students with autism (15.4% vs. 16.6%, respectively) and speech impairment (12.5% vs. 13.5%, respectively).
- A survey administered to teachers identified strengths of the Autism and Behavior Services Team toward increasing the efficacy of teachers who educate students with disabilities, including their knowledge of behavioral strategies (mean = 2.80 out of 4.0), knowledge of instructional strategies (mean = 2.70 out of 4.0), provision of resources and recommendations for managing students with disabilities (mean = 2.70 out of 4.0), and visits to the classroom when requested (mean = 2.70 out of 4.0).
- Several areas for improvement were identified in the Teacher Survey, which included the need to assist teachers in analyzing student work and performance data (mean = 2.02 out of 4.0), co-teaching (mean = 1.88 out of 4.0), and helping teachers with their lesson (mean = 2.08 out of 4.0).
- The district implemented 27 of the 30 planned sensory labs and trained staff at 21 campuses on the purpose, usage, and care of the equipment in the 2019–2020 academic year.
- Observed benefits of the sensory lab reported by teachers who used the space were: (i) students were better able to follow directions after participating in the lab (57.5%), (ii) decrease in negative behaviors (55%), (iii) students enjoyed the lab (41.3%), and (iv) students were better able to spend more time on task (38.8%).

- There was a statistically significant higher mean GPA for students who attended campuses with sensory labs (mean = 2.89) compared to their peers who were not at a campus with a lab (mean = 2.85).

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

A handwritten signature in blue ink that reads "Allison E. Matney".

AEM

Attachment

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



RESEARCH

Educational Program Report

**SUPPORTING STUDENTS WITH DISABILITIES: AN
EVALUATION OF TEACHER PROFESSIONAL
DEVELOPMENT AND IMPLEMENTATION OF
SENSORY LABS IN HISD SCHOOLS, 2019-2020**



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EVALUATION REPORT

BUREAU OF PROGRAM EVALUATION

Supporting Students with Disabilities: An evaluation of teacher professional development and implementation of sensory labs in HISD schools, 2019–2020

Prepared by Georgia A. Graham, PhD

Abstract

To close the performance gap for students with disabilities, teacher and student-focused interventions have been implemented through the Houston Independent School District (HISD) Autism and Behavior Services. The teacher-focused intervention entails support and professional development opportunities to improve teacher efficacy to close the performance gap for students with disabilities. In the 2019–2020 school year, the department implemented a new student-focused intervention with the addition of sensory labs at 30 HISD campuses. This evaluation explored teachers' perceptions of the professional development services and support provided by HISD Autism and Behavior Services Team to improve their efficacy educating students with disabilities. The evaluation also explored teachers' perceptions of and frequency of access to the sensory room, and the impact that sensory room use had on the academic and behavioral outcomes of students with disabilities and/or behavioral challenges during the 2019–2020 school year. Overall, HISD teachers who responded to the survey agreed that the quality of instructional support and information provided by the Autism and Behavior Services Team was effective. However, teachers believed that it would be beneficial if there were better follow-up and more hands-on support through modeling of instructional and behavioral strategies. Teachers who accessed the sensory rooms indicated that the observed benefit of students using the sensory room was increased focus. More than half of the teachers, 57.5 percent, observed that students were better able to follow directions after participating in the sensory room activities, and 38.8 percent observed that students were better able to spend more time on task. In terms of behavior, 55 percent of teachers observed a decrease in negative behaviors, and 27.5 percent observed that students were more motivated. Students with a disability who were at campuses with sensory rooms showed a lower mean rate of suspension (in-school and out-of-school), a higher mean rate of attendance, and a higher mean cumulative GPA than students with disabilities at campuses without sensory rooms. The mean cumulative GPA was statistically significant.

In the United States, about one in five public school students has a learning or attention issue, but some do not receive special education services (Galiatsos, Kruse, & Whittaker, 2019). Students with relatively mild levels of disability, slip through the cracks during high school. While their peers with more serious disabilities are able to secure accommodations, such as tutoring, counseling, and other services, their own challenges are never considered serious enough to warrant diagnosis and the creation of an individual education program (IEP) (Schechter, 2018). Due to having mild disabilities, undiagnosed students are able to struggle through high school and earn a diploma even without receiving such services (Schechter, 2018). There is evidence that specific critical teacher mindsets and key practices can not only improve outcomes for students with learning and attention issues; in fact, these practices can improve learning for all students (Galiatsos, Kruse, & Whittaker, 2019).

Poor performance across certain populations of youth has heightened focus on student support and teacher quality in education, resulting in a renewed interest in effective professional development and evidence-based student supports. Current research has emerged to provide school leaders with best practices for implementing district- and school-level professional development (Kelleher, 2003;

Quick, Holtzman, & Chaney, 2009; Thessin & Starr, 2011). Within this broad approach, there is an emergent discourse on whether professional development addresses the needs of both general education and special education educators for improved efficacy and working with students with disabilities (Pancsofar & Petroff, 2013; Berry, Petrin, Gravelle, & Farmer, 2011).

Providing educators with effective professional development (PD) that meets their learning needs and that of students with disabilities emerges as a priority due to a series of changes to federal mandates that have altered educational expectations for students with disabilities and their teachers. Every Student Succeeds Act (ESSA, 2005) and the Individuals with Disabilities Improvement Act (IDEA; Public Law 108-446, 2004) mandate that students with disabilities have access to the general education curriculum, meet adequate yearly progress on standard contents, and that they do so in the least restrictive environment. Also, these mandates require that all students must be instructed by highly qualified teachers and the individual educational program teams for students with disabilities include general and special education teachers (Cook & Friend, 2010). The requirements of the mandates present a problem as there is a shortage of special education teachers in almost every disability category in the U.S. (Berry, Petrin, Gravelle, & Farmer, 2011).

Background

To close the performance gap between general education students and students with disabilities, teacher-focused and student-focused interventions have been implemented through HISD's Autism and Behavior Services (HISD, 2020). The teacher-focused intervention entails support and professional development opportunities designed to improve teacher efficacy to close the performance gap. To develop teacher efficacy, the department uses three models of professional development: co-teach, consultative, and resource models. At the student-level, there were several intervention models provided to campuses which can be categorized as (i) intensive services to address issues facing a specific population of students with disabilities (sensory room and Intensive Intervention Teams (IIT)); (ii) targeted services through programs in least restrictive environments (LRE); and (iii) universal district-wide information and resources to support teachers who meet the learning needs of students with disabilities and/or behavioral challenges (HISD, 2020).

Based on emerging district needs, the department adopted a targeted approach to support students, teachers, and schools with the implementation of sensory rooms during the 2019–2020 school year (**Figure 1**). The Office of Special Education Services provided equipment and materials for 30 sensory rooms throughout the district, designed to offer a therapeutic space that provides students with a wide range of special needs, a personalized sensory input area focused on calming and relaxation activities (HISD, 2020). The use of sensory rooms, according to the Child Mind Institute (2019), addresses the reality that some students with autism seem to have trouble handling information their senses take in like sound, touch, taste, sight, and smell (HISD, 2020). There are also two other, less well-known senses that can be affected—the first is a sense of body awareness and the second involves movement, balance, and coordination (HISD, 2020).

The sensory needs of students with disabilities, especially autism, can be largely addressed through the implementation of sensory rooms. The rooms provide accommodations not provided in a student's IEP and allow schools the ability to implement interventions that can be generalized in home and community settings (HISD, 2020). School Specialty, the sensory equipment vendor provided combined training to inform HISD campuses on the purpose, usage, and care of the equipment provided for each space. These multisensory rooms are equipped with some of the most popular research-based sensory equipment; however, schools may purchase additional pieces (HISD, 2020). In some schools, the equipment is placed in the autism classrooms, and students can self-manage by going to desired stations when feeling the need to regroup. In other schools, the sensory room is a separate space from the classroom. In either case, students with disabilities from any classroom can access the equipment for at least 20–30 minutes in a day when needed or through class rotation (Borner, Personal Communication, 2020).

The department also oversees a quarterly Autism Parent Meeting. The meetings provide opportunities for parents to engage with other parents whose children have autism, learn

what is occurring in the classroom, and hear about new research developments (HISD, 2018). With four meetings scheduled annually, the department hosted each meeting in different regions to provide an opportunity for increased parental participation across the district (Borner, Personal Communication, 2020).



Figure 1: Student using sensory room equipment located in their classroom at Coldwell Elementary School, Campus Tour, 2020.

Literature Review

Teacher Professional Development

Prior research has shown that teaching quality and school leadership are the most important factors in raising student achievement (Mizell, 2010). Currently, professional development is the only strategy school districts use to strengthen educators' performance levels (Mizell, 2010). Quick, Holtzman, and Chaney (2009), evaluated the evidence-based practices of professional development (content, focus, active learning, and coherence) as applied to peer coaching in the San Diego district-wide PD reform. The researchers found that teachers reported effective PD when there were opportunities for collaboration within grade levels or across grade levels; opportunities for modeling, practice, and feedback; the PD was grounded in the needs of teachers; delivered in a safe, trusting environment; and connected to broader school goals and other professional learning opportunities (Quick, Holtzman, & Chaney, 2009).

With respect to the effectiveness of Professional Learning Communities (PLC), Thessien and Staar (2011) found that district-wide reform of PLCs should focus on developing a process that would help teacher teams become learning teams. Teacher collaboration is an effective method to improve teacher efficacy educating students with disabilities. Shaffer and Thomas-Brown (2015) conducted a qualitative study of the benefits of embedding professional development in the co-

teaching model to meet the needs of both special education and general education teachers. The research found that there was the existence of reciprocity in content knowledge gains for special education teachers and the corresponding gains in the pedagogical repertoire for general educators. Similarly, Pancsofar and Petroff (2013) explored teachers' professional development and confidence about co-teaching. The authors found that teachers who received more professional development opportunities for co-teaching were more confident in their co-teaching practice, demonstrated higher levels of interest, and more positive attitudes about co-teaching than did those teachers with less frequent in-service opportunities.

Another PD model is the consultative approach. Regarding secondary schools, Carpenter and Dyal (2007) argue that principals must utilize strategies that promote the successful implementation of the consultative model. The authors identify four strategies to improve the implementation of the consultative model so that general and special education teachers are supported while providing the best teaching and learning opportunities for secondary students with disabilities. One approach outlined by Carpenter and Dyal (2007) is shared planning time so that content area specialists and special education consultative teachers can have a meaningful time to plan for the individual needs of all students. Another PD approach is the use of Early Release/Late Arrival to create time for teachers to meet, attend professional development activities, plan instruction, and complete other necessary duties related to teaching. Use of substitutes is also a PD approach that helps to create shared planning time so that special education teachers and general education teachers would have release time for planning. Finally, the general educator incorporates instructional strategies that facilitate planning. For example, the general educator provides an overview of the lesson and outlines how each teacher will be working with the students.

Current Modes of Sensory Integration

Many students are affected by challenges in processing and integrating sensations that negatively affect their ability to participate in the classroom (Worthen, 2010). Sensory processing refers to taking in information through the senses (Thompson & Raisor, 2013) to respond appropriately to the environment—including sounds, lights, textures, motion, and gravity (Lynch & Simpson, 2004). Students with sensory integration deficits, such as autism or other disabilities, often face a myriad of communication and behavioral challenges that need to be skillfully addressed for learning to take place (Darrow, 2009). With a combination of environmental adjustments and skill development, teachers can enhance the learning experiences of all students (Darrow, 2009).

Given the widespread impact that atypical sensory responding can have on academic skills and overall performance, efforts have been made to identify interventions that address these difficulties and improve performance. An emerging intervention that addresses these concerns is multisensory rooms. They have been used across various populations from mental health, intellectual and

developmental disabilities, dementia, traumatic brain injuries, maternity to education (Cameron *et al.*, 2019). Sensory rooms are settings where stimulation can be controlled, manipulated, intensified, or reduced to provide opportunities for individuals to engage in self-stimulating activities (Stadele & Malaney, 2001).

Most of the research on multisensory rooms focused on describing what it is and providing recommendations for the purpose, design, and use. The central idea behind the use of multisensory rooms is the stimulation of the primary senses using a range of objects and materials (Grace, 2019). A means for self-regulation, users can select the stimulations they need (Stadele & Malaney, 2001). For sensory stimulation, these rooms can include a variety of items, including bubble tubes, sensory projectors, sensory lighting, and sensory fiber optics, projectors, tall columns of color-changing water, bubbles in a corner, and soft music playing (Hirstwood, 2018). Considering that campus population varies, each multisensory room should be different based on the needs of users in a given setting and those who support their access to services (Grace, 2019).

Research Questions

The HISD Office of Special Education Services through Autism and Behavior Services provides support to teachers and students with disabilities. The purpose of this study is twofold; first, to get an overview of teachers' perceptions of the professional development services and supports provided by Autism and Behavior Services to improve their efficacy educating students with disabilities. Second, the research examines the implementation impact of sensory rooms at selected campuses on the academic performance and behavioral outcomes of students with disabilities and/or behavioral challenges. The evaluation is guided by the following questions:

1. What were the demographic characteristics and disability type of students with disabilities in HISD for the 2019–2020 school year?
2. What were teachers' perceptions of the quality of instructional and behavioral information and support provided by Autism and Behavior Services?
3. How were sensory rooms implemented at HISD selected campuses? How were they managed to ensure equity in access, scheduling, and maintenance?
4. How does having a sensory room on campus improved academic and behavior outcomes for students with disabilities and/or behavioral problems?
5. What were the teachers' recommendations for additional supports needed to improve their efficacy educating students with autism and/or behavioral challenges?

Data and Methods

During the 2019–2020 school year, Autism and Behavior Services, which is part of HISD's Office of Special Education Services, adopted a targeted approach to support students,

teachers, and campuses through the implementation of sensory rooms in HISD schools. Data were collected on the teachers' perceptions of the PD and training and supports offered by Autism and Behavior Services and the benefits of the additional supports provided through the sensory rooms.

Data Collection

Teacher Survey. Teachers completed an online survey that collected information on the professional development and training and support provided by Autism and Behavior Services. The Autism and Behavior Services Teacher Survey was disseminated via email from February 13–March 11, 2020, by Research and Accountability Department and Autism and Behavior Services. Weekly email reminders were sent out to teachers. Each teacher-level component was coded as '1' for teachers who accessed Autism and Behavior Services and '0' for those who did not.

Classroom observations. From February 5–26, 2020, four campuses were toured, providing the opportunity to observe students using the sensory room within their classroom and stand-alone rooms at the campuses. In parallel, observational methods have been used in the classroom to reflect on and refine teaching and learning, often in combination with other data sources, such as surveys and interviews (Eradze, Rodríguez-Triana, & Laanpere, 2019). While observing classrooms and touring campuses, the researcher was as able to informally interact with teachers and gain their perspective on the benefits of having the sensory rooms at their campus or in their classroom.

Measures

Teacher. The teacher survey included measures related to teacher buy-in and training and support. Teachers rated their level of agreement with statements on a 4-point Likert scale ranging from very useful (4) to not useful (0) for the usefulness of training provided to improve efficacy educating students with autism and/or behavior challenges, and frequency of services provided by Autism and Behavior Services Team: 0 (never) to 4 (often). Teachers used a 5-point Likert scale to rate two measures, the quality of instructional support and the quality of the information provided by Autism and Behavior Services Team on a 0 (N/A) to 4 (strongly agree) scale. Those teachers who indicated N/A were not included in the analysis and the scale was adjusted to 1 to 4.

Student demographics. The demographic data for students with disabilities used in this report were collected from the PEIMS 2019–2020 HISD student database. Demographic characteristics included gender, ethnicity, economically disadvantaged status, English learner (EL) status, and at-risk status. HISD defines at-risk students as individuals who have an increased likelihood of dropping out-of-school. It is a composite measure based on thirteen indicators (TEA, 2016b).

Student performance. Academic performance was measured using students' cumulative weighted GPA. Behavioral variables were also included - suspensions and attendance. The GPA along with the SAT is used by college admissions officers to predict student success (College Board,

2012). Weighted GPA is the assignment of a higher numerical value to grades in what is regarded as more difficult courses such as honors and advanced placement courses.

Sample

Teacher. The sample consisted of 567 teachers who completed the online survey. Of the teacher sample, 52 percent taught at the elementary grade-levels, 18 percent taught at the middle school grade-levels, and 30 percent at the high school grade-levels. In terms of educational qualifications, 61.1 percent (n=347) had a general education teacher designation, 14.6 percent (n=83) had both general education and special education designation, and 20.2 percent (n=115) had special education designation. Most teachers reported that they taught in a general education classroom (67.4%, n=383). Additionally, 34.0 percent (n=193) of teacher respondents identified that they have accessed services and supports from Autism and Behavior Services in the past two years. The average years of teaching experience was 13.7 years ($SD=9.6$), ranging from 0 years to 42 years. When disaggregated by school level, 53.2 percent of respondents taught at elementary schools, 15.8 percent at middle schools, 24.5 percent at high schools.

Student. The student sample was drawn from the Public Education Information Management System (PEIMS) Fall Resubmission files and consisted of students identified as having a primary disability. There were 16,923 students identified with a primary disability in the 2019–2020 school year compared to 15,831 in the 2018–2019 school year.

Statistical Analyses

In this study, results from the teacher survey were used to rate the teachers' perception of the quality of instructional and information and support, the impact of the PD on their efficacy, and the impact of sensory room activities on the behavior and learning of students with special needs. A paired-samples t-test was conducted to compare differences in students' performance between 2018–2019 and 2019–2020 on behavioral variables (attendance, in-school suspension, out-school suspension) and academic variable (GPA). Additionally, thematic analysis was used to analyze the 379 comments provided on the teacher survey. The thematic analysis was done by coding each comment after exploring the phrase or sentence to describe or capture the meaning of an aspect of the data, then categorized, and finally rolled-up into themes (Saldana, 2009). The codes are assigned as numerical values (categorical, numerical, or interval) (Castleberry & Nolen, 2018) to prioritize themes.

Limitations

One, limitation was collection of data on the usage of the sensory room. According to HISD Autism and Behavior Services, some schools have used an emotion chart to allow students to select how they felt before entering the room and how they feel upon leaving the space. With individual interventions, teachers were encouraged by the Autism and Behavior Services Team to use the access form to document the student's behavior upon entering the space, the preferred activity that was selected, and how the behavior changed after the student engaged in the sensory activity of choice. The access

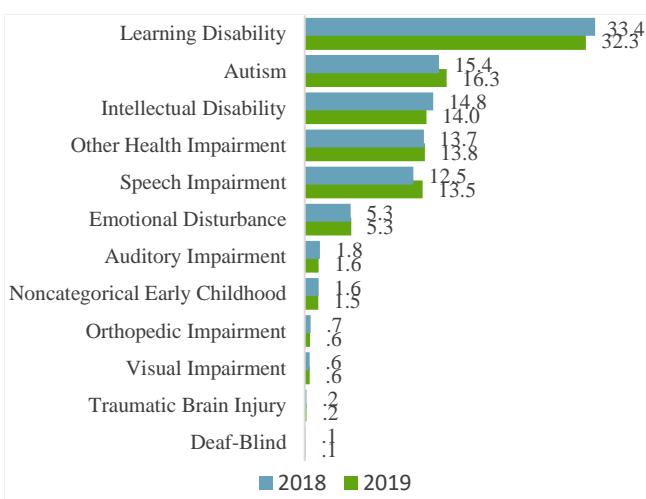
sheet documents and calculates weekly use and individual student behavior before, during, and after their access to the sensory room, as needed. Another limitation of the evaluation was that there was no accurate inventory of the campuses or classrooms that had sensory rooms or areas. The department had a list of those campuses that they provided with resources for the creation of a sensory room. However, there were instances where campuses or teachers created their own sensory rooms without assistance from the department. As such, while the evaluation focused on the campuses for which resources for the creation of a sensory room was provided, this is not an accurate representation of the number of sensory rooms /areas at HISD. Another limitation was the lack of academic data due to the COVID-19 pandemic that closed the district schools; also, the closure interrupted students' receipt of the full measure of program activities.

Results

What was the demographic characteristics and disability type of students with disabilities in HISD for the 2019–2020 school year?

The number of students with disabilities in the district increased by 6.9 percent in 2019–2020 from the previous year (15,831 vs. 16,923, respectively) (**Figure 2**). In 2019–2020, compared to the previous year, there was an increase in the number of students with autism (15.4% vs. 16.3%, respectively) and speech impairment (12.5% vs. 13.5%, respectively). During the 2019–2020 school year, 32.3 percent of students were identified with learning disabilities as their primary disability, 16.3 percent had autism, 13.5 percent had a speech impairment, and 14.0 percent had an intellectual disability.

Figure 2: Percentage of students with disability by primary disability type, 2019–2020



There was a higher number of male students with disabilities (67.6%) compared to females (32.4%) (**Table 1**). The students were predominately Hispanic, 59.0 percent, 30.2 percent were Black, and 7.9 percent were White. There was a

high percentage of students with disabilities in the 2019–2020 school year that were economically challenged (83.7%). This is lower than the previous year, which had 84.2 percent of students with a disability who were economically disadvantaged (Table 1). The inverse was true for at-risk status. There was a lower percentage of students with disabilities that were at-risk in the 2019–2020 school year, 83.6 percent, compared to 78.9 percent in the prior year. Students designated as English learners comprised 27.4 percent of the population in the 2019–2020 school year (Table 1).

Table 1: Demographic characteristics HISD students with disability, 2019–2020

		2018–2019		2019–2020	
		n	%	n	%
Overall Sample		15,831		16,923	
Gender	Female	5,112	32.3	5,477	32.4
	Male	10,719	67.7	11,446	67.6
Ethnicity	Black	4,765	30.1	5,110	30.2
	Hispanic	9,403	59.4	9,989	59.0
	White	1,213	7.7	1,332	7.9
	Other	450	3.0	492	2.9
Economically Disadvantaged	No	2,495	15.8	2,759	16.3
	Yes	13,336	84.2	14,164	83.7
Immigrant	No	15,667	99.0	16,747	99.0
	Yes	164	1.0	176	1.0
Homeless	No	15,327	96.8	16,477	97.4
	Yes	504	3.2	446	2.6
At-Risk	No	3,333	21.1	2,772	16.4
	Yes	12,498	78.9	14,151	83.6
English Learner (EL)	No	11,715	74.0	12,279	72.6
	Yes	4,116	26.0	4,644	27.4

Source. 2019–2020 PEIMS student databases

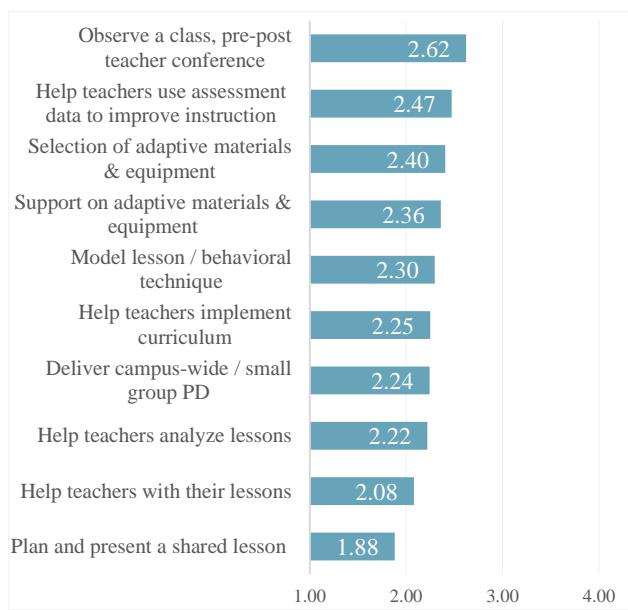
What were teachers' perceptions of the quality of instructional and behavioral information and support provided by Autism and Behavior Services?

One aim of the Autism and Behavior Services Team is to provide instructional behavioral support to teachers to improve efficacy to educate students with disabilities. One mechanism for doing so is to build capacity in instructional behavioral strategies and interventions of teachers through assistance with curriculum implementation, lesson plan assistance, and modeling of lessons (Yost, Vogel, & Liang, 2009). The Autism and Behavior Services Teacher Survey on professional development covered three measures: frequency of campus activities, quality of instructional support, and quality of information and support provided by the Autism and Behavior Services Team.

The analyses used responses from 193 teachers who indicated they had used the services provided by Autism and Behavior Services over the past two years. Of the survey respondents, 47.2 percent indicated their teacher designation was special education, 27.5 percent general education, 23.3 percent were both special education and general education, and 2 percent were coded as Other.

The rating averages for the provision of campus activities to increase instructional expertise ranged from 1.88 to 2.62 on a 4.0 Likert Scale (**Figure 3**). Lesson assistance and co-teach had the two lowest rating averages (2.08 and 1.88, respectively). Further, 44.6 percent of teachers reported that they *never* “help teachers with their lesson,” and 52.3 percent reported that the team *never* “plan and present a shared lesson (co-teach)” (**Table 2**, p. 14). When teachers were asked how often the Autism and Behavior Services Team “model a lesson and/or a particular behavioral technique in the classroom, 33.7 percent said *never*, and 19.2 percent said *often* (Table 2, p. 14), a mean rating of 2.3 (Figure 3). When asked how often the Autism and Behavior Services team “help teachers analyze the content, strategy, and rigor of their lesson,” 38.9 percent of teachers said *never*, and 20.7 percent said *rarely* (Table 2, p. 14), a mean rating of 2.22 (Figure 3).

Figure 3: Mean rating for how often a member of the Autism and Behavior Services Team provided campus activities to increase instructional expertise



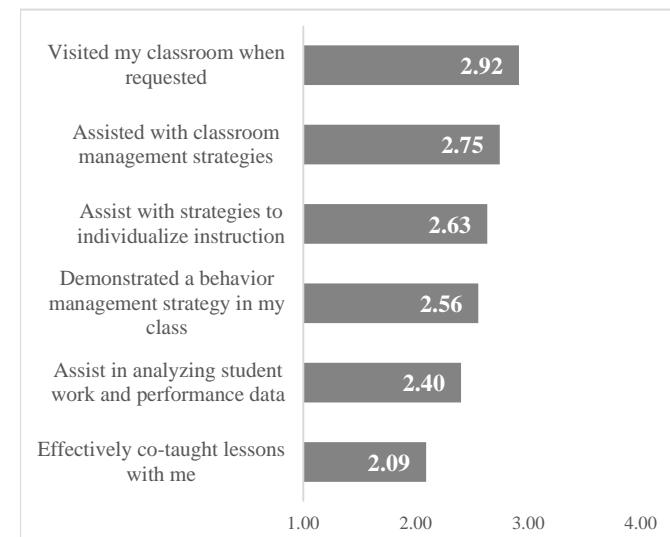
For curriculum implementation, when asked how often the Autism and Behavior Services Team “*help teachers implement a particular curriculum*,” 37.8 percent of teachers said *never*, and 17.1 percent *often* (Table 2, p. 14). For classroom observation, teachers were asked how often the Autism and Behavior Services Team “*observe a classroom and engage in a pre-and-post conference with the teacher*,” for 29.0 percent of teachers *sometimes*, and for 26.4 percent *often* (Table 2, p. 14), a mean rating of 2.62 (Figure 3).

In terms of the quality of instructional support provided by members of the Autism and Behavior Services Team on campuses, the mean rating was between 2.09 and 2.92 on a 4-point Likert scale (**Figure 4**). The highest mean rating was for classroom visits (2.92), with 37.4 percent of teachers *strongly agree* that a team member “*visited my classroom upon my request*,” and 40.4 percent *agree* (**Table 3**, p. 14).

Additionally, most teachers reported that they *agree* (33.7%) and *strongly agree* (23.1%) that the Autism and Behavior Services Team *effectively demonstrated a behavior management strategy in my class* (Figure 4), with a mean rating of 2.56.

Effective co-teaching and analysis of performance data had the lowest mean rating (2.09 and 2.40, respectively), with 33.4 percent of teachers responded that they *strongly disagree*, and 31.2 percent responded *disagree* that the Autism and Behavior Services Team *effectively co-taught lessons with me* (Table 3, p. 14). For performance data, 16.0 percent of teachers *strongly agree*, and 34.6 percent *agree* that a member of the Autism and Behavior Services Team “*effectively assists me in analyzing student work and performance data*” (Table 3, p. 14). Providing individualized instruction had a mean rating of 2.63, with 37.2 percent of teachers reported *agree* and 23.8 percent *strongly agree* that the Autism and Behavior Services Team “*effectively assisted me with strategies to individualize instruction for working with students with autism*” (Table 3, p. 14). Over 50 percent of teachers reported that the Autism and Behavior Services Team effectively assisted with *classroom management strategies to support students with autism and/or behavioral challenges*, with 36.4 percent of teachers indicating *agree* and 27.7 percent *strongly agree* (Table 3, p. 14).

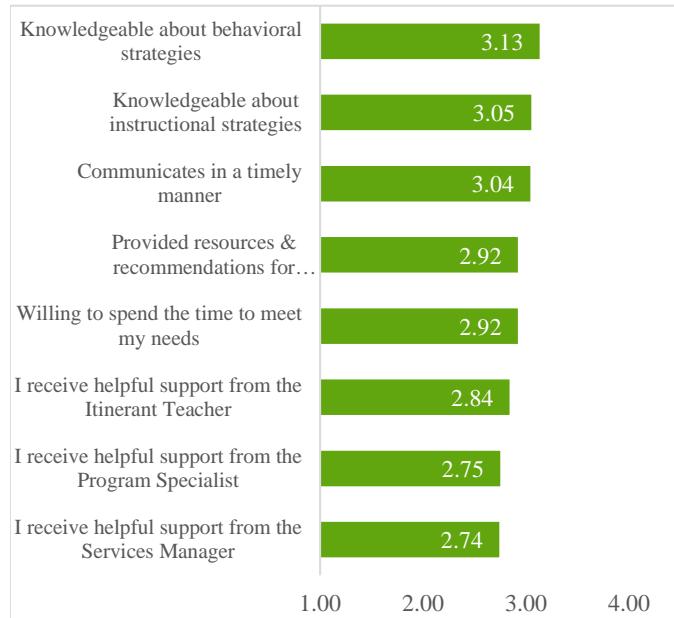
Figure 4: Mean rating for quality of instructional and behavioral support provided by members of the autism or behavior team on campuses



The Autism and Behavior Services Team also provides information and resources to help improve teachers’ efficacy in helping students with disabilities and/or behavioral challenges. The mean rating for the quality of the information and resources provided ranged from 2.74 to 3.13 on a 4-point Likert Scale (**Figure 5**). Most teachers reported a positive experience with each indicator of information and resources provided by the Autism and Behavior Services Team, with knowledgeable about behavioral strategies and timely communication having the highest mean ratings (3.13 and 3.04, respectively) (Figure 5). Most teachers responded *agree* (39.4%) and *strongly agree*

(29.0%) that the Autism and Behavior Services Team has provided resources and recommendations for managing students with autism and/or behavioral challenges (**Table 4**, p. 15).

Figure 5: Mean rating for quality of information and resources provided by members of the Autism and Behavior Services Team on campuses



Teachers reported that they *agree* and *strongly agree* that Autism and Behavior Services Team was willing to spend the time needed to meet their needs (31.6% and 30.6%, respectively) and communicates in a timely manner (38.9% and 33.7%, respectively) (Table 4, p. 15). In terms of knowledge of members of the Autism and Behavior Services Team, 36.8 percent of teachers reported they *strongly agree* that members were knowledgeable about instructional strategies and 37.8 percent *agree* that members were knowledgeable about behavioral strategies (Table 4, p. 15). The itinerant teacher was the most helpful support (2.84 mean rating), with 29.5 percent *strongly agree* that they received helpful support from itinerant teachers, 26.9 percent indicated manager, and 26.4 percent indicated from the Specialist (Table 4, p. 15).

How were the sensory rooms implemented at the selected campuses? How were they managed to ensure equity in access, scheduling, and maintenance?

The Office of Special Education Services (OSES) provided equipment and materials for the implementation of sensory rooms throughout the district. Sensory rooms were designed to offer a therapeutic space that provided students with a wide range of special needs, with a personalized sensory input area focused on calming and relaxation (HISD, 2020). There were 30 schools identified by OSES for the establishment of a sensory room in the 2019–2020 school year. In examining the establishment of the sensory rooms in HISD schools, this section, assessed the selection process for deciding which

campus would have a sensory room as well as the scheduling, access, maintenance, and tracking of the use of the sensory room.

The selection was based on the number of self-contained classrooms on a campus, supporting students with cognitive disabilities, as well as the campus leader agreeing to dedicate an appropriate space for the sensory room, and finally, the teacher input and support (Borner, Personal Communication, February 4, 2020). Some campuses approached the Department directly and requested resources to set-up a sensory room. Twenty-seven campuses have set-up the sensory room. Of the 27 sensory rooms, 81.5 percent were in elementary schools, 11.1 percent in high school, and 7.4 percent in middle schools. For a list of campuses with sensory rooms see **Table 5**, p. 16. Sensory rooms were either incorporated in the classroom or existed as a standalone on the campus (**Figure 6** and **Figure 7**). Some campuses incorporated the sensory pieces into the classrooms due to the lack of space.



Figure 6: Sensory room at Lawson Middle School, Campus Tour, 2020.



Figure 7: Student using sensory room equipment located in their classroom at Sterling High School, Campus Tour, 2020.

Campuses selected to have a sensory room were provided training on the purpose, usage, and care of the equipment provided; 21 campuses had been trained. Maintenance of the sensory room (i.e. sanitizing the dura pit balls; replenishing the water in the bubble light, cleaning of other materials, keeping the flooring cleaned) was the responsibility of all teachers who accessed the room (HISD, 2020). During the campus tours, it was observed that some campuses allowed students to play an active role in maintaining an orderly, clean, and safe environment as they accessed different equipment in the sensory room, returning balls or other items to where they belong.

Campuses were encouraged to track the use of the sensory room with daily access sheets to the space, where each teacher signs in and out, documenting the number of students who accessed the space for the day (HISD, 2020). Some schools

used an emotion chart to allow students to choose how they felt before entering the sensory room and how they felt upon leaving the space (HISD, 2020). With individual interventions, teachers were encouraged to use the access form to document the student behavior upon entering the space; what preferred activity was chosen; and how the behavior changed after the student engaged in the sensory activity of choice (HISD, 2020). The access sheet documented and calculated weekly use and individual student behavior before, during, and after their access to the sensory room, as needed (HISD, 2020). Due to the novelty of the program and school closures due to COVID-19, there was very little tracking of the use of the sensory room during the 2019–2020 school year.

There were variations between campuses on how the sensory rooms were accessed. According to the communiqué provided to the campuses, "teachers should have full access to the sensory room as needed...if the room is locked, teachers should have a key or a central location to retrieve the keys, as scheduled in the sensory room, for student access. If unlocked, the schedule should determine who has access and the time allotted as agreed upon by the campus" (HISD, 2020). It was observed, during the tour, that some campuses expected teachers to coordinate among themselves a schedule for the use of the room. In other instances, at more centralized campuses, the sensory room key was kept at a central location; teachers would sign out the room key based on an agreed-upon rotation.

It was also observed, during the campus tours, that if the sensory room location was within the classroom, there were some limitations to access for other teachers. One teacher commented that she was unaware that they had permission to access the sensory room because it was located in another teacher's classroom. The teacher was advised that access should be coordinated between the teachers. It was recommended to use the area when the primary teacher was not using their classroom. Ultimately, it was the responsibility of campus leaders to determine when each, highly specialized, teacher would access the space for student engagement (HISD, 2020).

Despite the barriers to access, teachers who had sensory rooms within their classroom expressed that it played a positive role in providing students with autonomy over their behavior. The difference in benefit, when the sensory area is in the classroom versus in a designated shared space on the campus, was observed to be one of student self-regulation. When the sensory room was in the classroom, students were able to access the equipment when they felt the need to do so. One teacher who had the sensory room in their classroom mentioned that there was an observed "*decrease in behavioral problems, increase in self-regulation. Going into the sensory area calms the child down quicker. Before having the sensory area, it took 1 to 2 hours to de-escalate and calm down. With the sensory area, the child can calm down and de-escalate within 5-10 minutes. The child can enter the sensory area on their own and relax and calm themselves down*" (SLC Teacher, Campus Tour, 2020). Another teacher who accessed a centralized room, commented that "*there is a little change*

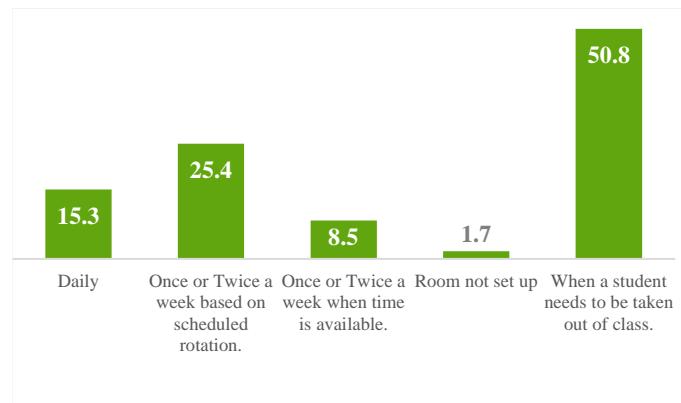
in behavior not sure if due to the sensory room. Helps to have it so that when kids need to, they can be taken there, they can settle down, and then go back to the regular classroom" (Teacher, Campus Tour, 2020).

Does the use of sensory room activities increase readiness for participation in school environments among K-12 students with special needs and/or behavioral challenges?

Survey respondents who were at campuses that had a sensory room represented 10 percent of the overall responses (n=59) and 82.1 percent of campuses with sensory rooms (n=23). The mean number of respondents from each campus was 2 (± 2 S.D.). Of those teachers who were on campuses that had a sensory room, 54.2 percent accessed the room (n=32). The other 45.8 percent of respondents were not aware that there was a sensory room at their campus. Of those teachers who accessed the sensory room, the majority, 50.8 percent, reported that they did so when a student needed to be taken out of class (n=30).

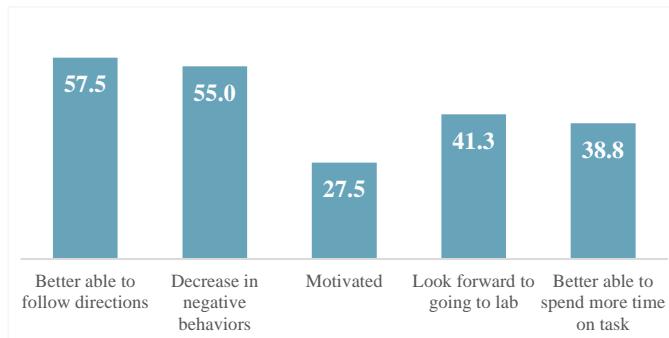
The sensory rooms were primarily used in a non-structured manner. Of those teachers who indicated that they accessed the sensory room, half reported they accessed the room as an intervention when students needed to be taken out of class (50.8%). There were 25.4 percent of teachers who indicated that they used the room once or twice a week on a structured rotation (n=15), 15.3 percent used the room daily (n=9), and 8.5 percent used the room once or twice a week when time was available (n=5) (Figure 8).

Figure 8: Percentage of teachers who use the sensory room by frequency of use, 2019–2020



In looking at the perceived benefits associated with using the sensory room, teachers were asked *what benefits are observed after the student(s) attend the sensory room?* (Figure 9, p. 9). The most frequently reported observed benefit of students using the sensory room was increased focus. More than half of the teachers, 57.5 percent, observed that their students were better able to follow directions after participating in the space, and 38.8 percent observed that students were better able to spend more time on task. In terms of behavior, 55 percent of teachers observed a decrease in negative behaviors, and 27.5 percent observed that students were more motivated. Additionally, 41.3 percent of teachers reported that students would look forward to going to the sensory room.

Figure 9: Percent of cases that reported the benefits of the sensory lab for students, 2019–2020



How has having a sensory room on campus improved academic and behavior outcomes for students with disabilities and/or behavioral problems?

This section of the evaluation explores whether the additional supports offered through Autism and Behavior Services with the implementation of the sensory rooms across various HISD campuses showed improved outcomes for students with disabilities at these campuses compared to their peers. The statistical analyses include the 27 campuses that currently had a sensory room. Univariate descriptive statistics (mean, sample size, and standard deviation) were conducted for each behavioral and academic variable. Overall, those students with special needs that attended campuses with sensory rooms showed improvements in academic performance and behavioral measures compared to their peers at campuses with no sensory room (**Figure 10**). There was, however, a significant difference in improvement on only one of the five academic and behavior indicators compared to special needs students who did not attend a campus with a sensory room (**Table 6**).

Figure 10: Academic and behavior outcomes for students with disability attending campuses with sensory lab vs. no sensory labs, 2019–2020

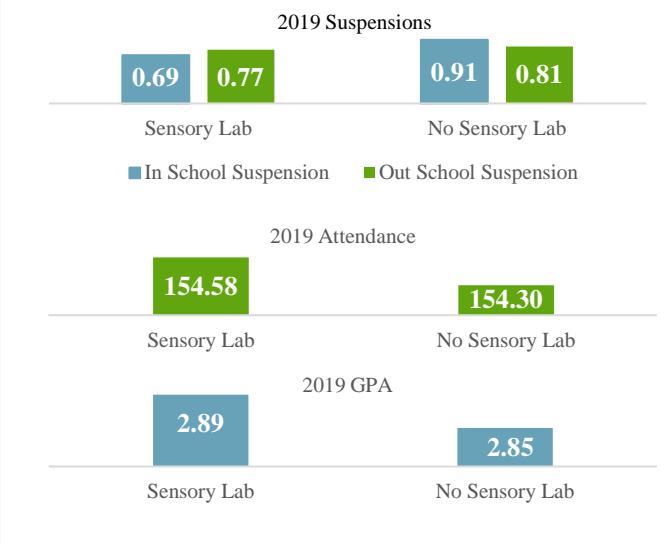


Table 6: Comparative rates of performance for students at sensory lab vs non-sensory lab campuses, 2019–2020

	Sensory Lab			No Sensory Lab		
	n	Mean	S.D.	n	Mean	S.D.
In-School Suspension	190	0.69	0.78	1,368	0.91	0.95
Out-School Suspension	190	0.77	1.21	1,368	0.81	1.25
GPA	490	2.89	0.96	3,312	2.85	1.02
Attendance	2,130	154.58	26.13	14,750	154.30	25.46

* $p < .05$; ** $p < .01$; *** $p < .000$

There was a significant increase in the 2019–2020 mean cumulative GPA for those students with disabilities who attended campuses with sensory rooms ($M = 2.89$, $SD = .96$) compared to those who did not ($M = 2.85$, $SD = 1.0$), $t(3800) = -.89$, $p = .027$ (Table 2). There was no significant difference in out-of-school suspension rates $t(1556) = .49$, $p = .383$ for the 2019–2020 school year, despite students who attended campuses with sensory rooms attaining lower out-of-school suspension rates ($M = .77$, $SD = 1.2$) than those who attend at campuses with no sensory rooms ($M = .81$, $SD = 1.3$). Additionally, there was no significant difference in the rate of in-school suspension rates [$t(1556) = .41$, $p = .523$] for the 2019–2020 school year, despite students who attended campuses with sensory rooms attaining lower in-school suspension rates ($M = .69$, $SD = .78$) than those who attend at campuses with no sensory rooms ($M = .91$, $SD = .95$).

What were the teachers' recommendations for additional supports needed to improve their efficacy educating students with autism and/or behavioral challenges?

Teachers were asked the following open-ended question, “*what additional support would you need to improve your efficacy working with students with autism and/or behavioral challenges?*” A thematic analysis was conducted of the 378 comments that were provided. Of the comments, 51 percent were from teachers that accessed services through Autism and Behavior Services ($n=193$). There were 19.3 percent of teachers who indicated that there was no additional support required because they had adequate experience, great campus support, or were unsure of what needed to be done ($n=73$). The objective of the thematic analysis was to identify additional supports needed. Therefore, those teachers who commented *none* were not included in the analysis.

Several themes emerged from the analysis of the remaining 305 teacher responses. These themes included communication, more support staff, training for general education teachers, training on identification and IEPs, training on autism spectrum disorder, behavior management techniques, and modeling techniques and strategies. The distribution of teachers across thematic areas was equal, except for those themes related to additional support and training. There was 54.8 percent of teachers ($n=102$) who did not access training that indicated they would like to be trained compared to 22.7 percent of teachers who accessed training in the past two years ($n=27$). Additionally, 36.1 percent of teachers who have accessed training indicated they needed additional support ($n=43$) compared to 15.1 percent of teachers who did not access training ($n=28$).

Communication

Teachers expressed concerns that they were not consulted regarding the addition of a sensory room at their campuses, not knowing how to access the sensory room, and not knowing how to use the resources. As mentioned, “*we received materials to set up a sensory room but were not told to set up a sensory room. Some materials are used daily, and others are not. It would have been better to send a needs survey to the campus and have students participate (G142).*” Another commented, “*Slightly frustrated on the money spent towards the sensory items ... I had already purchased all these items for my students, so this was a waste of money. I wish we would have been consulted on needs (B75).*” Also, there were challenges with accessing the sensory room. As commented by one teacher, there was a challenge “*To be allowed and scheduled to use the sensory room (G140).*”

There were also communication issues between teachers and other support staff. One support staff mentioned, “*I would like support in terms of how to communicate or deal with staff members who do not follow the BSIP and accommodations that were provided to them. This allows the behavior of the students with autism to escalate. How to relate to a teacher who is so negative towards students with autism. The students are aware, and it causes disruptions in the classroom because the students are trying to avoid and escape the classroom activities and classrooms (B67).*” Additionally, there is a communication gap between special education and general education teachers, which, if filled, would improve services and supports to students with disabilities and/or behavioral challenges. As noted by one teacher, “*two-way communication as implementations in their homeroom achieve progress so those same methods can be applied when the students come to ... classes (B70).*”

Training

Under the training theme, there were several sub-themes based on analysis of the open-ended questions. These training sub-themes included the training of general education teachers, identification and IEPs, behavior management techniques, instructional modeling and strategies, and autism.

Training General Education Teachers

General education teachers who do not have students with disabilities in their classroom, for the most part, do not attend training offered by the department. There is a common theme across general education teachers that training is needed, with 36.9 percent of general education expressing interest in being trained. However, many do not access the training provided. General education teachers, for the most part, mentioned not participating in training because there were no special education students in their classrooms. As noted by one teacher, “*I do not have an autism student this year. I had one last year, and there were many challenges (E4).*” Another general education teacher stated, “*None, really. We only have one student like this at my school (G251).*” Another general education teacher commented, “*I haven't had any children in my class that present behavioral challenges. My second year, I had one with autism (G192).*” Accessing training should not

be solely based on the current campus or class composition, as this can change from year-to-year.

Training should be provided to all teachers, irrespective of the number of students with special needs at their campus. As noted by one teacher, *provide the training to all teachers (G225).*” Some general education teachers commented that they wanted to participate in training. As noted by one teacher, “*all of the specialized training required for these students to work effectively in a general education classroom (G127).*” For others, they have not received any training or support. So, “*Any support would be helpful! Elective teachers are not provided with training or support (B26).*”

General education teachers, for the most part, mentioned not participating in training due to not having special education students. As noted by one teacher, “*I do not have an autism student this year. I had one last year, and there were many challenges (E4).*” Another general education teacher stated, “*None, really. We only have one student like this at my school (G251).*” Another general education teacher commented, “*I haven't had any children in my class that present behavioral challenges. My second year, I had one with autism (G192).*” Accessing training should not be solely based on the current campus or class composition, as this can change from year-to-year. Some general education teachers commented that they wanted to participate in training. As noted by one teacher, there is a need for “*all of the specialized training required for these students to work effectively in a general education classroom (G127).*” For others, they have not received any training or support. So, “*Any support would be helpful! Elective teachers are not provided with training or support (B26).*”

General education teachers tended to identify students with disabilities as being placed in the wrong classroom. As mentioned by one teacher, “*Other than the students being placed in a class designed to meet their needs, I have no idea how to improve the situation (B64).*” Another teacher noted, “*Smaller class sizes with challenging students (B66).*” The comments reflect a common perception that inclusion is not the best solution for students with disabilities and/or behavioral challenges.

Identification and IEPs

For general education teachers, identification and documentation was a common theme for additional support. As noted by one teacher, “*first you all have to identify them in a timely manner (E16).*” Relating to the IEPs, one teacher mentioned, “*I do pretty well with these students, but when we receive modifications students are not identified to us as to what their particular issues are. We only receive "extended time," "preferential seating." None are identified as autistic, ADHD, nothing... This is true of special education students and 504 students. I have taken autism training years ago, but the differences in children are so vast. I feel a more specific insight into a child would be helpful. "Extended time" covers a lot of ground and a variety of deficits -as does preferential seating (G2).*” There was also a need for training and support on how to document services and supports provided to students with disabilities and/or behavioral challenges.

Behavior Management Techniques

Another common theme was a need for techniques that effectively diffuse situations before they escalate. This can be offered at the campus-level. As noted by one teacher, “*I believe each campus would benefit from have support specifically assigned to address behaviors as it relates to students who receive student support services (B35).*” These strategies can also focus on assisting general education teachers with the integration and inclusion of students with disabilities in the classroom. As noted by one teacher, “*General education and other behavioral labeled students need to be taught how to interact correctly in the classroom to prevent autistic students from feeling uncomfortable (B32).*”

Instructional Modeling and Strategies

Teachers expressed a need to have members of the Autism and Behavior Services Team effectively model techniques and strategies in the classroom and help with the development and modeling of lessons. While the Team provided resources to the teachers, it has been expressed by all teachers in this thematic area that it would be more effective if they were to model what they are advising teachers to do. This need for modeling is captured in the following statement, “*I would like to see the autism support teacher model the techniques/strategies that she recommends I use when the students are in the room. She gives a lot of suggestions, but I have rarely observed her interacting with my students (G11).*”

Additionally, there was a need for more diverse techniques, as teachers found the techniques being shared to be ineffective. As one teacher stated, “*If we call, we have tried all the strategies we know and need more or different input: behavioral team came to us when we were a day away from going to IBC, when I had made the request a month before (G28).*” As well, teachers recommended that the Team spend time with them when support is requested. “*Not just running in my class rushing finding faults in my classroom or my teaching style, but actually coming in for a week, modeling techniques and strategies, develop and model lessons, as well as being hands-on with my actual students. This is so I can see how to do it (G25).*”

Autism Spectrum Disorder Training

Across the various emergent themes, a need for Autism specific training was identified by teachers. Whether it be identification, behavior management technique, and resources, modeling many teachers that they have never received training on working specifically with children with autism. As noted by one teacher, “*During all the years in HISD never offered any autism training (G233).*” The training could be more general, providing an introduction or overview of the autism spectrum disorder. One teacher noted, “*An overall training on how to work with autistic students or how to recognize the signs of autism would have been nice as a first year teacher and as a refresher for current teachers because it seems like each year there are more students who are being diagnosed (G226).*” It was also mentioned, “*most of the Autism-related supports offered relates to students who are more likely to be in an SLC-Alt class. It would be helpful*

to have more resources for adding visual supports, interactive components, etc. for adopted District curricula related to the TEKS. Something tied to the grade-level Planning Guides would be fantastic (G129).” There was a request to deliver the training at the campus-level, as mentioned, “*campus-wide PD on teaching students with autism and their behavioral challenges (G232).*”

Increased and quality support staff

A common theme was a need for additional support staff that were well trained that could provide support to teachers in the classroom. There existed a common consensus across both general education and special education teachers that access to the in-class support they needed to improve their efficacy educating students with disabilities was limited. As one teacher commented, “*The only support I have received is in the form of documents detailing ways to improve outcomes for these students (B54).*” For some, the current support provided was not effective or did not apply to the classroom environment. In terms of the quality of the support provided one teacher commented, “*better staffing to support student needs in general education classes (B48).*” Another teacher captured the concerns about the quality of the support staff, “*It would be nice if when someone visits my class, they would actually observe instead of being on their phone and then walking out to go sit in the sped office for 2 hours. I don't see that person again (B50).*”

In other cases, despite receiving support, there was no feedback or follow-up after the provision of support to ensure the teacher had increased confidence in what they were doing. A teacher noted, “*I need additional help on a case to case basis. What 'support' I have been given has failed, and when I asked for additional help, they came to observe and never gave feedback from there. When I followed up, I still did not get the help I was seeking (B60).*” Also, it was commented that “*I need someone to keep in touch and come by at least once or twice a year (B228).*” Those providing services and supports to teachers had a concern with the receptiveness of teachers to the training and support they provided. One support staff mentioned having challenges with knowing “*how to work with General Education Teachers who are resistant to support (B69).*”

Discussion

In the United States, the number of students with special needs, including those with emotional and behavioral disorders, is increasing, especially in the elementary classroom (Niesyn, 2009). Schools are responding to students’ academic, behavioral, and social needs by improving the capacity of educators to implement high-quality classroom management and instructional practices (Oakes, Cantwell, Lane, Royer, & Common, 2020; Yost, Vogel, & Liang, 2009). Through the Autism and Behavior Services Team, the district has provided instructional and behavioral support to teachers to improve their efficacy in educating students with disabilities and students who may be experiencing behavioral challenges.

Many teachers in HISD who responded to the survey viewed the quality of instructional support and information and resources provided by the Autism and Behavior Services Team as effective. Mean ratings were calculated on teachers' views of the frequency,

quality, and effectiveness of the information and support provided by the Autism and Behavior Services Team. In general, teachers indicated overall satisfaction with the services and support provided. Based on a weighted mean ratings of the survey responses on a 4.0 scale, the strength of the Autism and Behavior Services Team was their knowledge about behavioral strategies (3.13), knowledge of instructional strategies (3.05), provision of resources and recommendations for managing students (2.92), and willingness to visit the classroom when requested (2.92). Recommended areas for improvement included helping teachers analyze student work and performance data (2.22), providing strategies to individualize instruction for working with students with autism (2.08), and co-teaching (2.09). Over fifty-two percent of teachers reported that the Autism and Behavior Services Team never visited their campus to plan and present a shared lesson or co-teach (1.88).

While 40.4 percent of teachers agreed that a member of the Autism and Behavior Services Team visited their classroom when requested, many commented that the after-visit support was inadequate. Analysis of the survey comments showed that teachers wanted additional follow-up from the Team to ensure that the strategies that were shared were effective. Lack of follow-up makes it difficult to assess whether there was an actual improvement in the application of the strategies, or the resources provided. Additionally, while there exists a method for tracking the types of training and support provided to teachers and the outcomes of those training, there may be a need to revisit existing protocols. Teachers expressed concerns that the training and support were not adaptive to their needs, and there was not a diversity of resources, strategies, and tools made available to address the divergent needs of students with disabilities. Teachers commented on a lack of knowledge on autism and how to deal with students diagnosed with autism.

Additionally, there was a belief among general education teachers that there was no need to participate in training to improve their efficacy educating students with disabilities and/or behavioral problems because of the few special needs students at their campus or in their classroom. Teachers' mindset and their perceived effectiveness of an intervention impact their willingness to accept behavioral interventions and instructional strategies (Oakes, Cantwell, Lane, Royer, & Common, 2020; Whinnery, Fuchs, & Fuchs, 1991). There is increased recognition that the strategies and techniques provided would be beneficial to all students. Training would help with early identification of at-risk children, which is an integral part of remediation so that timely interventions can be implemented (Al-Mahrezi, Al-Futaisi, & Al-Mamari, 2016). The district may benefit from exploring strategies to shift teacher's mindset regarding strategies employed in the district to increase efficacy and the perceived academic potential of students with disabilities and/or behavioral challenges (Oakes, Cantwell, Lane, Royer, & Common, 2020; Whinnery, Fuchs, & Fuchs, 1991).

Second to teachers, in terms of importance in improving outcomes for schools and students, school leaders play an instrumental role in transforming the space so that all students

can learn, including students with disabilities (Obiakor, Banks, Rotatori, & Utley, 2017). Training is open to all teachers, and administration is encouraged to attend. However, the Autism and Behavior Services Team may need to create a strategy that promotes participation of all campus leaders and instructional staff to improve their effectiveness working with students with disabilities and those on the margin, who remain undiagnosed – many times displaying behavioral challenges (Galiatsos, Kruse, & Whittaker, 2019). HISD being a decentralized district, campus leadership plays a critical role in the selection, promotion, and level of participation of teachers in population-specific PD training.

One of the many resources Autism and Behavior Services provides campuses is the inclusion of sensory rooms at selected campuses. There were 27 sensory rooms or areas that have been set-up at HISD campuses. The department had trained 21 campuses on the purpose, usage, and care of the equipment. Sensory rooms were either incorporated in the classroom or as a standalone room on the campus. Campuses were encouraged to monitor the use of the sensory rooms using daily access sheets. The access sheets were designed for be used by teachers to sign in and out when using the sensory room, document the number of students who accessed the sensory room for the day, and document the observed pre-and-post behaviors of students. However, this did not occur on most campuses, as the campuses determined how to track access. There was a lack of coordination at some campuses on accessing the sensory room.

The sensory rooms were primarily used in a non-structured manner as an intervention space when students needed to be taken out of class (50.8%). The frequency of use of the sensory room was varied, with 25.4 percent of teachers responding that they used the sensory room once or twice a week on a structured rotation, 15.3 percent used the sensory room daily, and 8.5 percent used the sensory room once or twice a week when the room was available. For those campuses where the sensory resources were in a teacher's classroom, teachers found the incorporation of a sensory area in the classroom as beneficial as it promoted student self-regulation. When the sensory room was in the classroom, students were able to access the equipment when they felt the need to do so; thereby, reducing classroom disruption.

The most frequently reported benefit for students using the sensory room was increased focus. More than half of the teachers, 57.5 percent, observed that their students were better able to follow directions after participating in room activities, and 38.8 percent observed that students were better able to spend more time on task. In terms of behavior, 55 percent of teachers observed a decrease in negative behaviors, and 27.5 percent observed that students were more motivated. Additionally, 41.3 percent of teachers reported that students would look forward to going to the sensory room.

Descriptive statistics showed that students with special needs who attended campuses with sensory rooms performed better academically, had lower incidents of in-school and out-of-school suspensions, and a higher mean attendance rate. There was a statistically significant difference in the mean cumulative GPA for students with special needs compared to their campus peers. There was a statistically significant difference between the

mean GPA for students who attended campuses with sensory rooms ($M = 2.89$, $SD = .96$) and their peers who were not at a campus with a room ($M = 2.85$, $SD = 1.0$). Due to COVID-19, schools were closed on March 14, 2020. As a result, students were not able to participate fully in the use of the sensory rooms. Additionally, Autism and Behavior Services would need to improve the dissemination of information to teachers and better track schools and classrooms that have implemented sensory rooms, regardless of whether it was part of a district initiative or implemented independently by the campus or classroom teacher. Finally, the standard tool to assess the benefits of the sensory room should be used at all campuses with a sensory room. The empirical evidence and statistical findings support the continued use of sensory rooms in helping to improve outcomes for students with disabilities and/or behavioral challenges.

Within the Office of Special Education Services and the district, various teams provide similar supports to teachers. The results of this evaluation need to take into consideration that teachers are sharing their experience with supports received through the department, and this experience may not solely reflect services received specifically by the Autism and Behavior Services Team. Nevertheless, the responses provided by teachers provide a wealth of information that the department, and the wider network of support personnel in the district, can use to improve the quality and enhance the level of supports provided to teachers.

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APPENDIX

Table 2: Campus Activities

Please indicate how often a member of the autism or behavior team has provided the following activities on your campus to help support students with disabilities.

	1 2 3 4								Mean	N	SD
	n	%	n	%	n	%	n	%			
Help teachers implement a particular curriculum.	73	37.8	32	16.6	55	28.5	33	17.1	2.25	193	1.14
Assist with the selection of adaptive materials and equipment's based on students' IEP.	62	32.1	34	17.6	54	28.0	43	22.3	2.40	193	1.16
Provide teacher support on how to use adaptive materials and equipment's.	64	33.2	39	20.2	47	24.4	43	22.3	2.36	193	1.16
Provide assistance as a substitute teacher	109	56.5	38	19.7	27	14.0	19	9.8	1.77	193	1.03
Help teachers with their lessons.	86	44.6	37	19.2	39	20.2	31	16.1	2.08	193	1.14
Plan and present a shared lesson (co-teach).	101	52.3	36	18.7	34	17.6	22	11.4	1.88	193	1.07
Help teacher analyze the content, strategy, and rigor of their lessons.	75	38.9	40	20.7	39	20.2	39	20.2	2.22	193	1.17
Deliver campus-wide or small group professional development.	71	36.8	38	19.7	50	25.9	34	17.6	2.24	193	1.13
Observe a classroom and engage in pre- and post-conference with teacher.	38	19.7	48	24.9	56	29.0	51	26.4	2.62	193	1.08
Help teachers use assessment data to improve instruction to autism and behavioral students.	53	27.5	42	21.8	52	26.9	46	23.8	2.47	193	1.13
Model a lesson and/ or a particular behavioral technique in the classroom.	65	33.7	43	22.3	48	24.9	37	19.2	2.30	193	1.13

Note: Likert Scale: 1= Never; 2= Rarely; 3= Sometimes; 4=Often.

Table 3: Quality of Instructional Support

Please indicate your level of agreement with the following statements on the quality of instructional support provided by members of the autism or behavior team on your campus.

	1 2 3 4								Mean	N	SD
	n	%	n	%	n	%	n	%			
Visited my classroom upon my request.	17	9.9	21	12.3	69	40.4	64	37.4	3.05	171	0.9
Effectively co-taught lessons with me.	48	34.0	44	31.2	37	26.2	12	8.5	2.09	141	0.97
Effectively demonstrated a behavior management strategy in my class.	41	24.3	32	18.9	57	33.7	39	23.1	2.56	169	1.10
Effectively assists me in analyzing student work and performance data.	43	26.5	37	22.8	56	34.6	26	16.0	2.40	162	1.05
Effectively assisted me with strategies to individualize instruction for working with students with autism.	35	21.3	29	17.7	61	37.2	39	23.8	2.63	164	1.07
Effectively assisted me with classroom management strategies to support students with autism and / or behavioral challenges.	30	17.3	32	18.5	63	36.4	48	27.7	2.7	173	1.0

Note: Likert Scale: 1= Strongly disagree; 2= Disagree; 3= Agree; 4= Strongly agree.

Table 4: Quality of Information and Resources

Please indicate your level of agreement with the following statements on the quality of information and support provided by members of the autism or behavior team on your campus.

	1				2				3				4				Mean	N	SD
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%			
Autism or behavior team member communicates in a timely manner.	17	8.8	23	11.9	75	38.9	65	33.7									3.0	180	0.9
Provided resources and recommendations for managing students with autism and / or behavioral challenges.	24	12.4	23	11.9	76	39.4	56	29.0									2.92	179	0.99
Autism or behavior team member is knowledgeable about instructional strategies.	17	8.8	28	14.5	58	30.1	71	36.8									3.05	174	0.98
Autism or behavior team member is knowledgeable about behavioral strategies.	14	7.3	18	9.3	73	37.8	68	35.2									3.13	173	0.90
Autism or behavior team member is willing to spend the time needed to meet my needs.	21	10.9	31	16.1	61	31.6	59	30.6									2.92	172	1.01
When in need of support from the district on an issue related to students with autism or behavioral challenges, I receive helpful support from the Autism and Behavior Services Manager.	28	14.5	42	21.8	53	27.5	52	26.9									2.74	175	1.06
When in need of support from the district on an issue related to students with autism or behavioral challenges, I receive helpful support from the Autism and Behavior Services Program Specialist.	27	14.0	41	21.2	56	29.0	51	26.4									2.75	175	1.04
When in need of support from the district on an issue related to students with autism or behavioral challenges, I receive helpful support from the Autism and Behavior Services Itinerant Teacher	26	13.5	32	16.6	59	30.6	57.0	29.5									2.8	174	1.0

Note: Likert Scale: 0=N/A 1= Strongly disagree; 2= Disagree; 3= Agree; 4= Strongly agree.

Table 5: List of campuses with Sensory Labs, 2019–2020

Campus	School Office	Grade Range	Campus	School Office	Grade Range
Worthing HS	Achieve 180	09-12	Sinclair ES*	Northwest	EE-05
Yates HS	Achieve 180	09-12	Wainwright ES	Northwest	EE-05
Key MS**	Achieve 180	06-08	West University ES**	Northwest	EE KG-05
Ashford ES	Achieve 180	EE-05	Sterling HS	South	09-12
Seguin ES	Achieve 180	EE-05	Lawson MS	South	6, 7, 8
Port Houston ES	East	EE-05	Bastian ES	South	EE-05
Southmayd ES***	East	EE-05	Brookline ES	South	EE-05
Tijerina ES	East	EE-05	Codwell ES	South	EE-05
Isaacs ES	North	EE-05	Halpin ECC***	South	EE, PK, KG
Jefferson ES***	North	EE-05	Bell ES	South	EE-05
Osborne ES***	North	EE-05	Revere MS	West	06-08
Pugh ES	North	EE-05	Elrod ES	West	EE-05
Elmore ES	North	EE KG-05	Herod ES	West	EE-05
Rice School PK-8***	Northwest	'KG-08	Shadowbriar ES	West	PK-05
Memorial ES***	Northwest	EE-05	Neff ES***	West	2, 3, 4, 5

Note: *These campuses are receiving several items for the SLC but do not have space for an entire sensory room. **Has not picked up items for room. ***Was not trained on using the items. Information provided by Autism and Behavior Services, 2020.