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History, trends, and data indicate the harm of segregation for persons with significant cognitive disabilities (SCD; Burton & Blatt; 1966; Nielsen, 2013). One school district in the northeastern part of the United States began facilitating systemic change in 2017. This qualitative case study investigated this school district's multi-year experience with facilitating the development of inclusive education practices for students with SCD. This case study was developed to: (a) understand how one school district addressed sustainable systemic change related to the inclusion of students with significant cognitive disabilities in general education classes, and (b) understand the impact of those efforts on students, their parents, instructional personnel, and administrators.

The Principal Investigator collected qualitative and quantitative data to better understand the experiences of one district engaged in efforts for sustainable systemic change related to the use of inclusive education practices for students with SCD. The results of this case study are organized by Themes (n = 5) and Subthemes (n = 13) that emerged from the documents, data, and interviews collected. This discussion section synthesizes the results of the study to answer the research questions and provides: (a) summary of findings, (b) discussion of findings, (c) implications for future research, policy, and practice, (d) limitations, (e) researcher positionality, and (f) conclusions. Limitations of this study and implications for research, policy, and practice are discussed.

A DISTRICT CASE STUDY: HOW ONE SCHOOL DISTRICT ENGAGED IN SUSTAINABLE SYSTEMIC CHANGE TO INCLUDE STUDENTS WITH SIGNIFICANT COGNITIVE DISABILITIES IN GENERAL EDUCATION CLASSES

by

Kristin Krupa Burnette

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Approved by

_____

Dr. Diane Ryndak
Committee Chair

DEDICATION

To all the teachers and professors who inspired me and showed me the joy of teaching, conducting research, and providing service. To all the future teachers my life touches, may you always know the power of your heart and passion. For every story, life, and friend I have with significant disabilities, you are why I'm here today and why I will continue to fight alongside you for equity, opportunity, and inclusion in all aspects of your life - I did this with each of you in my heart and mind. To their families who continue to support, love, and encourage me. To my amazing family, particularly Jason, Ely, and Abby for sharing me, for having patience with me, and for loving me so that I could finish my Ph.D. For all of those who have come before, who fought, crawled, and advocated for equity; the fight is not over, and I'll fight until the end.

APPROVAL PAGE

This dissertation written by Kristin Krupa Burnette has been approved by the following committee of the Faculty of The Graduate School at The University of North Carolina at Greensboro.

Committee Chair

Dr. Diane L. Ryndak

Committee Members

Dr. Terri L. Shelton

Dr. Christie L. Cavanaugh

Dr. Debra G. Holzberg

Dr. Deborah Taub

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June 1, 2022

Date of Final Oral Examination

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CHAPTER I: INTRODUCTION

The field of special education today cannot be separated from the complex fight for equity demonstrated throughout history by persons with disabilities and their families. Jorgensen (2018) posits, "The lessons of history clearly show that society has underestimated the abilities of people with disabilities, and people are destined to continue making this mistake unless they change their underlying assumptions and actions" (p. 55). This introduction to the ensuing research will broadly discuss issues faced by individuals with disability, however it will focus on individuals with significant cognitive disabilities (SCD; defined as the 1% of students who participate in the alternate assessment; Every Student Succeeds Act, 2015). This Chapter will discuss a brief history of disability in the United States, and the related law and policy, curricular trends, placement data, and need for further research. Despite the availability of research on the benefits of inclusive education for students with SCD, they remain the most segregated group of students in our educational system without access to general education contexts or general education curriculum (Morningstar et al., 2017).

History of Disability in the United States

This section provides a timeline of the historical context of educating persons with disabilities in the United States. The first institution in the United States was created in 1727 for persons unable to care for themselves (Nielsen, 2013). Medical personnel often recommended families place their children with disabilities in institutions (Nielsen). Individuals with SCD, autism spectrum disorder, physical disabilities, Down syndrome, and other disabilities were institutionalized in facilities away from their families and communities. In 1966, *Christmas in Purgatory* was published by Burton and Blatt who snuck a camera into an institution and took pictures of the horrifying conditions where adults and children with disabilities lived. These

conditions were inhumane, cruel, and dehumanizing; perceived misbehavior was treated punitively, living conditions were filthy, and educational opportunities were nonexistent. Activism by individuals with disabilities began the current self-advocacy movement and parents began to fight for their children to live at home and be educated in their neighborhood schools (Pelka, 2012; Turnbull & Turnbull, 2014).

It is important to understand the history, as well as the policies that were developed as a part of that history as it relates to students with SCD, to comprehend the complexity of systemic change and how evolving expectations led to incremental changes over time. Self- and parental-advocacy, laws, and policies have ensured basic human rights and assisted in getting closer to obtaining equity in education for students with SCD. Browder et al. (2003) discussed the trends in curricular components for students with SCD that focused on developmental skills, functional skills, functional activities, and blending functional activities with general education curriculum.

The Supreme Court decision in *Brown v. Board of Education* (1954) outlawed segregation of students in public schools based on race. This decision gave disability rights activists the legal precedent needed to begin fighting for students with disabilities to be included in schools. In the 1960s *Hobson v. Hansen (1967)* found that placing students in certain educational tracks was a violation of due process and the 14th amendment. In the 1970s the developmental curriculum model focused on the "mental age" of a student, instead of chronological age. Later in the 1970s and early 1980s, there was a focus on deinstitutionalization and moving individuals with SCD back to their family homes and communities. At that time, the curricular focus was functional skill development, such as skills needed in work, home, community, and leisure settings (Browder et al., 2003). These functional skills may include filling out job applications, household chores, or personal care skills. The Education for All

Handicapped Children (P.L. 94-142, 1975) delineated six tenants of educational services for students with disabilities, including free and appropriate public education, nondiscriminatory assessment, individualized education program, least restrictive environment, due process rights, and parent involvement. Newer legislation and case law provided safeguards for appropriate testing *(Diana v. State Board of Education*, 1970), equal access to education *(Mills v. DC Board of Education*, 1972), and protection of the education rights of students with disabilities *(PARC v. Commonwealth of Pennsylvania*, 1972; P.L. 94-142, 1975).

In the 1980s, additional cases further clarified educational rights for students with disabilities, such as meaningful opportunities to learn *(Board v. Rowley*, 1982), provision of related services *(Irving Independent School District v. Tatro*, 1984), and rights to attend general education (*Daniel R. R. v. State Board of Education*, 1989). During the late 1980s, there was an emphasis on social inclusion (i.e., opportunities to interact with same-aged peers, but not learn with them) for students with SCD (Browder et al., 2003). Browder et al. (2003) explain that from 1975 to the late 1980s functional skills were the curricular focus for students with SCD. They further explain these functional skills are vocational, leisure, and community skills. At this time, it was thought that students with SCD did not need access to academic content because they were only preparing to live and work in community settings, therefore, they only needed access to functional skills.

Self-determination (i.e., making decisions for oneself in life, goal setting, and friendships) and including students with disabilities in their educational decisions gained momentum in the 1990s (Browder et al., 2003). Throughout the 1990s and continuing to today, there has been an emphasis on access to the general curriculum (Browder et al., 2013). At that time, the Americans with Disabilities Act (ADA, 1990) and the No Child Left Behind Act

(NCLB, 2001) were passed as laws. The ADA required necessary accommodations for individuals to access public places that have federal funding. The No Child Left Behind Act, now the Every Student Succeeds Act (2001, 2015), provides standards-based curriculum criteria, including curriculum for students with SCD and, consequently, the use of alternate achievement assessments. Another requirement of NCLB (2001) was highly qualified teachers, defined as a teacher with licensure, a bachelor's degree, or documentation that they are certified to teach the content they were teaching. In 2017, the Supreme Court decided in *Endrew F. v. Douglas County School District* that a student should make appropriate progress "in light of the child's circumstances". Blanchett et al. (2005) argue that the law should serve to promote "human rights policies and committees to the fair functioning of organizations that serve people with disabilities, people of color, people living in poverty, and people affected by the intersection of all these" (p. 68).

In response to the pervasive focus on functional skills in special education contexts, Courtade et al. (2012) assert that the acquisition of functional skills should not be a prerequisite to academic skills, thus encouraging a standards-based curriculum for students with SCD. This is further supported by Ryndak et al. (2013) stating that students should have access to a curriculum that is aligned with general education state standards and promotes higher academic expectations for students with SCD. Regardless of shifting curricular trends and a clear legal precedent for the general education classroom, however, the movement of students with SCD to general education settings across districts and states nationally has remained stagnant for decades (Cosier et al., 2018, 2020; Williamson et al., 2019; White et al., 2019).

Definition of Inclusive Education Practices

As defined by existing research, inclusive education practices for students with SCD

provide evidence-based instruction on both the age-grade level general education curriculum and embedded essential skills (e.g., communication, mobility, social interactions, participation) within general education lessons, activities, and routines (Ryndak et al., 2019). Inclusive education can be further defined as services in an educational environment where students with disabilities have continuous and simultaneous access to the general education context (Shogren et al., 2015), age and grade-level peers without disabilities (Ryndak et al., 2013), embedded essential skills (Ryndak et al., 2019), and opportunities to learn general education content (Taub et al., 2017).

Shogren et al. (2015) describe context as where students are served, how they are served, and what they are learning. In their discussion of the role of context in learning, Meyer et al. (2014) "...emphasize that learning occurs in a dynamic interaction between student and learning environment, — or context—" (p. 11). Consistent with this description, Jackson et al. (2008-2009) describe that context has the power to control learning outcomes, and cannot be replaced with any other variable, including good instruction. Ryndak et al. (2010) further describe context for students with SCD to include not simply being present in general education classes, but also access to curriculum and instructional content, assessment and accountability, and improved long-term student outcomes. Further, this must be in the general education context, the content must be the intended and enacted general education curriculum, assessment and accountability must include both formative and summative assessment of student performance, and student outcomes must be similar to those of their grade-level peers (e.g., competitive employment, post-secondary education, community engagement).

When students with SCD have access to their same age and grade-level peers, it results in higher accountability and expectations (Ryndak et al., in preparation). The available research

indicates that when students with SCD are included in general education contexts they develop stronger and more extensive natural supports, such as peer relationships (Ryndak, et al., 1999; Ryndak et al., 2010). Westling et al. (2015) reflected the importance of friendships when they stated:

> Today's peers represent the next generation of employers, civic leaders, service providers, legislators, teachers, neighbors…The relationships they develop with their classmates with severe disabilities now can fundamentally change the attitudes, expectations, and supports within society in the future. (p. 209)

Similarly, Jackson et al. (2008-2009) found that students with disabilities need access to age and grade-level peers as "agents of reinforcement" because these peers have a positive impact on learning both social and curricular content (p. 183).

In this paper, the term "embedded essential skills" updates the term "functional skills." Embedded essential skills are those that are used throughout the day during natural opportunities in natural contexts. These essential skills are activities that often need explicit instruction for students with SCD during the activities in which they are required (Ryndak et al., 2019), which should be practiced in naturalistic settings throughout the day rather than a separate setting. For example, instead of having an IEP goal pertaining to toilet training this essential skill is embedded throughout the day when natural opportunities arise, rather than teaching this as a rote skill or in isolation. Therefore, giving students more opportunities to generalize the skill from one location to another, which is a hallmark of inclusive practices.

The concept of opportunities to learn (OTL) highlights the importance of students accessing the general curriculum within general education contexts for all students, including those with SCD (Taub et al., 2017). Further, opportunities to learn the general education content

occur when students are provided opportunities to respond to instruction on general education curricula (Taub et al., 2017). OTL is defined by the intended, planned, enacted, and assessed curricula provided for each student, and will be further examined in Chapter two.

Research demonstrates that students with SCD benefit academically and socially from learning in inclusive classrooms where they have increased access to general education curriculum and interaction with nondisabled peers (e.g., Gee et al., 2020; Jackson et al., 2008; Kleinert et al., 2015; Kurth & Mastergeorge, 2012; Ryndak et al., 2013; Shogren, et al., 2015). The benefits of inclusive classrooms derive from a number of features, including high expectations, high quality instruction, and access to teachers with content expertise (Dessemontet, et al., 2012). Not only does inclusive education produce positive outcomes, it also is a fundamental human right. Though not yet ratified by the United States, the Convention on the Rights of Persons with Disabilities (CRPD; United Nations [UN], 2006) asserts that all individuals regardless of disability label or impairment have a right to inclusive education. In response to these ethical and academic imperatives, federal policies in the United States, like the 2004 reauthorization of IDEIA, privileged increased time in inclusive settings for students with disabilities (Turnbull et al., 2007).

Statement of the Problem

Though historical context and special education law elucidate several key practices to ensure that equal rights of students with disabilities are upheld, policy does not always align to practice, as seen in the placement data for students with SCD. The majority of students with SCD still experience most of their K-12 education in segregated self-contained special education settings (Kurth et al., 2014; Morningstar et al., 2017). Placement data for students with SCD continue to demonstrate their educational segregation at federal (U.S. Department of Education,

2019), state (Cosier, 2018, 2020; Morningstar et al., 2017), district (White et al., 2019), and school levels (Bacon et al., 2016).

Despite the positive research regarding outcomes of access to general education for students with SCD, these students are most often served in segregated settings (Cosier, 2018, 2020; Morningstar et al., 2017). This is significant because students with SCD placed in self-contained settings receive less access to grade-level academic content (Kurth & Mastergeorge, 2010; Taub et al., 2017) leading to poorer outcomes such as reduced graduation rates, employment, and enrollment in post-secondary education programs (U.S. Department of Education, 2019). The persistent exclusion of students with SCD from inclusive settings represents a systemic and pervasive example of educational injustice that necessitates increased investigation in the literature.

Significance of the Study

The history, trends, and data indicate the magnitude of segregation for persons with SCD. Since students with SCD often are segregated, there are few examples of effective efforts for systemic educational change towards the development of inclusive education systems. For instance, in a seven-year study, Ryndak et al. (2007) described a district's transition to inclusive education services specifically for students with SCD. During this time, efforts were conducted at the district and school levels to ensure inclusive education practices were reflected consistently across the multi-level system. Ryndak and her colleagues within the education system shifted the culture at multiple levels, successfully moved and met the learning needs of students with SCD in general education classes in their home schools. The essential components found by Ryndak et al. were vision, mission, understanding of inclusive education, and understanding of the change process. Similarly, in their work examining an elementary school

that was implementing inclusive education practices effectively, McLeskey et al. (2014) identified concepts that school personnel believed promoted a change in their school culture. Three of those concepts were having a common vision, making data-driven decisions, and using available resources. Staff demonstrated a commitment to these Themes and, therefore, were intrinsically motivated to continue their work. Additional research is needed, however, to further understand multi-level systemic change efforts regarding inclusive education for students with SCD.

There remains a vast disconnect between what is known about the positive effects of inclusive education and the implementation of inclusive education practices for students with SCD (Agran et al., 2019). The predicament remains that given the available data on the positive impact of inclusive education for students with SCD, placements in general education continue to be limited for this population. The default placement continues to be separate special education classrooms (Kurth et al., 2014) with the use of antiquated practices such as IQ scores for the rationale.

Jorgensen (2005) argues that, in the absence of irrefutable data, students should be presumed competent learners, rather than judging them by appearance or IQ scores. The presumption of competence is the belief that all students can learn and challenges the prevailing constructs of intelligence (Jorgensen). No student should have to prove that they are capable before being granted access to the general curriculum and general education classes. Instead, they should be presumed capable and educational supports should be added to instructional contexts as needed to meet the learning needs of each individual student. Further research is needed to promote educational access and equity for students with SCD. Therefore, the significance of this study is to gain an understanding of one school district's efforts to facilitate

the development of inclusive education services for students with SCD.

Purpose of the Study

One school district in the northeastern part of the United States began facilitating systemic change in 2017. This study investigated a school district's multi-year experience with facilitating the development of inclusive education services for students with SCD. This qualitative case study comprises data collected and organized by the state and district, such as Least Restrictive Environment data (LRE), and district and school levels, such as budget information, coaching notes, surveys, observations, a reflection tool used to create action plans for systemic inclusive practices (e.g., ROXIE), and work sample collection. These data were combined with novel data, such as interviews. These data were used to investigate experiences of this one district in a northeastern state during their multi-year facilitation of the development of inclusive education services for students with SCD. Specifically, this case study addressed two research questions:

(a) What did one school district do to address sustainable systemic change related to the inclusion of students with SCD in general education classes?

(b) What was the impact of these efforts on students, their parents, instructional personnel, and administrators?

The Principal Investigator used qualitative research methods to study systemic change in education services for students with SCD. Specifically, this study sought to understand the systemic sustainable change efforts of the district for the development of services that reflect evidence-based inclusive education practices resulting in students with SCD having increased opportunities to learn the general education curriculum alongside their age and grade-level peers in general education classes.

Sustainable systemic changes are defined as when the change efforts are so deeply embedded across their entire system that it would be difficult to undo the changes were made. In this case, I was looking for changes that might include inclusive education practices for students with SCD that provided continuous and simultaneous access to (a) evidence-based instruction within general education lessons, activities, and routines (Shogren et al., 2015), (b) age and grade-level peers without disabilities (Ryndak et al., 2013), (c) embedded essential skills (Ryndak et al., 2019), and (d) opportunities to learn general education content (Taub et al., 2017). Then I was looking for the impact of these changes on students, their parents, instructional personnel, and administrators. Specifically, I was looking for impact that might include (a) students' access to the general education curriculum content; (b) evidenced based instructional practices; (c) changes in placement into general education contexts; (d) district wide changes; and (e) changes in values and climate.

CHAPTER II: LITERATURE REVIEW

The rationale for this study is based on the research to address the following research questions:

(c) What did one school district do to address sustainable systemic change related to the inclusion of students with SCD in general education classes?

(d) What was the impact of these efforts on students, their parents, instructional personnel, and administrators?

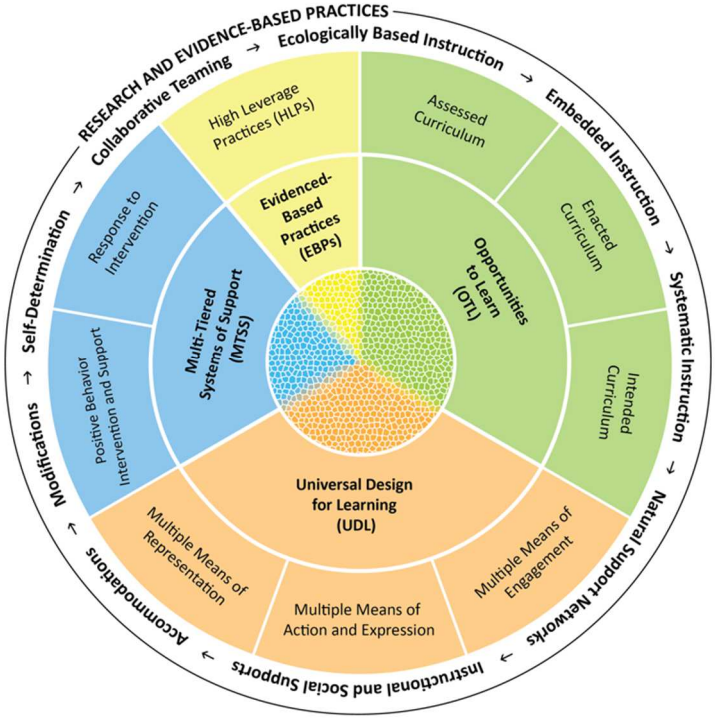
This rationale originates from the extant literature about practices that have increased access to effective instruction during general education classes for students both with and without disabilities. These practices reflect multiple approaches for conceptualizing instruction and how it can be organized, structured, provided, and evaluated to increase its effectiveness for all students, as well as research- and evidence-based practices specifically for students with SCD. Throughout this Chapter, "using inclusive education practices" refers to the combination of general and special education practices that increase the effectiveness of instruction and provide access to the general education curriculum in general education contexts (e.g., classes, field trips, hallways, recess).

The purpose of this Chapter is to review the literature supporting this study. This review is organized to discuss literature related to a) conceptualizing how instruction can be organized, structured, and evaluated; b) identifying and using inclusive education practices for students with SCD; c) sustaining systemic inclusive education change and barriers to those changes; and d) applying implementation science concepts to systemic change efforts in special education. Need connection outlining why you chose these areas for the lit review and not others.

Conceptualizing How Instruction Can Be Organized, Structured, Provided, and Evaluated

Four approaches for conceptualizing the design and implementation of instruction in general education contexts are supported in the research. These include multi-tiered systems of support (MTSS; McLeskey et al., 2017; Shogren et al., 2015), universal design for learning (UDL; Meyer et al., 2014), opportunities to learn (OTL; Lowrey et al., 2007; Taub et al., 2017), and the use of specific research- and evidenced-based practices (EBP; ESEA, 1965/2015; What Works Clearinghouse, n.d.). MTSS and UDL are evidence-based frameworks (i.e., a set of practices for organizing and providing instruction), however there are additional research- and evidence-based inclusive education practices that support instruction for students with SCD. When these effective instructional frameworks (e.g., MTSS, UDL, OTL, EBPs) are in place for general education students, they also provide a structure for the provision of accommodations and supports that allow all students access to the general curriculum. As such, this supports effective instruction for students with SCD (Meyer et al.). These four approaches are described in the following sections (See Figure 1).

Figure 1. How Instruction can be Organized, Structured, Provided, and Evaluated



Multi-Tiered Systems of Support (MTSS)

Multi-tiered systems of support (MTSS) is a framework of planned approaches comprising the use of interventions that are implemented across three tiers to support academic and social success. Tier 1 focuses on using research- and evidenced based practices (e.g., high leverage practices; McLeskey et al., 2017) to teach and reinforce academic and appropriate social behaviors for all students in a class; tier 2 provides more intensive interventions and supports for smaller sets of students in the class who need more than those provided in tier 1; and tier 3 provides individualized interventions and supports for specific students who need supports that extend beyond those provided in tier 1 and tier 2 (Snell, 2006).

The intent of MTSS is to focus on the level and intensity of interventions each student needs within general education contexts, rather than a change in the location of services (Sailor et al., 2018). MTSS supports inclusive education practices for students with SCD by focusing on

student needs and not on student placement.

Universal Design for Learning (UDL)

UDL is an evidence-based framework that allows all students, including those with SCD, to access the general curriculum, it moves the focus from the student to the environment. It requires a shift in thinking by practitioners because the paradigm changes from medical-based student barriers to the environment being the barrier considered. Students should never be considered the barrier to instruction, and UDL assists in reframing that thinking by focusing on barriers in the environment, tasks, and activities during learning. It incorporates three main guidelines, including the use of multiple means of (a) representation, (b) action and expression, and (c) engagement (Meyer et al., 2014). *Multiple means of representation*, or the "what of learning," focuses on making instruction more accessible by "presenting information and content in different ways" (Meyer et al., 2014, p. 90) to support each student's receipt and comprehension of information. For example, the content of a lecture also could be presented visually using PowerPoint or video. *Multiple means of action and expression*, or the "how of learning," focuses on accommodating how students use tools they need to express their acquisition of new content, self-monitor, and set their own goals during instructional activities (Meyer et al., 2014). *Multiple means of engagement*, or the "why of learning," focus on accommodating students' various interests by providing various approaches to increase each student's motivation and excitement for learning (Meyer et al., 2014). This strategy supports learners by tailoring instruction to their interests and strengths.

UDL is a way to provide learning opportunities in the general education curriculum that are effective for a wide range of learners. As such, UDL provides flexibility for individual students' interests, strengths, and needs. When used simultaneously, multiple means of

representation, action and expression, and engagement create universally designed accessibility to the curriculum for all students. It creates accessibility through removing barriers to learning by considering the unique needs of every student. UDL provides a meaningful structure for access to the curriculum and provides multiple ways to engage all students, including those with SCD.

Opportunities to Learn (OTL)

The concept of opportunities to learn (OTL) emphasizes students gaining access to learning the general curriculum within general education contexts for all students, including those with SCD (Taub et al., 2017). OTL is defined by the intended, planned, enacted, and assessed curricula provided for each student. The *intended curriculum* comprises the state-adopted standards at a given grade level (Taub et al., 2017). *Planned curriculum* is a teacher's interpretation of the intended curriculum and the instructional activities planned related to that content. *Enacted curriculum* is the content actually taught during instruction, and the instruction provided to facilitate each student's acquisition of that content. The quality of the enacted curriculum, therefore, can be captured with three variables, including time in instruction, the quality of instruction, and the content addressed during instruction (Taub et al., 2017). The *assessed curriculum* is the content measured through formative and summative assessments, as well as through other progress monitoring activities. For students to have opportunities to learn, the intended, planned, enacted, and assessed curricula must be aligned.

Taub et al. (2020) found that pre-packaged curricula designed specifically for students with SCD had low alignment with the intended English/Language Arts curriculum. The use of pre-packaged curricula did not result in meeting aspects of the OTL, causing students with SCD to fall further behind their peers in accessing the general education curriculum (Taub et al., 2020). In another study, Kurth and Mastergeorge (2012) found that students with SCD in

separate contexts had access to the general curriculum only 0.1% of the time. Conversely, students with SCD in the general education context spent 87.2% of the time being instructed on grade level general education curriculum. In 2020, Gee et al. (2020) found similar results for matched pairs of students in separate versus general education contexts. Gee et al. (2020) reported that students in separate settings were unengaged in instruction 38% of the time, but in general education were unengaged only 4% of the time. These studies illustrate a lack of opportunities to learn general education curriculum when students with SCD are in self-contained contexts, as well as extensive opportunities to learn when they are in general education contexts. This highlights the necessity of providing instruction for students with SCD in general education contexts.

Research- and Evidence-Based Practices

The Elementary and Secondary Education Act (ESEA) of 1965, amended to Every Student Succeeds Act (ESSA, 2015), states:

> Evidence-based practices provide educational and related activities that will complement and enhance academic performance, achievement, postsecondary and workforce preparation, and positive youth development of the students (20 U.S.C. §7122[2][J])… demonstrate a statistically significant effect on improving student outcomes or other relevant outcomes based on… high quality research findings or positive evaluation that such activity, strategy, or intervention is likely to improve student outcomes or other relevant outcomes. (20 U.S.C. §7801[21][i][ii][I])

Evidence-based practices (EBPs) are considered the top tier instructional practices in education with the most scientific evidence demonstrating their effectiveness. In comparison, research-based practices (RBPs) are those that have research to support their use, but not

sufficient research to be considered an EBP.

It can take years of research to establish EBPs, but it is important to use the most effective practices for teaching all students. By using RBPs and EBPs, teachers ensure they are providing the best possible instruction. In addition to RBPs and EBPs, there are critical high leverage practices (HLPs) that come from the corpus of literature about special education that improve student outcomes (McLeskey et al., 2017). McLeskey et al. (2017) identified 22 HLPs that improve outcomes for students with disabilities and assist teachers with putting these practices into place. Of these 22 HLPs, three address increasing collaboration, three discuss improving assessment, four focus on increasing the use of social/emotional/behavioral interventions, and 12 emphasize instructional strategies that improve student learning. Further, students with SCD might take longer to learn new general education curriculum (Lowery et al., 2007), therefore, it is critical to use the most effective RBPs, EPBs, and HLPs to maximize their opportunities to learn and their acquisition of content.

Conclusion

When used in conjunction, these four research- and evidence- supported approaches to conceptualizing instruction (i.e., UDL, MTSS, OTL, and RBPs and EBPs) are relevant to the organization, structure, provision, and evaluation of instruction for all students (i.e., both with and without disabilities). When used in general education contexts, these approaches increase the effectiveness of instruction for all students. This is important for students with SCD, as it builds a strong foundation of effective instruction for all students in which their specially designed instruction can be provided, maximizing their access to the general education curriculum within general education contexts and instructional activities.

In the next section research and evidence-based practices that meet the unique learning

needs of students with SCD are described. The phrase "identifying and using inclusive education practices for students with SCD" are used to describe these practices.

Identifying and Using Inclusive Education Practices for Students with SCD

Ryndak et al. (2013) describe four key components of education, including context, curriculum and instructional content, assessment and accountability, and long-term student outcomes. They then argue that when identifying and using inclusive education practices for students with SCD that the context must be the general education context, the content must be the intended and enacted general education curriculum, assessment and accountability must include both formative and summative assessment of the effectiveness of RBPs and EBPS on student performance, and student outcomes must be similar to those of their grade-level peers (e.g., competitive employment, post-secondary education, community engagement). Jackson et al. (2008-2009) argue that those four components must reflect access to the same places and contexts as their grade-level peers. Regardless of how effective instruction is in a separate setting, it continues to be "non-equivalent to the power of context in the control of learning outcomes (Jackson et al., p. 190).

As evidenced in Ryndak et al. 2010, general education contexts also reflect higher expectations for students with SCD. This study compared long-term outcomes for two brothers with similar disabilities, one placed in a separate setting, and one placed in general education. Mark (separate setting) experienced higher levels of anxiety, only had relationships with family and paid caregivers, worked less than 15 hours a week, lived at home, and became tied to his calendar and schedule. Jim (general education contexts) was able to generalize his academic and social skills and interact appropriately at school, at home, and in the community. He was able to maintain friendships and have an adult life similar to those friends. This study is an example of

positive long-term outcomes when included in the general education curriculum for two siblings with similar disabilities.

These concepts are evident in the work of Hunt et al. (2012) when they developed a process for identifying the general education standards-based curriculum to teach a student with SCD. They describe how the general education content selected for instruction must prioritize content that is meaningful for that student, individualized to meet that student's needs, focused on the student's application of the content, and focused on the student's generalized use of the content. By incorporating these principles into the existing curricular frameworks, and using individualized accommodations, RBPs and EBPs to meet the learning needs of students with SCD (e.g., collaborative teaming, accommodations and modifications of curriculum content, instructional and social supports, the Self-Determined Learning Model of Instruction (SDLMI), and embedded instruction), education teams can teach students with SCD effectively in inclusive general education contexts (Hunt et al., 2012). This section addresses these five inclusive education practices.

Collaborative Teaming

Research supports educational teams working collaboratively to meet the complex needs of students with SCD in general education contexts (Hunt et al., 2003; Matzen et al., 2010) in a way that no single discipline can address (Ryndak et al., 2022). Collaborative teaming is defined as a process in which partners share information and resources for the purpose of working toward a common goal or specific outcome (Turnbull & Turnbull, 2001).

Collaborative teams consist of individuals involved in the education of the student with SCD and might include caregivers, general and special educators, speech-language pathologists, occupational and physical therapists, nurses, administrators, paraprofessionals, and other school-

based or community-based resource personnel who can provide input on a student's learning. As equal partners, collaborative team members share information based on the unique knowledge and skills they bring from their own disciplines (Westling et al., 2015). These consistent interactions provide opportunities for the development of lasting relationships that contribute to natural support networks. Along with the student, the members of their natural support networks assist collaborative teams in meeting the student's needs. Further, collaborative teaming can be discussed in relation to co-teaching, co-planning, and co-assessing instruction for all students.

Co-teaching

Co-teaching is a collaboration between two or more educators to teach curricular content simultaneously to all students. Historically, co-teachers have included one special and one general educator; however, other combinations (e.g., two general educators) are beginning to appear in inclusive general education classes (Ryndak, personal communication, November 1, 2021). Ruppar et al. (2017) observed general and special educators rotating between students, presenting to the group together and separately, and fostering discussions among all the students. Co-teaching allows educators to use a wider variety of inclusive education practices to meet the learning needs of all students.

Co-planning

Co-teaching requires a significant amount of co-planning with teachers regularly meeting to plan instruction and develop modifications to be used when co-teaching (Ryndak et al., 2022; Ryndak et al., 1999). For students with SCD to access the general education curriculum and contexts it is critical for teams to collaborate across every aspect of the students' educational programs (Hunt et al., 2003). Ruppar et al. (2017) observed that embedded instruction was happening through co-planning of English/Language Arts lessons with the general educator

responsible for the content and the special educator responsible for modifications and adaptations. As the teachers became more comfortable with each other and co-teaching practices, they began to share responsibility for co-planning both content and instruction with modifications.

Co-assessing

Data and accountability are important considerations when assessing student learning in the co-taught classroom. Formative assessments (e.g., teacher created assessments as instruction occurs) and summative assessments (e.g., standardized tests) are needed to assess student progress.

In addition, teachers can assess students' growth on a specific, targeted skill through progress monitoring, which can measure progress on both the general education curriculum content and IEP goals. Wherfel et al. (2021) state, "Assessments, in and of themselves, do not improve students [sic] learning (p. 7)." When teachers seek to understand and translate those assessments into usable interventions for student instruction, then co-assessment can be an effective teaching tool (Wherfel et al.).

Accommodations and Modifications of Curriculum Content

Students with SCD often need accommodations or modifications to curriculum content and/or instructional supports to facilitate their acquisition of the general curriculum. Accommodations are changes in how curriculum content is presented to ensure it is accessible to a student, as well as how a student demonstrates an understanding of that curriculum content. When using accommodations, changes are not made to the curriculum content or the expectations for the amount and difficulty of the curriculum content.

Modifications, however, change the amount and difficulty of the curriculum content

learned, thus the learning expectations for a student who receives modifications differ from the expectations of their general education classmates. As such, modifications are changes in the curriculum content presented and how a student may demonstrate an understanding of that curriculum content. The use of accommodations and modifications promotes all students' learning together across all grade-appropriate instructional activities. In addition, their use increases opportunities to learn for each student.

Instructional and Social Supports

While curriculum refers to *what* students are taught, instruction describes *how* students are taught. As accommodations and modifications make the curriculum more accessible to students with disabilities, instructional and social supports can be considered adaptations in how that curriculum is taught to make it more accessible to a student with disabilities. While there are many different types of instructional supports that teachers use to meet the learning needs of all students, the focus of the supports described in this section is on those found to be effective in facilitating engagement and participation of students with SCD in grade-appropriate activities. Instructional supports include the provision of materials, systematic instruction, and personal assistance for students.

Material Supports

Material supports (e.g., videos, pictures, audio recordings, objects, texts, graphics) are used during instruction to assist in conveying information to students. One type of material support demonstrated to be effective for students with SCD is the use of visual supports (e.g., a picture or 3-D material). Visual supports provide a static reference that can represent ideas, such as the topic of the teacher’s instruction, or a task the student is expected to complete. Visual supports have been studied extensively, particularly regarding their use with students with autism

spectrum disorders, for whom visual supports have been identified as an evidence-based practice (see Sam & AFIRM Team, 2015b).

Systematic Instruction

Westling et al. (2015) describe systematic instruction for students with SCD as "prompting to teach new skills" (p. 134). Prompting is the provision of a teacher-directed cue to assist a student in task completion. In 2008, Browder et al. established systematic instruction as an EBP for students with significant cognitive disabilities. Some types of systematic instruction include prompting hierarchies (e.g., most to least prompts, least to most prompts), time delay (i.e., waiting a set amount of time before providing a prompt), and task analysis (i.e., a list of steps or actions to accomplish an activity).

Personal Assistance

Another type of instructional support is assistance provided by people (e.g., peers, paraprofessionals, teachers, specialized instructional support personnel, other school personnel) who facilitate a student's engagement and involvement in instructional and non-instructional grade-appropriate activities. Westling et al. (2015) describe the purpose of such personal assistance as "...connecting students with disabilities to the people, technology, training, routines, and forms of assistance already existing in a setting as the first consideration for support" (p. 467). Personal assistance is presented in natural ways, with the focus being engagement in occurring activities. Personal assistance can support students with SCD in the general education classroom using peer-mediated instruction or paraprofessionals.

Peer-mediated Instruction. Peer-mediated instruction is an evidence-based practice for students with SCD (Chung et al., 2012; Dart et al., 2014; Jackson, 2008; Sam & AFIRM team, 2015a; Taub et al., 2017; Westling et al., 2015), including students with autism spectrum

disorder (ASD; Wong et al., 2015), intellectual disability (ID; Carter et al., 2005), and developmental disability (DD; Barker et al., 2013). Peer-mediated instruction is used when non-disabled peers assist a student with a disability either academically, socially, or behaviorally (Carter et al., 2005). Carter et al. (2016, 2017) taught nondisabled peers to provide support for students with SCD. Collectively, their findings indicate that peers can be trained to provide appropriate support, as well as increase academic engagement and progress towards individualized goals for students with SCD. Friendships occur in natural settings (Myles et al., 2019), thus, by not removing students with SCD from their peers, they do not lose natural opportunities to make friends and, potentially, natural support networks that can last into adulthood. Furthermore, peer relationships provide academic support without deterring from the success of peers without disabilities (Carter et al., 2005; Jackson, 2008).

Paraprofessionals. For students with SCD, a paraprofessional in general education instructional and non-instructional contexts may facilitate the student's interactions with their classmates as they are engaged and involved in activities. This might be accomplished by ensuring that material accommodations are present and accessible to support the student's engagement and involvement in activities with classmates or ensuring that peer supports are provided as planned and as needed by the student. Giangreco and Suter (2015) caution against over-reliance on paraprofessionals and not using the teacher as the "lead professional" (p. 117), resulting in the paraprofessionals planning, delivering, and being responsible for the educational program for that student. When the general and special education teachers lead the team of professionals, it reinforces their collective responsibility for student outcomes, allowing a paraprofessional to be available to provide personal support for a student with SCD, as well as instructional support for all students in the class (Giangreco & Suter).

Self-Determined Learning Model of Instruction

Self-determination is defined as a student acting as the primary person that makes things happen in their own life; thus, the student is actively involved by making the choices and decisions that impact the quality of their own life (Wehmeyer et al., 2000). The Self-Determined Learning Model of Instruction (SDLMI; Shogren et al., 2017) supports students in their acquisition and use of self-determination skills (e.g., self-advocacy, goal setting, self-monitoring, problem solving, self-evaluation) to set, work toward, and achieve meaningful academic, social, and transition goals that result in desired outcomes for their adult life (Shogren et al., 2012; Shogren et al., 2014; Wehmeyer et al., 2012; Wehmeyer et al., 2000). For a student to be self-determined they must be the main person involved in discussions and decisions about their own life.

Embedding Instruction with Evidence-Based Strategies

McDonnell et al. (2002; 2003; 2006) and Ruppar et al. (2017) identify embedded instruction as the implementation of instructional trials on related general education content during naturally occurring opportunities throughout the school day. An effective strategy for maximizing time in instruction in general education contexts for students with SCD is embedding instructional trials that incorporate evidence-based instructional practices within general education instructional and non-instructional activities (Jameson et al., 2008; Jimenez et al., 2012; Johnson et al., 2004; Ryndak et al., 2013). This process distributes opportunities for the student to learn by increasing both the number of instructional trials to assist with skill acquisition, and the number of contexts in which instruction occurs to assist with skill generalization, all reflecting evidence-based practices (Ryndak et al., 2013). This results in students receiving more time-in-instruction, with opportunities to acquire and practice skills

across contexts, to meet each student's learning needs (e.g., addressing potential issues with generalizing skills across contexts). This increased time-in-instruction and the embedding of evidence-based instruction across naturally occurring opportunities to acquire and practice skills in general education contexts results in better student outcomes through inclusive education practices.

Though the available research delineates these practices, they are not often seen in school systems, particularly for students with SCD (Ruppar et al., 2020). The existing research demonstrates several short- and long-term benefits of educating students with SCD in general education contexts. These include increased time in instruction and time on task during instruction (Kurth & Mastergeorge, 2012; Logan et al., 1997); increased learning of content from both the general education standards and embedded essential skills (Ryndak et al., 2019); increased social skills (Carter et al., 2005); and increased acceptance by and understanding of peers (Westling et al., 2015). Further, the available research indicates that when included in general education contexts and provided appropriate supports, students with SCD have increased access to opportunities to learn the general education standards (Kurth & Mastergeorge, 2012; Taub et. al., 2017). This results in marked progress on the general curriculum (Kleinert, et al., 2015; Ryndak et al., 2013). Given the benefits of inclusive education practices for students with SCD, more information is needed to define and facilitate systemic, sustainable change for inclusive education practices to be provided for SCD in general education contexts.

Sustaining Systemic Inclusive Education Change and Barriers to those Changes

In the 1960's von Bertalanffy developed *general system theory*. In it he states that a system involves complex, interrelatedness within an environment (von Bertalanffy, 1968/2015). Due to the inextricable connections of systems, he argues that "[i]t is necessary to study not only

parts and processes in isolation, but also to solve the decisive [universal] problems found in the organization...resulting from dynamic interaction of parts, and making the behavior of parts different when studied in isolation or within the whole" (von Bertalanffy, 1968/2015, p. 31). These interactions must be studied together because they are inextricably linked within a system. The general system theory defines the environment as either geographical or theoretical surroundings (i.e., it could be where a person physically exists or how they interact with their surroundings). An example of a decisive problem is a problem that is universal in nature and could have an impact on everything and everyone within the system.

In keeping with the general system theory, systemic change can be defined as multi-level (e.g., state, district, and school levels) and multi-faceted change (Domitrovich et al., 2008). As explained by a multi-district school system leader, sustainable change means that the change efforts of a system have worked so successfully that the outcomes from those efforts cannot be undone easily and are continued over the course of years or decades (Burnette et al., in preparation). Such sustainable, systemic change does not happen quickly, and most education systems are faced with limited resources and limited time to implement change. Thus creative, effective, and versatile use of resources is imperative when changing educational services to both reflect a common vision and use data-driven decision-making (Fixsen et al., 2013; McLeskey et al., 2014; Stahmer et al., 2018). This allocation of resources is then used to create the best possible context to promote student outcomes.

When a change in educational services has become systemic and sustainable, that change has occurred at multiple levels (Lazarus et al., 2019; Ryndak et al. 2007). An example of multi-level change in education would be the implementation of IDEA. Prior to 1975, states did not have to implement special education services in their schools, when IDEA was written it

required states, districts, and schools to implement special education services for all students with disabilities. The provision of special education services is governed by federal laws and policies, then that extend to state, district, and school level policies and practices, so when IDEA passed schools and districts had to make significant changes to their policies and practices. The National Center for Systemic Improvement (2019) describes state level leadership as being responsible for implementing these laws and policies, knowing when policies change, and understanding the implications of policy changes for practice. District level leaders then are responsible for responding to and implementing initiatives introduced by the federal and state leadership. In addition, district level leaders must respond to local community and/or parental needs. Finally, school level leaders are responsible for implementing policies and practices associated with these initiatives across their schools; and education teams are responsible for implementing these practices across classes for individual students.

A demonstration of sustainable systemic change for inclusive practices might include the embedding of continuous and simultaneous access to research and evidence-based instructional practices (e.g., systematic instruction; peer mediated learning) within general education lessons, activities, and routines (Shogren et al., 2015). When these practices are evident more consistently across the multilevel system, systemic changes are occurring. The impact of those changes would also be evident in (a) students' access to the general education curriculum content; (b) evidenced based instructional practices; (c) changes in placement into general education contexts; (d) district wide inclusive practice changes; and (e) changes in values and climate.

Barriers to Sustainable Systemic Educational Change

Some of the factors contributing to sustainable systemic educational change are multifaceted and traverse multiple levels of the education system, ranging from teacher-student

interactions to state level policy decisions (Ruppar et al., 2017). Though there are a myriad of barriers to sustainable systemic educational change only four will be discussed in this literature because they were recurring themes seen throughout the extant research about inclusive education practices. These factors include (a) teacher preparation (McDonald et al., 2013), (b) leadership (Agran et al., 2019), (c) attrition (Billingsley et al., 2014), and (d) reinforcing feedback loops (Rutherford, 2019). These factors play roles in supporting or hindering sustainable systemic educational change.

Teacher Preparation

Understanding academic content is an integral part of educating all students (National Council on Teacher Quality, 2014); yet national data shows that special education teacher preparation programs do not focus on academic content. Without having academic content knowledge special education teachers are not likely to be able to link the intended curriculum (i.e., state content standards) to the planned curriculum and enacted curriculum (i.e., time, quality, and content), resulting in their instruction on academic content being less effective (Taub et al., 2017). Their lack of knowledge and limited ability to provide effective instruction on academic content also impedes their ability to scaffold the curriculum. Frequently academic content goals on individualized education programs (IEPs) for students with SCD are based on content standards that are below the students' grade-levels and do not focus on accessing the general education curriculum (Taub et al.). Cook and Cameron (2007) argue that the way pre-service special education teachers are prepared, and their lack of requisite content knowledge further perpetuates the segregation of students with SCD. Further, their preparation does not include strategies to facilitate the practice, use, and maintenance of research- and evidence-based inclusive education practices (Kuntz & Carter, 2019).

Coursework and field experiences specifically addressing the inclusion of students with SCD remains virtually nonexistent in most general education teacher preparation programs (Delano et al., 2008). According to McDonald et al. (2013), teacher education programs are separated by disciplines, describing that "...there is such a deep split between these areas that it is rare for teacher educators who specialize in one area to have opportunities to learn from those working in the other areas" (p. 385). Due to the nature of their preparation, general education teachers are not given opportunities to learn how to teach students with SCD. The lack of focus on content instruction in special education teacher preparation programs is similarly problematic.

Leadership

Educational changes that facilitate the implementation of inclusive education practices are both contingent and incumbent upon the leaders responsible for these changes (Burnette et al., submitted). Metz et al. (2015) identified several competencies for leaders who implement sustainable systemic change: (a) analyze the problem, (b) take ownership of the problem and the change process, (c) encourage teammates, and (d) mediate with skill and wisdom.

Following an examination of an elementary school that was successfully implementing inclusive education practices, McLeskey et al. (2014) identified characteristics of the school that promoted change in their culture. Three of those characteristics can be summarized as: having a common vision for their services, making data-driven decisions, and using available resources. DeMatthews et al. (2020) posit that leaders in a school are responsible for maintaining and creating a common vision; further, those leaders need to consider their system as a whole as they facilitate change, including a change in the use of inclusive education practices. As a change is made in one aspect of their system, that one change can affect other aspects of the entire system; thus, the leaders must keep the entire system in mind as changes occur. This focus on the system

as a whole assists in ensuring that the changes made are both sustainable and systemic. However, leaders rarely remain in positions long enough for systemic change to be realized, thus leadership issues are exacerbated by high rates of attrition (Lashley & Boscardin, 2003).

Attrition

Both administrators and special education teachers often do not stay in positions long enough for sustainable systemic change to be realized (Billingsley et al., 2014). In fact, high turnover of personnel at the district, school, and education team levels, and national shortages of special education administrators and teachers have been documented as far back as 1989 (Billingsley et al.; Lashley & Boscardin, 2003). These shortages continue today and are most likely exacerbated by complications related to the COVID pandemic. Prior to COVID, the National Center for Systemic Improvement (NCSI) found that school administrators have less than five years of experience in their roles. Furthermore, according to NCSI (2019), between 2005 and 2019, 77% of state level special education administrators had less than five years of experience and held their positions an average of only 3.5 years. The combination of ongoing personnel shortages and high turnover has major implications for states, districts, school, education teams, and students.

With each new leader comes new priorities and/or a lack of understanding of and commitment to existing ongoing change efforts, which can lead to the reallocation of resources, increased staff turnover, and implementation dips (NCSI, 2019). Special education administrators must remain cognizant of this turnover risk because they are vital to the retention of effective teachers, which has a direct impact on outcomes for students with disabilities (Billingsley et al., 2014; Lashley & Boscardin, 2003). A higher turnover rate aligns with negative outcomes for students; collaborative relationships vital to effective special education services are

lost (McLeskey et al., 2017); and established programs are not sustained (Billingsley et al.). The perpetuation of issues with teacher preparation, leadership, and attrition, can lead to negative feedback loops that continue these issues into perpetuity. Unless these negative cycles are actively interrupted, they will continue.

Feedback Loops

According to Hepworth et al. (2010), homeostasis is how a system is sustained and perpetuated by the existing state of the system, even if changes occur in some aspects of the system (e.g., a principal leaves a school, but the school continues to promote the practices of that old principal to stay the same). Homeostasis occurs in the historical context of a system, for example, systems perpetuate the decisions they historically make to keep the "status quo," rather than interrupting an existing process. Rutherford (2019) explains that "...when a system displays a consistent behavior over time, it is likely there is a mechanism at work controlling and creating that behavior. The mechanism works through what we call a feedback loop" (p. 40). Rutherford (2019) states that reinforcing loops continues a behavior, regardless of whether it is harmful or helpful to the system.

When trying to implement sustainable systemic changes, these feedback loops can make it difficult to move systems in new directions with new behaviors, practices, and processes. Feedback loops can assist in determining whether any given change was successful at addressing the issue it was meant to address. For example, changing placement for individual students might result in them being included more than the national average, however, if those change efforts are not combined with a change in the system's infrastructure, these changes are short-lived. There are feedback loops present in the decision-making process about placement for students with SCD, infrastructure around scheduling, collaborative practices, and funding structures.

Unless the feedback loops for each of these areas is addressed, physically placing one student in general education without changing the larger systems will typically result in the system remaining the same for all students.

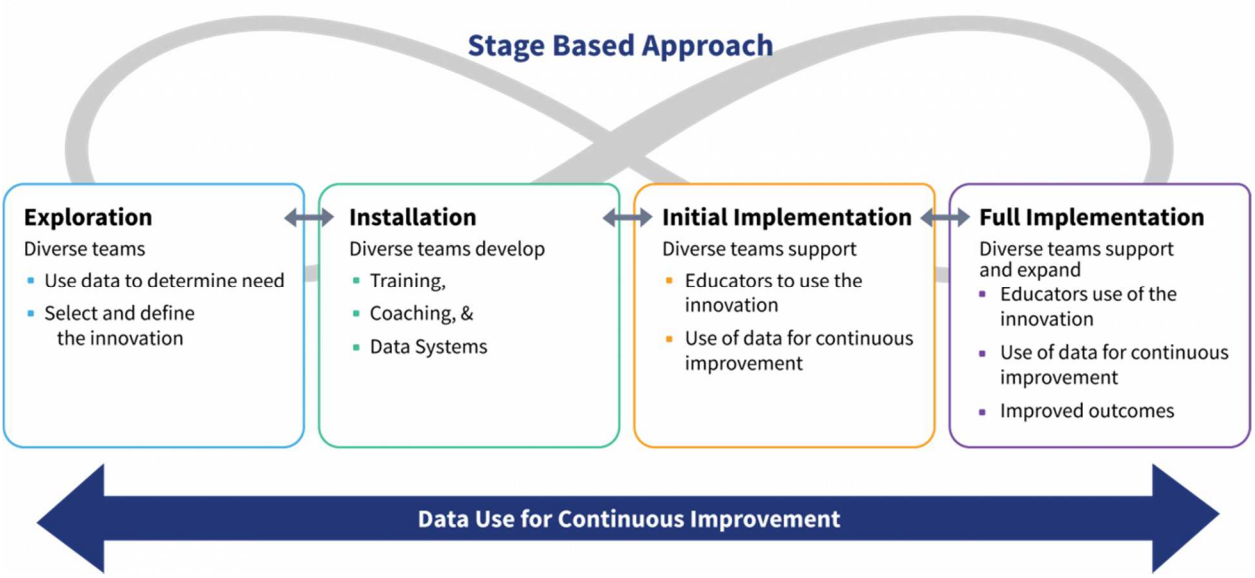
Applying Implementation Science Concepts to Systemic Change Efforts in Special Education

Though these barriers exist, there is promising literature about systemic sustainable change through implementation science concepts. Ward et al. (2017) define implementation science as "the study of factors that influence the full and effective use of innovations in practice" (p. 1). Powell et al. (2015) state that implementation science provides a structure for looking at various systems in need of change. Fixsen et al. (2005) argue that sustainable systemic change is evident through three specific implementation outcomes: (a) changes in behaviors, (b) changes in structures, and (c) changes in relationships. This emerging knowledge base about implementation science approaches provides a structure/process for educational personnel to achieve sustainable change that results in improved outcomes for all students. More information is needed, however, about achieving sustainable systemic change using implementation science approaches. In addition, more information is needed about creating conditions that facilitate the use of desired changes, creating processes to scale up and sustain these conditions and the desired behavior changes, and leading to improved student outcomes (Fixsen et al.).

To assist in understanding implementation science concepts, it is beneficial to look at the four stages of implementation identified by NIRN: 1) exploration, 2) installation, 3) initial implementation, and 4) full implementation (See Figure 2). In the exploration stage, awareness of a need has been identified, and teams use existing information about their system to further define the need and reflect on current practices within their system that played a part in creating

this need (Fixsen et al., 2005).

Figure 2. NIRN's Implementation Science Stages



Once the team has identified the need, they can begin identifying resources such as: (a) funding sources to implement change, (b) human resources, (c) policies, and stakeholder buy-in that would be needed to put these changes in place. After these supports and appropriate stakeholder training has occurred, the team can begin Initial Implementation. In the Initial Implementation phase an intervention is put in place to support the change efforts that were targeted. For example, a school district realizes that their students with SCD are consistently placed in restrictive placements (i.e., identifying the need), then receives funding, professional development, and increased staffing (installation), they are then able put an intervention in place. In this example, the district would move students from a restrictive setting to an inclusive setting that is well-supported with trained personnel (initial implementation). During full implementation, the intervention is being implemented well, accepted, and widely used across the multilevel system. Sustainability is considered the survival of an intervention over time (Fixsen et al., 2005). NIRN identified these stages of implementation science to assist in

conceptualizing the logical progression of sustainable systemic change that most systems undergo as they produce changes in their organization.

A search of the available literature resulted in a parent study with 52 studies on implementation science. This parent study was narrowed down to focus on the use of implementation science within special education, that was then expanded through a backward citation search. This process revealed 16 studies that specifically pertained to implementation science and special education. Major categories that emerged from the review of this literature include: (a) organizational level of change (e.g., state, district, school); (b) duration of change efforts; (c) determinant frameworks related to systemic change for special education; and (d) targeted interventions. These categories are summarized in the literature review table (see Table 1), however the determinant frameworks related to systemic change require further explanation. Determinant frameworks are considered to have a significant impact on implementation outcomes (Nilsen & Bernhardsson, 2019).

Table 1. Literature Review Table

Study	Level of Change	Duration of Change Efforts	Determinants	Target Innovation	Determinant Frameworks Described
Bacon et al. (2011)	Organization level	3 years	Stages of change; horizontal (breadth) change and vertical (depth) change	The National Training Initiative in Self-Determination wanted to create, disseminate, and scale-up resources for self-determination	First created a resource, then created a state management team, planned for the future, considered policy, funding and capacity building, monitored communication and feedback, then (1) conducted needs assessment; (2) decided on a focus area; (3) strategized for analyzing effectiveness; and (4) identified and gathered stakeholders
Bohanon et al. (2016)	School level	3 years	Alignment of intervention with existing school improvement planning	Implementation of MTSS	(1) Alignment intervention with existing of the mission and vision; (2) build-in procedures and time for learning the intervention; (3) organizing the new intervention into existing school culture
Cook & Odom (2013)	Multi-level: state, district, school	Not reported	Uptake of EBPs in special education as a whole	Implementation of EBPs	Posit that implementation is the link between research and practice, implementation is based on (1) reach of the intervention; (2) efficacy of implementation; (3) how widely the intervention is adopted; (4) implementation in real-world settings; (5) sustainability over time

Study	Level of Change	Duration of Change Efforts	Determinants	Target Innovation	Determinant Frameworks Described
Cook et al. (2013)	Multi-level: state, district, school	Not reported	Knowledge that "sticks" (stays with the audience) when disseminating research	Making dissemination of information "stick" with people	6 ways for information to "stick": (1) uncomplicated, (2) surprising, (3) tangible, (4) believable, (5) heart-felt, and (6) personal experiences
Dingfelder & Mandell (2011)	School level	Discussed the lag between EBP development and implementation to be about 20 years	Diffusion of Innovation theory	Implementation of EBPs for students with Autism using Diffusion of Innovation theory based on the context of the environment where change is occurring and has four stages (i.e., dissemination, adoption, implementation, and maintenance)	Implementation with diffusion of innovation theory (1) involve all stakeholders early, (2) remain mindful of the core principles of the change effort, (3) recruit a diverse sample of students to make sure it works, (4) generalize findings in the community setting, (5) assess and ensure sustainability after research team is gone
Domitrovich et al. (2008)	Multi-level: district, school, individual	3-5 years	Quality of implementation must take into account the intervention itself and the supports needed for implementation	Pre-intervention professional development, mentoring/ongoing support, in-person training, standardization of training and supports, implementation drift	Multi-level implementation quality framework depends on macro-level (policies, leadership, capacity, community/university partnerships), school level (mission/policy alignment, decision structures, resources, expertise, leadership, culture/climate, characteristics of the school/class), and individual level

Study	Level of Change	Duration of Change Efforts	Determinants	Target Innovation	Determinant Frameworks Described
				can happen so studies need to be designed for real-world practitioners	(professional/ psychological characteristics, perceptions/attitudes of intervention) factors
Fixsen et al. (2013)	State level	Not reported	Leadership and implementation teams are critical to success of implementation	Building capacity for use of EBPs and defining the parameters of program (i.e., innovation, intervention)	Suggested this formula: Effective interventions X effective implementation = improved outcomes. Additionally suggested components of feedback loops for implementing EBPs: external supports, policies, management team, implementation team, practice-policy communication
Goodman (2017)	State level	Within 10 years	Coordinated support and feedback are necessary	Implementation of MTSS specifically for students reading and behavior	Implementation must move beyond model demonstration and become part of standard practice across stakeholders, one recommendation for that is coordinated support at the district and school levels and implementation feedback cycle. At the district level, leadership teams are given implementation support, and at the school level leadership teams are given specific MTSS implementation support
Johnson et al. (2018)	Individual level	Literature review, but mentioned that it	Recognition of climate, context; fidelity, dosage,	Implementation of EBPs for young children with Autism	There is a deficit between translating EBPs into useable interventions for teachers due to participant

Study	Level of Change	Duration of Change Efforts	Determinants	Target Innovation	Determinant Frameworks Described
		was often not reported	and frequency of intervention		characteristics, setting, climate, teaming, fidelity, and frequency of using the intervention, importance to document and measure each of these things
Locke et al. (2016)	Multi-level: organization, school, individual	Not reported	Leadership, culture, and climate	Implementation of Evidence-Based Interventions (EBIs) for children with Autism	Studying individual and organization level factors helps understand attitudes, culture and climate, implementation climate, leadership that impact implementation of EBIs
Lyon et al. (2018)	Organization level	Not reported	Leadership, culture, context, and climate	Surveyed stakeholders about leadership, climate, and citizenship during implementation of EBPs	When implementing change efforts, it is critical to evaluate and survey stakeholders during the process to understand the organizational implementation context to give a full picture of how an organization is functioning so that the intervention can be adapted as needed for the context of the environment where it is being implemented
Odom et al. (2014)	School level	2-4 years	Implementation teaming, coaching, time, and commitment	Implementing a program for high school students with ASD to promote better post-school outcomes	Stages of implementation were defined and discussed, but the critical elements of the change efforts were (1) teaming, (2) coaching, (3) allotment of time, and (4) readiness for change

Study	Level of Change	Duration of Change Efforts	Determinants	Target Innovation	Determinant Frameworks Described
Odom et al. (2013)	School level	2 years	Measuring program quality/ implementation of EBPs	Implementation of EBPs for students with ASD	Intensive training (professional development) prior to implementation, then continued technical assistance, coaching, and support; built relationships between teachers and technical assistance team
Sailor (2015)	Multi-level: state, district, school	Not reported	Funding and collaborative teaming	Discusses three ways to advance inclusive school reform: MTSS, UDL, and collaborative teaching	Describes three ways to scale these changes up: Braided funding unifying federal/state general and special education funds, integrating behavioral and academic pedagogy across tiers (PBIS/CCSS), and scaling up MTSS, UDL, and collaborative teaching with implementation science.
Sailor (2017)	Multi-level: state, district, school	Not reported	SWIFT focuses on collaboration and aligning of systems from state teams to school teams	Equity-based inclusive education practices reform	Proposes change could occur if: MTSS, UDL, changes in resource distribution, collaborative teaching, master schedules, peer supports, changes with paraeducator usage, use of data, embedded instruction, and preservice teaching experiences
Stahmer et al. (2018)	Multi-level: state, district, school	Not reported	Planning, culture, climate, and inner (district/school) and outer (state)	Multi-level factors that impact the implementation of EBPs for students with ASD	State established a technical assistance training center with 3 state agencies. Provide training and attend EBP workshops once a year. They train and support districts/ schools.

Study	Level of Change	Duration of Change Efforts	Determinants	Target Innovation	Determinant Frameworks Described
			contexts working together		Uses outer (state/ local level climate and culture, leadership, and structure) and inner (school/ district leadership culture and climate, and teacher characteristics: background, attitudes, skills, and experience) contexts to look at malleable factors that influence implementation outcomes.

Determinant Frameworks Related to Systemic Change

The existing literature describes several determinant frameworks that were identified when change occurred in relevant contexts within and across systems (Nilsen, 2015). Determinant frameworks comprise a set of factors across multiple levels of an organization that are thought to guide implementation outcomes and affect behavioral change (Nilsen; Stahmer et al., 2018). According to Nilsen there are important characteristics of determinant frameworks, including characteristics of the research that supports the intervention; the people who are implementing a change; the end users of the change; the context; and the strategy or other means of facilitating implementation of the desired change. Understanding these characteristics of determinant frameworks assists in understanding the system. Due to the complex nature of determinant frameworks and their characteristics, Nilsen also posits that change occurs simultaneously within and across multiple levels of a system.

For example, when a decision is made to change a student's instructional placement from a separate classroom to a general education classroom, this change in placement does not happen in isolation; that is, several changes need to happen simultaneously. For instance, the student's education team must learn how this placement change is supported by research and learn how they can facilitate instruction for this student within the general education classroom. If additional members are changed or added to the education team, they also must receive professional development on these topics. Team members also must understand how to facilitate the implementation of these instructional changes within the new general education placement. These steps might not be completed in a predetermined linear manner; rather, they might be completed simultaneously or in any order. While implementing one change, the education team members need to keep the entire system in mind to anticipate and proactively address any

challenges that might be identified during each step of their implementation process. Finally, as change is being implemented for one student with SCD, change might not be occurring systemically for all students with SCD in the school, district, or state. Thus, the education team might want to consider determinant frameworks to assist in this systemic change process.

In addition to Nilsen's determinant frameworks, several similar frameworks emerged from the literature. In the special education and implementation science literature, the following determinant frameworks were mentioned:

1. understanding context (Dingfelder & Mandell, 2011; Johnson et al., 2018; Odom et al., 2014; Stahmer et al., 2018);
2. acknowledging climate and culture (Dingfelder & Mandell, 2011; Johnson et al., 2018; Locke et al., 2016; Lyon et al., 2018; Odom et al., 2014; Stahmer et al., 2018);
3. teaming to facilitate changes (Fixsen et al., 2013; Locke et al., 2016; Lyon et al., 2018);
4. aligning of change efforts with existing school improvement efforts (Bohanon et al., 2016; Sailor 2015);
5. identifying supports needed (Domitrovich et al., 2008; Goodman 2017; Odom et al., 2013; Sailor 2017);
6. defining the problem (Bohanon et al., 2016; Cook & Odom, 2013; Cook et al. 2013; Dingfelder & Mandell, 2011; Lyon et al. 2018);
7. collecting data (Bacon et al., 2011; Domitrovich et al., 2008; Johnson et al., 2018; Sailor 2017); and
8. building system capacity (Bacon et al., 2011; Cook & Odom, 2013; Cook et al., 2013).

These frameworks could be used as a step-by-step process guide for facilitating sustainable,

systemic changes.

Each of these determinant frameworks connect in a sequential manner and could also be grouped by the phases of implementation science. For example, understanding context and acknowledging climate and culture are part of the exploration phase. As a part of ongoing change efforts, it is critical to acknowledge the existing systemic context, without this understanding it would be difficult to fully understand how the system currently functions. Collaborative teaming, collecting data, and defining the problem are part of installing the change efforts. Collaborative team members are engaging in the change efforts and providing the support, data, and information about the problem. Aligning change efforts and identifying supports are integral pieces of initial implementation of change. Continuously building system capacity for change efforts relates to full implementation of an intervention, in this case study, the intervention being implemented is inclusive education practices. Viewing these changes through the lens of implementation science phases, assists in conceptualizing the determinant frameworks and how they translate into sustainable systemic change. Ultimately, determinant frameworks have the highest impact on implementation outcomes, therefore, for interventions to be implemented successfully understanding the overall context and these frameworks could lead to higher implementation fidelity.

Understanding Context

Johnson et al. (2018) explain that the existing contexts within a system must be considered during system change efforts, including the historical, instructional, implementation, and social contexts. For example, each of these contexts tells a story of how an organization historically functioned, how instruction is currently delivered, how ready the organization is to implement change, and how social factors impact change. Dingfelder and Mandell (2011)

discuss the *diffusion of innovation theory*; this theory is built upon the premise that all change efforts are context-dependent (p. 598). Further, they state that "...an innovation's reception is dependent on social context, which explains why proven-efficacious interventions are not used in community practice, while other interventions with minimal research support gain widespread acceptance" (p. 598). This diffusion of innovation theory explains how critical it is to address the existing context within an organization and brings to light how change efforts are largely a social phenomenon.

Another way to conceptualize context is through the understanding of inner and outer contextual factors (Stahmer et al., 2018). Inner contextual factors are made up of personalities, emotions, perceptions, and values. Examples of outer contextual factors would include funding, politics, infrastructure, and organizational capacity. Stahmer et al. found that when inner and outer contexts were linked together, they had more success in implementing multi-level systemic change. Since change efforts are context-dependent, it is imperative to understand that these inner and outer contextual factors shape the organization's ability to change. Further, linking inner and outer contextual factors creates the conditions necessary for change to occur; that is, these factors are not isolated variables. To understand the system, therefore, the entire context must be considered when implementing systemic change efforts.

Acknowledging Climate and Culture

The climate and culture are part of the context and have a significant impact on the organization, as well as on the perceptions of individuals in that organization (Domitrovich et al., 2008). As discussed by Domitrovich et al. (2008), "...culture influences the way things are routinely done in an organization, and reflects the norms, values, and shared beliefs or assumptions of the membership. In contrast, climate reflects an individual's perceptions" (p. 13-

14). Researchers agree that climate has an impact on the fidelity of implementing the intervention and the participants' willingness to change (Dingfelder & Mandell, 2011; Locke et al., 2016; Lyon et al., 2018; Odom et al., 2014; Stahmer et al., 2018).

Stahmer et al. (2018) describe key features to investigate regarding climate and culture when implementing systemic change. These key features include the background, attitudes, skills, and experience of teachers and leaders within the school, district, and/or state (Stahmer et al., 2018). Aarons et al. (2011) explains inner contexts (i.e., personalities, emotions, and goals) and outer contexts (i.e., funding, politics, and infrastructure and human capacity) that are essential for change efforts. The dynamic interaction between inner and outer contexts create the conditions that comprise the culture and climate of an organization. Additionally, Locke et al. (2016) suggest studying individual and organization level factors that assist in understanding attitudes, culture and climate, implementation climate, and leadership that impact implementation of evidence-based interventions. Similarly, Lyon et al. (2018) suggest that when implementing change efforts, it is critical to evaluate and survey stakeholders during the process to understand the organizational implementation climate.

Teaming to Facilitate Changes

Several researchers describe teams as greatly influencing systems change efforts, including leadership teams, implementation teams, and management teams (Fixsen et al., 2013; Locke et al., 2016; Lyon et al., 2018). Fixsen et al. (2013) describe *leadership teams* as existing in educational systems at all organizational levels (i.e., state, district, and school) and as being the dedicated decision-makers for creating a common vision and services that realize that vision. Lyon et al. (2018) state the importance of "...leaders being knowledgeable and able to articulate the importance of implementation and being supportive of staff, proactive in problem solving,

and perseverant [sic] in the implementation process" (p. 2).

Fixsen et al. (2013) describe implementation teams as comprising members who have "special expertise" and "are accountable for...assuring that effective interventions and effective implementation methods are in use to produce intended outcomes for children and families" (p. 215). As such *implementation teams* share a common vision and are responsible for developing services that reflect the desired change to realize that vision.

Consistent with Fixsen et al. (2013), Locke et al. (2016) mention that both leadership and implementation teams exist at multiple levels of the system. However, they define levels as comprising the organization level, the school level, and the individual level.

Finally, Fixsen et al. (2013) describe *management teams* as developing "policies and funding structures to enable the work of the implementation teams who are working with practitioners to use evidence-based programs" (p. 216). These management teams have expertise in the evidence-based practices to be implemented by practitioners, as well as strategies to facilitate the practitioners' implementation of change related to the EBP. The literature describes the need for leadership, implementation, and management teams to work together to ensure the best possible outcomes of change efforts in special education.

Defining the Problem

It is essential to define the problem before trying to change or adjust the system to implement a change. Lyon et al. (2018) suggest surveying stakeholders to understand the underlying context and problems. This assists in defining the context of the organization in which a change will be implemented and gives a fuller picture of how that organization functions. With this understanding, an intervention can be adapted as needed to be meaningful for the context where it is being implemented. Cook et al. (2013) discuss six features of

information that makes it memorable for stakeholders. That information should be: (1) uncomplicated, (2) surprising, (3) tangible, (4) believable, (5) heart-felt, and (6) based in personal experiences.

In addition to defining the problem, it is imperative to have clear definitions of the mission, vision, and values of the organization. Dingfelder and Mandell (2011) remind implementers that they must remain mindful of the core principles of the change effort. Defining the mission will assist teams in establishing mutual interest at multiple levels of the system (Domitrovich et al., 2008) by aligning policy and practice. Bohanon et al. (2016) also suggest that there must be alignment between the mission and the intervention for systemic change to occur within an organization. Defining the problem requires the collection of data within and across all levels of the system before, during, and after an intervention is put into place.

Aligning Change Efforts

Bohanon et al. (2016) and Sailor (2015) discussed the importance of aligning systems change efforts with ongoing school improvement efforts. This alignment allows the intervention to become an integrated part of all systems change efforts and, therefore, more likely to be implemented successfully, scaled up, and sustained. Bohanon et al. (2016) suggest three steps for implementation of change efforts:

1. Align the intervention within the existing mission and vision.
2. Build-in procedures and time for learning the intervention.
3. Organize the new intervention within the existing school culture.

If the intervention is not embedded into the existing system, it is likely that the change will neither be implemented effectively, nor permeate multiple systemic levels.

Identifying Supports Needed

Supports relate to the types of tangible assistance needed to make change possible, such as funding, professional development, and feedback (Domitrovich et al., 2008; Goodman, 2017; Odom et al., 2013; Sailor, 2017). In addition, McCart et al. (2014) suggest that education silos extend to include separate funding for general and special education. This results in "well-entrenched systems" that do not support the unified funding needed for general and special education to sustain inclusive practices (McCart et al., p. 253). To rectify this, Sailor (2015) suggests a braided funding approach that unifies general and special education funds at the federal and state levels. They argue that if change is to occur, it is necessary to redistribute resources; thus, allowing for systemic inclusive education change.

Odom et al. (2013) describe the need for intensive professional development prior to implementation, then continued technical assistance, coaching, and support to maintain an intervention. Types of training models provided should include pre-intervention professional development, mentoring and ongoing support, in-person training, and standardizing training and support (Domitrovich et al., 2008). Stahmer et al. (2018) created a training model by establishing a technical assistance training center with 3 state agencies, provided training and workshops once a year, and trained and supported districts and schools throughout the year. Similarly, Odom et al. (2014) suggested that coaching was a critical element of change efforts.

Goodman (2017) explains that implementation must move beyond model demonstration and become part of standard practice across stakeholders. He recommends coordinated support at the district and school levels, as well as an implementation feedback cycle which could be multi-level; that is, at the district level, leadership teams are given implementation support about how to disseminate information about an intervention, and at the school level, leadership teams are

given specific implementation support for the intervention itself. For example, a district might be given a set of training materials and examples of how that information could be implemented across the district. In contrast, the school personnel might be taught how to use the intervention throughout their school, making an impact on student achievement. Then, the school and district could have a feedback cycle to address the effectiveness of their systemic change effort and the intervention itself.

Collecting Data

To ensure an evidence-based intervention is implemented with fidelity, collecting data on the progress and outcomes of the intervention is imperative. Data collection can occur before, during, or after the intervention has been implemented, and data can be collected on the fidelity of implementation of the intervention and/or the performance of multi-level teams involved in the change process (Domitrovich et al., 2008; Sailor, 2017). Domitrovich argues that data should be collected at multiple levels of the system (e.g., state, district, school, and individual levels) to determine whether the implementation of an intervention meets the desired outcomes. Sharing data within and across levels of the system assists change efforts by disseminating information that prompts systemic change at each level. This information sharing promotes consistency in the implementation of an intervention at all levels of the system by gaining support from other implementers, informing requisite professional development activities, and modifying policies and procedures to align the intervention across levels.

Data collection before an intervention might take the form of a needs assessment (Bacon et al., 2011); that is, data that are based on what the current system requires to make changes happen or prioritized needs of existing personnel. Once those data are collected, leadership and implementation teams can begin planning how to address those needs. When data collection

happens during an intervention, it might monitor the fidelity of implementing the intervention, short-term effects of using that intervention, and outcomes of the intervention over time (Bacon et al., 2011). Johnson et al. (2018) discuss the importance of not only documenting and measuring fidelity and frequency of use of the intervention, but also participant characteristics, setting, climate, and teaming. Data collected after an intervention (e.g., implementing RBPs and EPBs listed above) has been implemented with fidelity for a period of time will assist teams to determine the overall effectiveness of the intervention. Another way to ensure the effectiveness of an intervention is to embed and align these efforts into the existing contexts.

Building System Capacity

Bacon et al. (2011), Cook & Odom (2013), and Cook et al. (2013) discussed sustainability as a core component of lasting systems change. Sustainability means that the change is an integrated part of the system and endures over time. To create sustainably, the existing literature agrees on several ways to build system capacity, such as funding mechanisms, integration of the intervention and mission of the organization, collaborative teaming, planning for change to occur, and communication among stakeholders. Sailor (2015) suggested ways to build system capacity, such as, braided funding that unifies general and special education funds at the federal/state levels, integrated behavioral and academic pedagogy across tiers of MTSS, and collaborative teaching. In 2017, Sailor proposed several more capacity building activities that would allow inclusive education change to occur. For instance, he suggested that if changes were made in resource distribution, collaborative teaching, creation of master schedules, use of peer supports, paraeducator usage, use of data, use of embedded instruction, and varied preservice teaching experiences, then changes could be sustained over time.

Similarly, Bacon et al. (2011) reported building capacity for the use of self-determination

practices and began by creating a resource, then they developed a state management team, planned for the future, changed policy and funding, and monitored communication and feedback cycles. These activities assisted in building the capacity of the organization, as well as enabling change to not only occur, but to become embedded within the system.

To build capacity, Dingfelder and Mandell (2011) suggest assessing outcomes over time, even after implementation or research supports are withdrawn, to ensure that the intervention is continuing as it was designed. They argue that teams will know if they achieved capacity building if the change is sustained without ongoing direct support. Such capacity building and sustained use of an intervention will be evident in changes in the behavior of teachers and leaders, the system's infrastructures, and relationships, as well as improved student outcomes (Fixsen et al., 2005).

Discussion

The purpose of this literature review was to present the field's knowledge related to: (a) conceptualizing how instruction can be organized, structured, and evaluated; (b) identifying and using inclusive education practices for students with SCD; (c) sustaining systemic inclusive education change and barriers to those changes; and (d) applying implementation science concepts to systemic change efforts in special education. In this Chapter, four approaches for conceptualizing the design and implementation of instruction in general education contexts were discussed, including multi-tiered systems of support, universal design for learning, opportunities to learn, and the use of research- and evidenced-based practices. Research and evidence-based practices focused on collaborative teaming, accommodations and modifications of curriculum content, instructional and social supports, the Self-Determined Learning Model of Instruction (SDLMI), and embedded instruction. Barriers to the use of inclusive education practices were

addressed, such as teacher preparation, leadership, attrition, and reinforcing feedback loops. Finally, the use of implementation science concepts related to special education were presented as ways of achieving sustainable systemic change.

In summary, the current educational system functions exactly how it was designed: that is, it is designed to perpetuate silos between general and special education that further impede sustainable systemic change, causing a deep rift between the two educational tracks that makes change seem to be impossible. Further, within the special education silo students with SCD are further segregated into separate schools and classrooms without access to evidence-based inclusive education practices or approaches. The system continues to incessantly move in these reinforcing feedback loops, reinforcing the ways in which the educational system was designed and continues to function. Thus, leadership and implementation teams must seek ways to use determinant frameworks for sustainable systemic change efforts. Teams must seek ways to: (a) understand the culture, climate, and context; (b) facilitate teams to create changes; (c) collect data; (d) define the problem; (e) align change efforts with existing school improvement efforts; (f) identify supports needed; and (g) build system capacity.

Conclusion

Of the literature about implementation science, there are only two studies related to inclusive education practices systems change for students with SCD (Sailor 2015, 2017). This reflects a major deficit in the research about implementation of inclusive education practices. Further research is needed to better understand the experiences of education systems engaged in efforts for sustainable systemic change related to the use of inclusive education practices for students with SCD.

CHAPTER III: METHOD

Despite the researched benefits of evidence-based inclusive education practices, there remains a disconnect between research and practice by denying access to general education classes for students with significant cognitive disabilities (SCD). There is minimal research related to the efforts of education systems to change their practices to facilitate the placement of students with SCD in general education classes (Agran et al. 2019; Ryndak et al., 2007). This also is evident in a review of the literature on the use of implementation science concepts and efforts to change special education services for students with significant cognitive disabilities (Lazarus et al., 2019). The current study was designed to better understand the experiences of education systems engaged in efforts for sustainable systemic change related to the use of inclusive education practices for students with SCD.

Qualitative Case Study: Research Design and Strategies

Since the 1970's case study methodology has gained popularity to understand educational changes more deeply (Hamilton & Corbett-Whittier, 2014). Due to the complexity of sustainable systemic change in education, case study methodology has been used because it assists in explaining systemic change efforts in the participants' own words and interpretations of both the change efforts and their impact on practice. Using participants words and interpretations assists the primary investigator in understanding the big picture and the impact from stakeholders' point of view. Merriam and Tisdell (2016) describe a case study as being a "bounded system" of information, with a case being an example of "some phenomenon, a program, a group, an institution, a community, or a specific policy" (p. 38). Case studies allow researchers to more deeply explain, explore, or describe how change is occurring within the context of the "case" or system (Hamilton & Corbett-Whittier, 2014).

The Principal Investigator (PI) used qualitative methods to conduct a case study of one school district engaged in a multi-year process to facilitate sustainable systemic change related to increasing the use of evidence-based inclusive education practices for students with SCD. For this study, case study methodology will address two research questions:

1. What did one school district do to address the need for sustainable systemic change related to the inclusion of students with SCD in general education classes?
2. What was the impact of these efforts on students, their families, instructional personnel, and administrators?

Participant Identification

Participants for this case study were identified in two steps. First, a school district that was engaged in sustainable systemic change efforts related to evidence-based inclusive education practices for students with SCD was identified. Once the school district was identified, individual participants who were engaged in the district's change efforts were identified, including instructional personnel, administrators, and district personnel.

School District Identification

To identify a relevant school district, the Principal Investigator contacted the TIES Center (www.TIESCenter.org), a national technical assistance center on inclusive education practices and policies for students with the most SCD funded by the U.S. Office of Education, Office of Special Education Programs. The Principal Investigator worked with the TIES Center to identify a school district currently engaged in sustainable systemic change efforts related to the use of inclusive education practices for students with SCD. The district applied for the TIES Center assistance, demonstrating district level buy-in for sustainable systemic change for inclusive practices.

Individual Participants

Through convenience and snowball sampling, participants who played a major role in the district's sustainable systemic change efforts were identified based on their knowledge of and engagement with those efforts. The Principal Investigator worked with the Director of Special Education and TIES Center personnel to identify and contact relevant instructional personnel, administrators, and district personnel. After potential participants are identified, a recruitment letter was emailed by the district's Director of Special Education.

In total there were 12 participants in this case study. Participants in this study were instructional personnel, district personnel and administrators, and external partners. Though several attempts were made, no student or family members were included in the study. Instructional personnel included in the study were engaged in providing services for students with SCD whose services were changed through the school district's change efforts and were contacted by district personnel as potential participants. Instructional personnel included two special teachers and two general education teachers. Administrators included district-level administrators (e.g., director of special education (n =1), district coach (n =1), curriculum specialist (n =1), director of middle school programming (n =1), assistive technology specialist (n =1), and two district special education supervisors). External partners included one member of the TIES personnel. Pseudonyms are used for each participant, each school, and the district.

Table 2. Participant Data Table

Participants by Type	
District Supervisor	1
District Content Specialist	1
District Special Education Supervisors	2
District Middle School Supervisor	1
District Equity Coach	1
District Assistive Technology Specialist	1
Special Education Teachers	2
General Education Teachers	2
TIES Center Personnel	1
Total	12

During the recruiting process, the participants were asked to identify other individuals who played a major role in the school district's change efforts and who could contribute additional perspectives on those efforts. If a participant suggested additional individuals, the Principal Investigator asked that participant and/or a district or school administrator to forward the recruitment information to the additional potential participants. Per the UNCG Snowball policy, to maintain confidentiality, potential participants were contacted through the school district and given information about the study, contact information for the Principal Investigator, and a request to call or email the Principal Investigator if they were interested in participating in the study.

Data Types and Collection

Qualitative data was collected through conducting interviews and reviewing documents (e.g., the ROXIE, meeting minutes, work sample collection). Additionally, data were collected

by organizing and reviewing quantitative data collected through the district's change efforts (e.g., data on student placement, services, and outcomes; survey results; see Appendix B).

Qualitative Data

Qualitative data consists of interviews and document collection. Each of these types of data are explained in detail in the following sections.

Interviews. The Principal Investigator scheduled semi-structured individual interviews with each participant. Interview questions focused on their involvement in, and perceptions of, the school district's efforts related to sustainable systemic change in the use of evidence-based practices for students with SCD (see Appendix A for questions). Specifically, interview questions addressed: (a) their experiences about the change process; (b) the impact of these changes; (c) tools, instruments, and resources they used; and (d) their overall reflections about the school district's change efforts and process.

Interviews were conducted in one of two ways. First, when feasible and preferred by the participant, their interview was conducted face-to-face in a private location (e.g., school district conference room; school office) of the participant's choice. Second, when a face-to-face interview was not feasible or not preferred by the participant, their interview was conducted virtually using an electronic platform (e.g., Zoom).

Regardless of the way an interview was conducted, each interview was recorded using both video and separate audio recordings. The audio recordings were used as a backup to the video recording. Both recordings were captured on secure, password-protected devices. The two formats were used to ensure the content was captured completely. The video recording then was transcribed verbatim. Once the video recordings were safely uploaded into a password protected file (e.g., Box) the audio recordings were deleted. The Principal Investigator used Rev.com (i.e.,

a confidential and secure web-based company that transcribes from voice or video to print) to transcribe the interviews. All transcribers employed by Rev.com sign non-disclosure and confidentiality agreements. To maintain the confidentiality of the participants, the Principal Investigator used only voice recordings when submitting to Rev.com. All interviews were de-identified, and participants can access data after it has been de-identified. Once the content is verified, the transcript was sent to the participant. The participant read the transcript to ensure that the transcript accurately reflects the information they wanted to share. As they read the transcript they could edit, delete, or change it to make sure that it is accurate.

Documents. Documents often are used in qualitative research as an additional source of information (Merriam & Tisdell, 2016). This study used documents that informed the understanding of the district culture and change process. The documents included a system reflection tool (e.g., ROXIE), minutes from meetings, work samples, and district action plans. These documents further illustrate the systemic change efforts that occurred related to evidence-based inclusive education practices for students with SCD.

Reflection on an Inclusive System of Education. The Reflecting on Opportunities for Excellence in Inclusive Education (ROXIE) is a set of tools designed to assist state, district, and school teams as they reflect on their current inclusive education practices. To develop this inclusive education tool, a team of national experts and graduate assistants conducted a review that covered 50 years of peer-reviewed literature on inclusive education practices for students with SCD, textbooks focused on evidence-based inclusive education practices for students with SCD, systems change models, and other instruments developed by state departments of education and previous projects focused on inclusive education systemic change for students with SCD. Systems change models were identified by a review of tools used by the National

Implementation Research Network (NIRN) and the State Implementation and Scaling-up of Evidence-Based Practices (SISEP). These models derive from the literature on implementation science. Other instruments include tools used by state departments to improve inclusive education practices in their schools; a review of these tools produced 551 indicators to sort and categorize. From these data, teams reviewed each indicator identified from the research, then sorted and categorized them. The categories and indicators were reviewed by university personnel; state, district, and school leaders; and teachers for content validity. The pilot-tested tool included five focus areas: (a) values and climate, (b) placement and settings, (c) general education curriculum content and access, (d) instructional practices, and (e) education systems. Leadership teams at the state, district, and/or school levels used the ROXIE to inform action planning at the state, district, school, and educational team levels.

The ROXIE is a process-focused tool that facilitates leadership teams having thoughtful conversations around current practices, policies, and structures related to systemic inclusive education practices. The ROXIE was used by the TIES Center, the state department of education, the district, and schools to assist in the identification of areas of need and strength and use that information to create an action plan that addressed system-level actions, processes, and structures that needed to create sustainable systemic change. Documentation from this reflection tool gave information about a district's and/or a school's understanding of their system prior to intervention and the subsequent prioritization of change efforts in the district.

Meeting Minutes. Minutes are notes taken that describe what was discussed, decided upon, and voted on during meetings. These informal minutes include state, district, and school meeting minutes written during professional learning team meetings. Meeting minutes have been collected as a part of the ongoing sustainable systemic change efforts related to evidence-based

inclusive education practices for students with SCD.

These meeting minutes provided insight into decisions made about the use of inclusive education practices and actions taken by members of the team to increase their use. Minutes included information about planning instruction or instructional strategies for students with SCD. They contained information about training or support needed to implement inclusive education practices for students with SCD.

Work Sample Collection. Work samples were collected from students in inclusive education classrooms, to illustrate changes in inclusive practices since the implementation of the systemic change process. These samples included class assignments, rubrics, informal and formal assessments, and documentation of progress towards IEP goals. Work samples were compared to look at age/grade appropriateness and whether the concepts were the same as that of their grade-level peers, even if the materials were modified or adapted for accessibility or to prioritize a single concept. Additionally, student accessibility to the general education curriculum was gauged from work samples, including measures of student learning (e.g., pre/post assessments, rubrics, and classroom-based assessments; See Appendix C).

District Improvement Plan (DIP) Data. Once a year, the district created an improvement plan to target the specific goals to be achieved during the school year. Data were routinely collected on the DIP to gauge if the goals have been met. The DIP data were in alignment with the state's strategic plan and data. DIPs are data-driven documents and contain data to determine if the objectives in the plan are being met.

In the districts working with the TIES Center, the school and district improvement plans were accessible online; the district gave the Principal Investigator full access to their shared drive. The targeted district's DIP was centered around the implementation of inclusive education

practices for students with SCD.

Quantitative Data

Data collection is a routine part of the implementation of sustainable systemic change efforts, specifically for measuring the development of new programs, tracking progress, and the fidelity of implementation of EBPs (Bohanon et al., 2016). This study includes numerical data collected and organized by the school district and schools, including, Least Restrictive Environment (LRE) data, Membership, Participation, and Learning (MPL) data, demographic surveys, and classroom snapshot data. As necessary, the school district personnel made all data anonymous before sharing it with the Principal Investigator.

Least Restrictive Environment (LRE) Data. The district annually collected data about student placements in the LRE; that is, data that reflects the percentage of the day that students with disabilities spend with their peers in general education settings. Special education services are based on a continuum of placement options. The LRE placements are based on the amount of time a student with a disability spends in general education settings and are broken down into three categories, listed here from least to most restrictive: 80% or more of the day in general education (LRE A), 40-79% of the day in general education (LRE B), or 39% or less of the day in general education settings (LRE C; IDEA, 2004). These data were disaggregated for the placement of students with SCD at the state, district, and school levels.

The LRE data were reviewed in conjunction with grade, disability category, gender, and level of placement. These data indicated changes in placements over time from when the district began systemic change efforts with the TIES Center. Interpreting the LRE data assisted in analyzing the impact of the district's systemic change efforts.

Surveys. A survey is a quantitative analysis of data obtained by asking respondents questions predetermined by researchers (Blair et al., 2014). Surveys can be conducted in a multitude of ways (e.g., in person, on the phone, or through the internet). Generally, demographic surveys give basic information about respondents, such as gender, age, and ethnicity.

In this case study, a survey was created by the Principal Investigator (PI) using Qualtrics©, a web-based survey platform. This survey was used to supplement interview information from the participants. A survey was conducted prior to the interviews and integrated consent forms. Participants were asked to complete a demographic survey with basic demographic information: (a) their role in the district; (b) their position title; (c) job responsibilities/duties; (d) years in that position; (e) total years in education; (f) gender identity; and (g) ethnicity. The participants had the option to skip questions they do not wish to answer. The Principal Investigator also obtained permission to interview participants through the survey.

Classroom Snapshot Data. Observations occurred over the past 3 years by the school district Assistant Supervisors of Special Education and Equity Coaches using a classroom snapshot tool to identify the frequency and fidelity of evidence-based inclusive education practices, as well as student progress. Assistant Supervisors of Special Education and Equity Coaches were trained on the use of the classroom snapshot (i.e., an observation that lasts 15 minutes). The TIES classroom snapshot included classroom-level data about evidence-based inclusive education practices (e.g., co-teaching, explicit instruction, flexible grouping, technology, positive/corrective feedback, scaffolding, time delay, extended wait time, prompt hierarchy, graphic organizers etc.) using a time sampling protocol (e.g., each 45 second interval for the focus student who has SCD, 15 seconds to record data, thus creating a 1-minute interval).

At the end of the snapshot, the data collector had 15 data points per observation. Additionally, when completing a classroom snapshot, the observer collected artifacts (e.g., instructional plans, schedules, materials) to support the observations.

The Principal Investigator assisted in creating the tool and was trained by TIES personnel to conduct the classroom snapshot data. Data were collected in several target categories (e.g., AAC accessibility, communication supported, instructional EBP, specially designed instruction, engaged in general education curriculum, participation in class routines, and interactions with whom; see Appendix D) through classroom observations in the district. These data were used to determine categories for which there was facilitation of sustainable systemic change related to increasing the use of evidence-based inclusive education practices for students with SCD. This classroom snapshot data illustrated the current use of EBPs.

After interviews, documents, and data were collected, the Principal Investigator began the data analysis protocol.

Data Analysis Protocol

The interviews were recorded, transcribed, and member-checked for validity of content. Coding was completed by multiple researchers to maximize dependability, credibility, and confirmability. To analyze the data, the Principal Investigator used deduction, induction, and reduction processes to identify and reduce Themes that uncover the essence of the phenomenon across interviews, documents, and data. In vivo coding was used to analyze the data. In vivo coding uses the participants' own words to describe a phenomenon (Merriam & Tisdell, 2016). The participants have been facilitating sustainable systemic change related to inclusive education practices for students with SCD, thus in vivo coding is appropriate for this study. The interview transcripts and other qualitative data were analyzed through thematic analysis, and the

quantitative data were analyzed through descriptive statistics.

Thematic Analysis of Qualitative Data

Information across all sources of data were analyzed using thematic analysis. "Thematic analysis is a method for identifying, analyzing, and reporting patterns (Themes) within data" (Braun & Clarke, 2006, p. 79). The Themes that emerged captured recurring ideas or patterns from the data collected and eventually became the data set for this case study. Braun and Clark (2006) suggest six phases of thematic analysis:

1. Get to know the data.
2. Create codes.
3. Find Themes.
4. Examine Themes.
5. Thoroughly explain or define Themes.
6. Write up the results.

This process was used by the primary investigator to conduct the thematic analysis.

Thematic analyses across all data types (i.e., interview transcripts and qualitative data) was conducted to increase the validity of the study (Silverman, 2020). After reading the qualitative data multiple times, the Principal Investigator identified and defined main topics included in the data and developed a list of primary in vivo codes that reflected those topics. The Principal Investigator then created a list of sub-topics discussed within those primary codes, developed a code for each sub-topic, and defined each sub-topic and its related code. Once these topics were identified, the primary investigator looked through the documentation with these topics in mind. Triangulation of topics emerged, and the documents supported the coding of the interview topics.

The Principal Investigator used these codes to identify sections of the qualitative data that were related to the topics and sub-topics, and then used Atlas.ti©, (i.e., a computer-based qualitative analysis software), to sort the qualitative data into sets of content with identical codes.

Once the content was sorted into the topics and subtopics, each set of content was analyzed. Specifically, an initial analysis of each set of content per topic and subtopic was read multiple times to identify Themes that emerged from the qualitative data. The Principal Investigator then continued to read and reread content per topic and subtopic to verify and/or refine the Themes that emerged until saturation of the data has been reached and topics have been solidified (Silverman, 2020).

Descriptive Statistics of Quantitative Data

The quantitative data was summarized through descriptive statistics related to LRE data, survey data, and classroom snapshot data. Howell (2012) discusses the use of descriptive statistics as calculating the average (mean), frequency (mode), range, and standard deviation. Descriptive statistics are useful in describing data using graphs and tables, making it easier to see patterns.

LRE data was graphed to visually demonstrate changes over time. Survey data provided demographic information about participants in the study. Classroom snapshot data were used to summarize interval recording data on several target categories (e.g., AAC accessibility, communication supported, instructional EBP, specially designed instruction, engaged in general education curriculum, participation in class routines, and interactions with whom; see Appendix D). These data were converted into percentages of intervals during which a set of behaviors occurred. For example, of the 15-minute observation, the student was engaged in instruction on

the general education curriculum 9/15 minutes or 60% of the time. These data were compared and analyzed for changes in each target category across teachers and settings to see if change occurred. Unfortunately, due to the last-minute scheduling of my trip to the district, I was unable to train another person to collect inter-rater reliability data on my observations. This will be further discussed in the limitations section (See Chapter 5).

Analysis of Qualitative and Quantitative Data

The Principal Investigator identified activities the district had already completed, as well as activities they plan to complete, to ensure that changes are occurring, that those changes are systemic throughout the district, and that those changes are sustained in the long-term. To determine if such changes are occurring in this district, **t**he Principal Investigator triangulated data from multiple sources. Specifically, the Principal Investigator reviewed and compared data related to placement, systems, processes, structures, policies, use of evidence-based inclusive education practices, and student engagement.

Trustworthiness of the Study

Quantitative Data

Quantitative data was determined trustworthy if these data are both reliable and valid. To ensure reliability and validity, the Principal Investigator made sure results are consistent and accurate as well as verify data with a second researcher (e.g., doctoral student).

Reliability

Reliability is when the quantitative data collected is consistent over time and trustworthy. In this case study, reliability was addressed through creating a sound methodology with the ability to replicate the study. For example, if another researcher attempted this study, the quantitative findings would be the exact same. Excel was used for organizing all quantitative

data and calculating the relevant descriptive statistics. These data were verified for accuracy by a second researcher (e.g., doctoral student, faculty member).

Validity

Validity is when the research conducted accurately represents what is being measured in the study. In this case study, the quantitative data included, LRE data, budget information, demographic surveys, and classroom snapshot data. These data demonstrated the efforts of the district to create systemic changes throughout the district and that these systems can be maintained long-term.

Qualitative Data

In qualitative research, the trustworthiness of a study is contingent upon dependability, credibility, confirmability, and transferability of the data to address reliability and validity (Merriam & Tisdell, 2016). This section addresses each of these facets.

Dependability

Merriam and Tisdell (2016) define dependability as consistency in the interpretation of qualitative data. For this study, dependability was addressed by intercoder agreement of the interviews and data verification.

Intercoder Agreement. The two researchers used Saldaña's process of first and second cycle coding (2016). In the first cycle of coding, the primary researcher read and reread the documents until saturation was reached, and codes emerged. The primary researcher made preliminary codes and a code book then began to define the codes. Then, one interview was sent to a second researcher for confirmation and refining of those codes. The researchers met on numerous occasions to discuss and redefine the codes. They realized that some codes needed to be operationally defined and some codes needed to be added. For example, "champions/leaders"

was not an initial code, however, it was added when the researchers discussed the need for this distinction. Second cycle coding began after the codes were refined, the two coders separately coded and discussed four of the twelve interviews. For any sections of coded content on which the researchers did not agree, they discussed the content and their interpretation of the meaning of that content until they reached agreement about the relevant code(s) to be assigned to that content. This process continued until there was an agreement of 100% on all sections of the coded content.

Credibility

Credibility is defined as the data being perceived as believable and accurate (Merriam & Tisdell, 2016). In this case study, credibility was addressed for both qualitative and quantitative data sources.

Qualitative Data Credibility. To address the need for credibility in relation to transcripts, Weaver-Hightower (2019) suggests the use of member checks; that is, having each participant scrutinize and verify the content of their own transcript, to increase the credibility of a study. In this study, all participants had the opportunity to member-check their own transcript; that is, (a) the Principal Investigator sent the completed transcript to the corresponding participant; (b) teach participant read their own transcript to verify the accuracy of both the content and the meaning they wanted to convey; (c) each participant edited their own transcript and send it back to the Principal Investigator. This member-checked and edited transcript was the version used for analysis. This member checking process ensured that the Principal Investigator accurately transcribed the words of each participant, and that the transcription accurately reflects the intended by each participant. All twelve interviews were member checked by the participants in the study.

Confirmability

Confirmability is defined as the data being validated by multiple data sources (Merriam & Tisdell, 2016), referred to as data triangulation by Weaver-Hightower (2019). To address the need for confirmability, the Principal Investigator collected data from various sources including interviews, qualitative data, and quantitative data. These sources were analyzed by thematic and statistical analyses to determine the extent to which the data can be verified across each source (Silverman, 2020). It was crucial to obtain these data, to analyze these data, and to determine whether there was alignment across the interviews, qualitative data, and quantitative data and the sustainable systemic changes related to increasing the use of evidence-based inclusive education practices for students with SCD. This was part of the triangulation process. The triangulation process demonstrated similar Themes, topics, and consistent data reported across sources. In addition to triangulation across sources, there was triangulation across participants, as illustrated by Sankey Diagrams, which are visual representations of data that show the "flow" and "connection" of information across categories (Atlas.ti © Manual; Dr. Friese; See Figure 3).

Transferability

Merriam and Tisdell (2016) define transferability as the ability to generalize information or findings from one context to another. The findings in this case study relate to the experiences of these participants from one school district in one state, therefore the findings are not transferable to other participants in other school districts or states. To increase transferability, additional studies about this topic need to be conducted. To address issues of transferability, the Principal Investigator shared results with a national expert in sustainable systemic inclusive school change for students with SCD, as well as consulting the literature of implementation science that has been shown to be effective in building sustainable change in other contexts

(Metz et al., 2015; Odom et al., 2013), and noted consistencies in this district's change efforts and other districts.

Ethical Considerations

With support from the TIES Center, the Principal Investigator contacted the Director of Special Education for this district and obtained a letter of agreement. The Principal Investigator submitted an application for this study to the Institutional Review Board (IRB) of the University of North Carolina at Greensboro. The approval from the IRB was granted to investigate the school district's multi-year facilitation of the development of inclusive education services for students with SCD in their school district. Because of its ongoing collaboration with the TIES Center, the school district identified schools, teachers, and district personnel who were engaged in this ongoing project. From those participants, the school district identified schools, teachers, and district personnel who fit the eligibility criteria for participation in this study. The Principal Investigator contacted eligible participants and sought their consent for participation in this study. The Principal Investigator and supporting researchers completed the requisite CITI training modules and certifications required by UNCG before the research started.

Informed Consent and Confidentiality

The Principal Investigator discussed the study, answered questions, discussed any benefits and risks, and provided the UNCG IRB approved consent forms (See Appendix) for each eligible participant. Potential participants were not required to participate in the study. In addition, any individual who agreed to participate in the study could choose to leave the case study at any time without affecting them. If a participant opted-out of the study, the information gathered from them would have been deleted from all records, but this did not occur.

All data provided by the school district was de-identified prior to being given to the

Principal Investigator to maintain confidentiality. Information related to all adults and children used either numbers or pseudonyms to maintain confidentiality.

Deductive disclosure of participants' identity was avoided by de-identification of all data, including participant qualitative and quantitative data. Any hard copies of data received by the Principal Investigator are stored in locked storage equipment (e.g., file cabinet), and electronic data is stored on a password projected UNCG BOX file. Only the Principal Investigator and supportive researchers have access to the de-identified data. Data will be kept for up to 7 years and after this time will be destroyed using the Eraser program.

Researcher Role and Positionality

As Rowe (2014) states, "Positionality refers to the stance or positioning of the researcher in relation to the social and political context of the study—the community, the organization or the participant group (p. 628)." Currently, the Principal Investigator is engaged with the TIES Center in Maryland under the direction of Dr. Ryndak. The development of tools for the TIES Center has been a huge focus of her doctoral studies. The Principal Investigator acknowledges her vested interest in the outcomes of this research. As a researcher who is deeply involved in trying to understand the sustainable systemic change of a multi-level system changing their practices for students with significant cognitive disabilities, she desires for this research to demonstrate favorable outcomes. The Principal Investigator also realizes that she is still learning about systemic change processes and have to be open to new ideas, thoughts, and actions of the individuals involved.

The Principal Investigator's position as a researcher is to observe, reflect, and ask questions. Her position as a student is to develop the tools, processes, and literature searches relevant to the changes being made to services and the change process, overall. She

acknowledges her bias and preference towards educating students with SCD in general education settings. This is important because she already believes that the identified changes to services for students with SCD are expected, believable, and possible. This desire to make sustainable systemic changes in services is interwoven with her perceptions of the phenomenon occurring within this study; that is, efforts for sustainable systemic change. The Principal Investigator cannot "bracket," or set aside, her desire for the district collaborative work with the TIES Center to be a success, because she has been working diligently over the past several years to ensure the success of this work (Merriam & Tisdell, 2016, p. 27). This lens impacts her understanding and interpretation of both qualitative and quantitative data, but her hope is that this lens also makes a powerful contribution to understanding how sustainable systemic change occurs in our field.

Though the Principal Investigator has stated her positionality, she would like to acknowledge that this research did produce favorable outcomes for students with SCD. The impact of these change efforts was illustrated throughout this case study and reiterated in multiple ways, particularly in the participant's description of: (a) access to the general education curriculum content; (b) instructional practices; (c) placement of students in general education contexts; (d) student and system outcomes; and (e) values and climate reflected across settings. The impact and sustainability of these change efforts demonstrate that this research goes beyond her personal lens and extends to the reality that was discussed, documented, and observed.

CHAPTER IV: RESULTS

In this case study, the district began transitioning to inclusive practices in 2017. The district documents, data, and interviews were collected to answer two research questions related to this transition:

(a) What did one district do to address sustainable systemic change related to the inclusion of students with SCD in general education classes?

(b) What was the impact of these efforts on students, their parents, instructional personnel, and administrators?

The results of this case study are organized by themes and subthemes that emerged from the documents, data, and interviews collected. These themes and subthemes describe the sustainable systemic change efforts of one school district, as well as the impact of these efforts on students, parents, instructional personnel, and administrators. Each Theme emerged from the interviews of each participant and was corroborated through district documents reviews. The first three Themes and the subsequent Subthemes closely address issues related to the first research question, such as multi-level change, catalysts for change, change processes, and sustainability. The last theme and the subsequent subthemes address the second research question related to the impact of change efforts.

Theme One comprises the varying extent to which facilitation of sustainable systemic change for inclusive education practices was evidenced within the multiple levels of the education system, when initiating discussions about the need for change, implementing change, and evaluating the impact of change. Theme Two describes the role, focus, and combination of external support, and the existence of internal champions, within the multiple levels of the education system that acted as catalysts for the implementation of sustainable systemic change.

This theme is broken into two subthemes. Theme Three comprises six subthemes and addressed facilitative processes that were collaboratively identified, planned, and implemented at multiple levels of the system to address the need for sustainable systemic change related to the inclusion of students with SCD in general education classes.

Theme Four explains the commitment to sustainability embedded within the multi-level systemic change effort, with an initial understanding of implementation science. Viewing the sustainable systemic change process for inclusive education practices through the implementation science stages is used to understand the district's change process both conceptually and chronologically. Theme Five explains the impact of the change efforts across multiple levels of the education system on students, their parents, instructional personnel, and administrators. It comprises subthemes that address the impact for key stakeholders related to curriculum access, instructional practices, placement, outcomes, and climate.

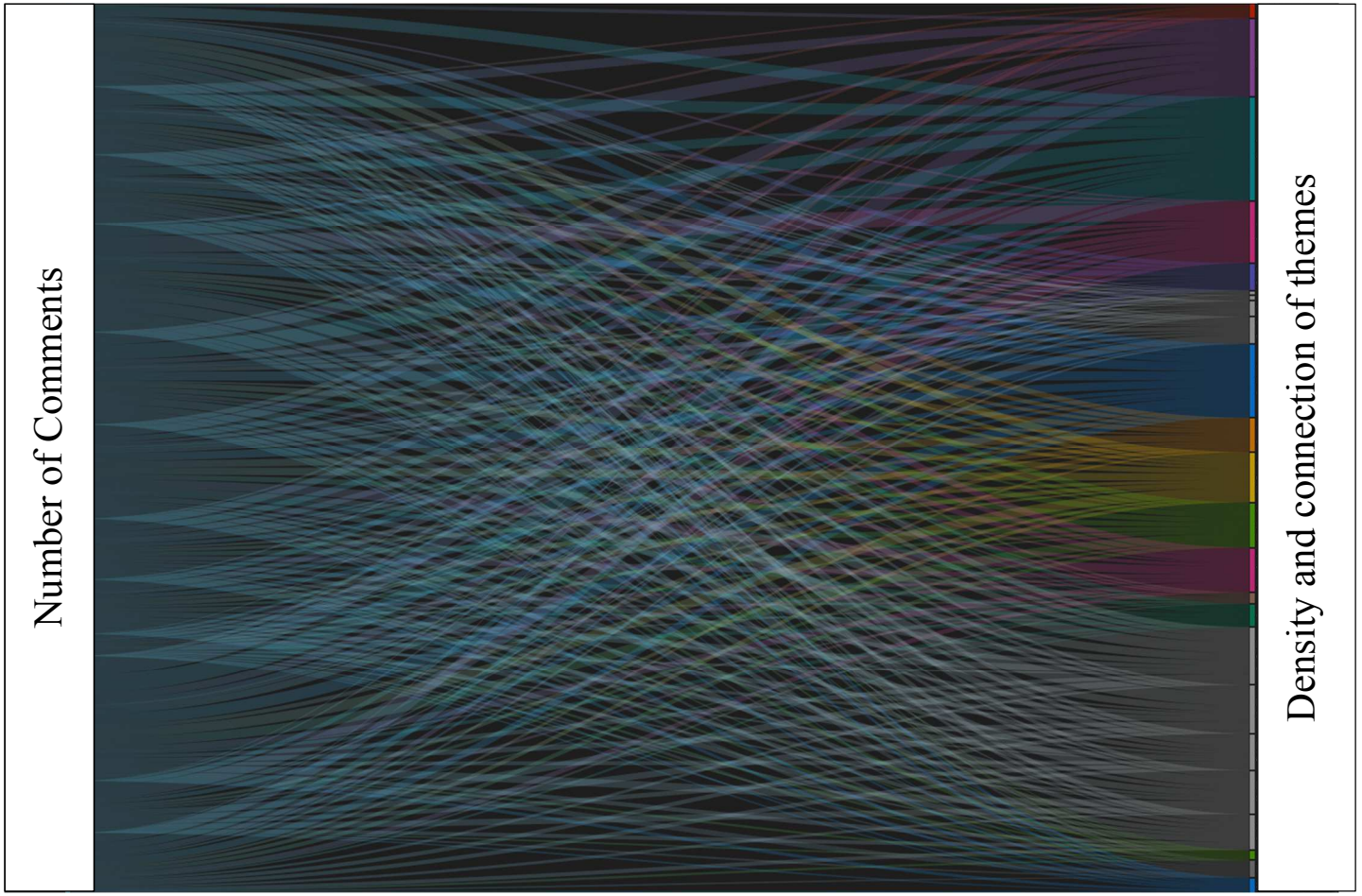
In total, 12 participants were interviewed, including seven stakeholders from the district, two general education teachers, two special education teachers, and one person from the TIES Center. The district collected all their documentation in an online, cloud-based system, and granted the researcher access to this documentation. Table 3 represents the themes and subthemes that emerged across participant interviews and were supported by district documents (e.g., action plans, meeting minutes, student work samples) and classroom observations. Table 4 represents the district documents and their alignment to the research questions. For documentation, the PI shared the research questions with the district and asked them to share any documents they had used throughout the change process. The PI reviewed and considered what each document could inform related to research questions.

Table 3. Themes and Subthemes by Participant

	Dist 2	Dist7	Dist6	Teach2	Dist4	Dist1	Dist5	Teach1	Teach4	TIES1	Teach3	Dist3	Totals
Theme One: Multilevel Teams													793
State Level	1	2	4	0	7	14	4	0	1	10	1	1	45
District Level	7	24	36	6	33	24	21	3	0	51	3	31	239
School Level	32	31	24	35	46	16	18	16	7	55	13	23	316
Classroom Level	3	5	2	50	14	8	16	16	7	22	38	12	193
Theme Two: Catalysts													247
Champions and Leaders	12	8	5	15	7	6	4	6	1	14	0	5	83
State Department of Education	1	1	1	0	1	8	3	0	1	1	0	0	17
Parents	1	3	5	1	0	2	0	1	0	2	0	0	15
Student outcomes and Data	9	2	3	5	3	7	5	5	2	6	2	0	49
The TIES Center	3	13	11	4	11	6	7	0	1	20	2	5	83
													796

Theme Three: Facilitative Processes													
Establish Multiple Collaborative Teams	22	16	19	27	26	23	10	12	6	33	11	20	225
Build commitment, Vision, Shared Understanding	16	11	8	14	4	20	6	11	3	10	0	5	108
Reflect on Practices and Identify Needs	24	10	8	8	15	21	8	11	4	28	7	9	153
Provide Relevant Professional Development	17	9	5	16	14	14	12	6	3	26	6	10	138
Use Tools and Action Planning	19	12	14	4	9	25	12	5	6	16	4	11	137
Allocate Financial Resources	5	3	3	0	2	14	0	2	1	2	0	3	35
Theme Four: Overall observations and thoughts	1	2	1	3	7	1	4	4	1	3	1	3	31
Theme Four: Sustainability	6	4	6	1	4	6	6	2	1	6	1	4	47
Theme Five: Impact of Change													679
Access to General Ed Curriculum Content	17	13	17	32	23	15	11	16	3	10	17	5	179
Instructional Practices	7	8	9	38	19	5	10	10	5	12	15	9	147
Placement and setting	11	10	18	12	11	7	1	12	2	8	10	9	111
Student/System Outcomes	10	3	8	29	11	18	6	7	2	19	15	5	133
Values and Climate	14	8	2	12	11	13	9	13	2	9	8	8	109
Totals	238	198	209	312	278	273	173	158	59	363	154	178	2593

Figure 3. Sankey Visual of Overlapping Data, Themes, and Subthemes



Note. In the left-hand column is each participant. The right-hand column are all of the Themes. The lines demonstrate that each participant discussed each theme. Figures 3 through 8 represent Sankey diagrams, which are visual representations of data that show the "flow" and "connection" of information across categories (Atlas.ti © Manual; Dr. Friese)

Table 4. Documentation for Research Questions

	Research Question 1			Research Question 2		
	Systemic	Sustainable	Change	Student impact	teacher	family
Interviews	x	x	x	x	x	x
Agendas & minutes	x	x	x	x	x	x
Work samples	x	x	x	x	x	x
Professional development materials	x		x	x	x	x
Action plans	x	x	x	x	x	x
Budget info	x	x	x	x	x	x
Class schedules	x	x	x	x	x	x

Note. Any rows that are greyed out represent data that was requested but not received. The PI requested budget information but was unable to access that data. Due to the prolonged impact of the COVID-19 pandemic on families, the PI requested interviews with families, but was unable to successfully gain contact to family members to interview.

Theme 1: At varying degrees within the multiple levels of the education system, facilitation of sustainable systemic change for inclusive education practices was evidenced when initiating discussions about the need for change, implementing change, and evaluating the impact of change.

In this case study, the district's discussion and documentation (e.g., meeting minutes; action plans) of their multi-level change process refers to their efforts to make systemic sustainable changes related to the use of inclusive education practices. The multi-level change process was discussed by 100% of the participants, with a total of 793 references across the interviews. Among the participants, the distribution of comments about change efforts across the multiple levels varied (See Table 5.) Interviewing state personnel was beyond the scope of this study, however, participants mentioned state personnel. Participants spoke least often about the engagement of the state department of education (n = 45 quotes) and classroom level personnel (n = 193) in the multi-level change process. In contrast, participants spoke most frequently about the engagement of district personnel (n = 239 quotes) and school level personnel (n = 316 quotes) in the multi-level change process. While this illustrates perceptions of engagement in the multi-level change process at all levels of the system, it also illustrates that participants perceived the degree of engagement in the change process differently at the state, district, school, and classroom levels of the system.

District and TIES Center personnel most frequently discussed change at the state level, while teachers least frequently discussed the state level engagement; however, changes at the state level were least discussed by all participants. Changes at the school-level were most frequently discussed by participants, followed by changes at the district level, and then classroom level.

Table 5. Frequency of Comments per Participant of the Multilevel Systemic Change Process

	Dist2	Dist7	Dist6	Teach2	Dist4	Dist1	Dist5	Teach1	Teach4	TIES1	Teach3	Dist3	Totals
State Level	1	2	4	0	7	14	4	0	1	10	1	1	45
District Level	7	24	36	6	33	24	21	3	0	51	3	31	239
School Level	32	31	24	35	46	16	18	16	7	55	13	23	316
Classroom Level	3	5	2	50	14	8	16	16	7	22	38	12	193
Totals	43	62	66	91	100	62	59	35	15	138	55	67	793

Figures 3 through 8 represent Sankey diagrams, which are visual representations of data that show the "flow" and "connection" of information across categories (Atlas.ti © Manual; Dr. Friese). Sankey diagrams display the density of data for each category. As seen in Figures 3 through 8, the density of the data varies at the state, district, school, and classroom levels. The density of the data supports the conclusion that change efforts were discussed minimally at the state level (See Figure 4). In contrast, the density of the data at the school and district levels indicates that participants discussed school and district engagement in the change process most frequently. The density of these data is consistent with comments from participants, such as the following:

> We benefited more from [the formalized reflection and change process] at the district and school levels than we did at the state level…I think the bigger changes occurred first at the district level, [and] having conversations about those changes [led to additional changes] that we could make.

The overlap of data in the Sankey diagrams indicates a spread across all levels of the education system, demonstrating that changes were discussed as occurring at all levels of the system. Further, these figures visually represent the engagement for systemic sustainable change for inclusive education practices that occurred at multiple levels of the education system.

Figure 4. State Level Sankey Diagram.

Representation of the number and density of comments for each theme at the state level.

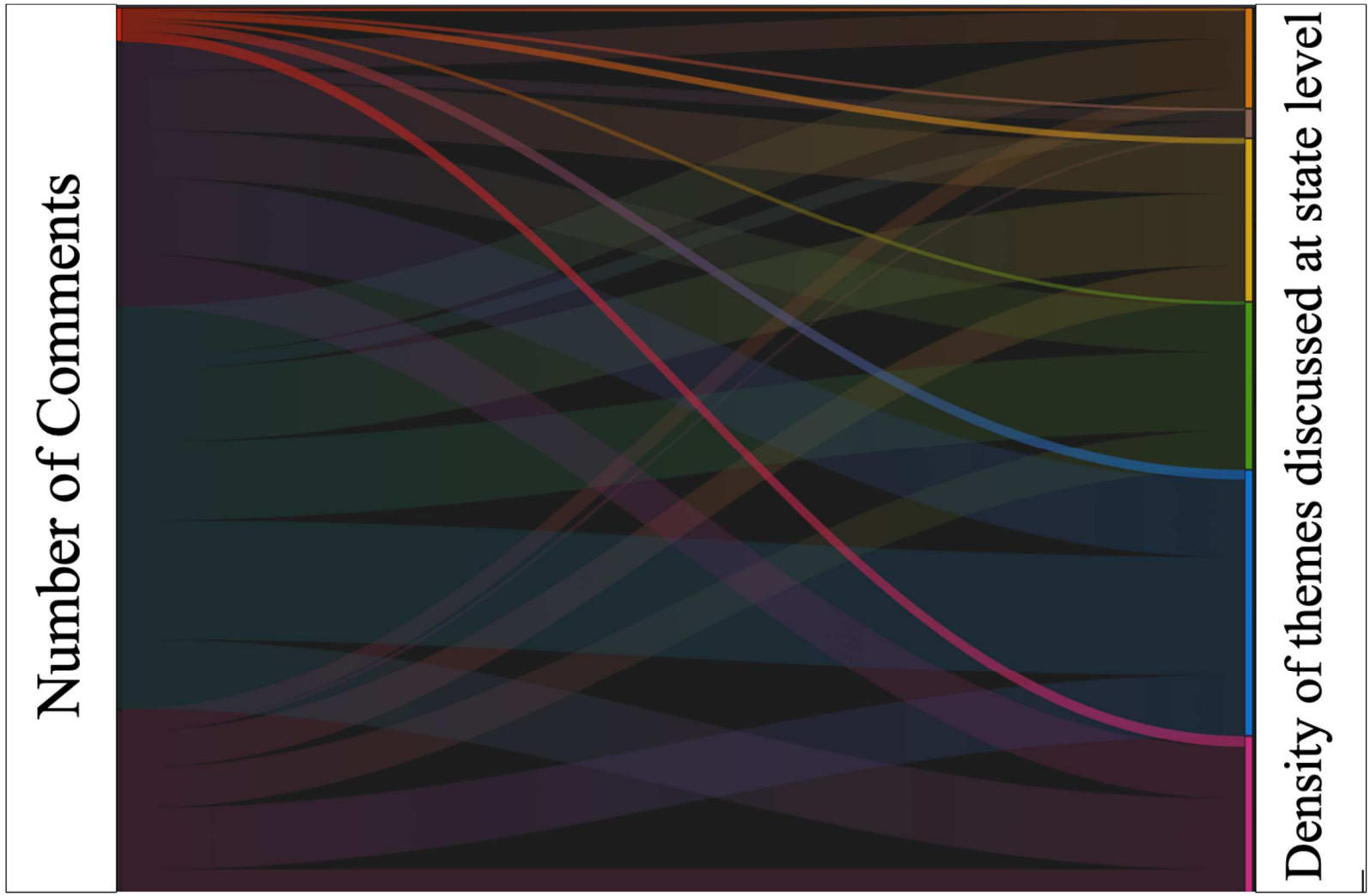


Figure 5. District Level Sankey Diagram.

Representation of the number and density of comments for each theme at the district level.

Figure 6. School Level Sankey Diagram.

Representation of the number and density of comments for each theme at the school level

Figure 7. Classroom Level Sankey Diagram.

Representation of the number and density of comments for each theme at the classroom level.

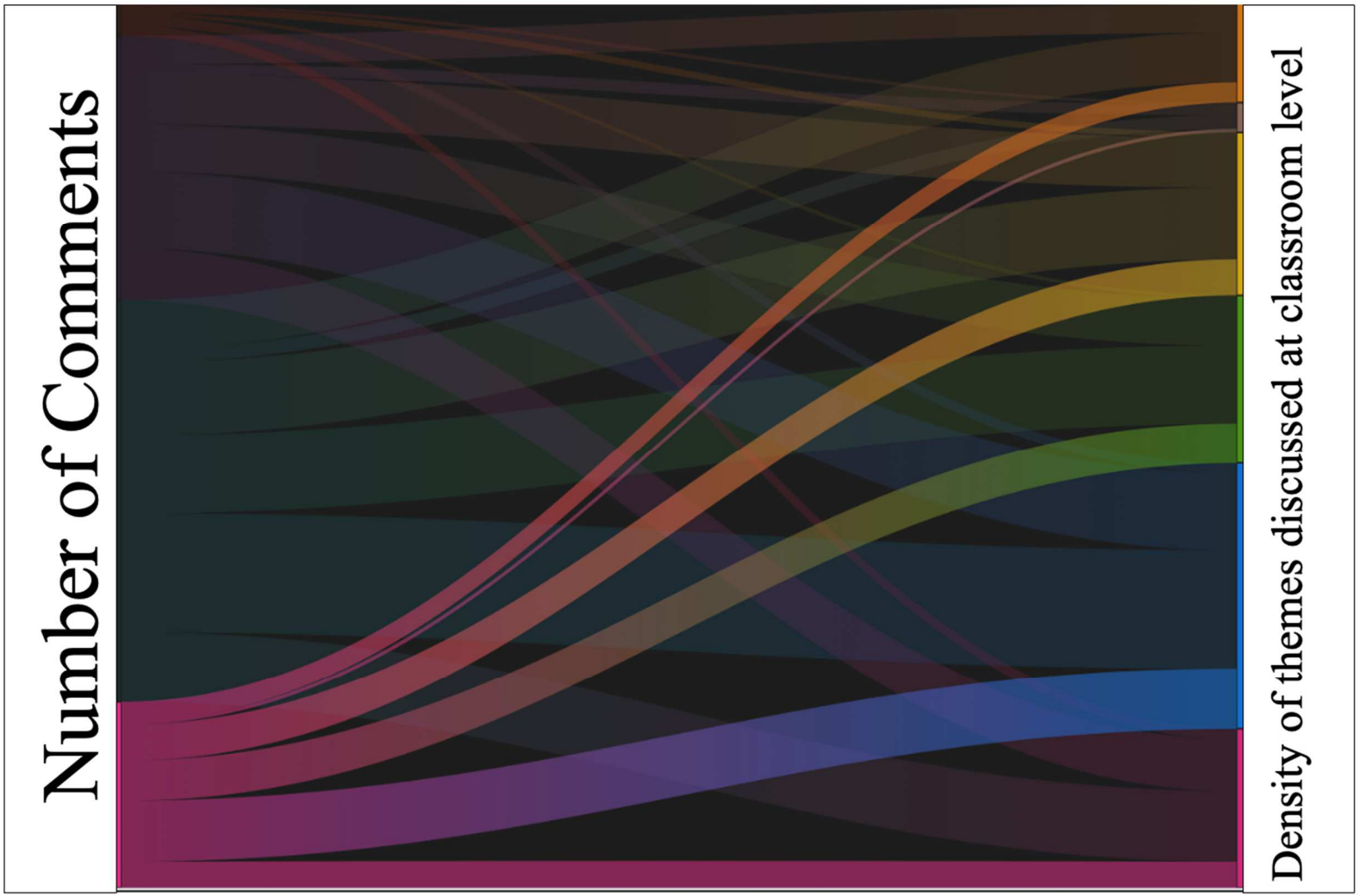
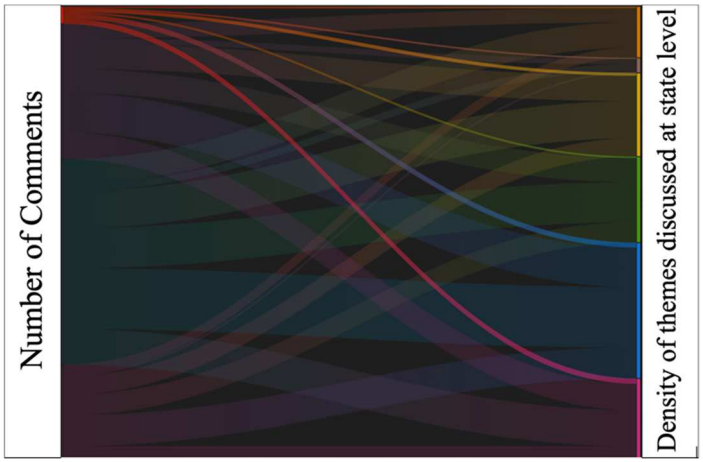


Figure 8. Visual comparison of all Sankey Diagrams.

Representation of the number and density of comments for each theme at each level.

State Level Sankey Diagram



School Level Sankey Diagram

District Level Sankey Diagram

Classroom Level Sankey Diagram

To facilitate systemic sustainable change for inclusive education practices, participants described the district as identifying and implementing activities that would lead to the increased use of their desired changes, as well as activities for scaling up and sustaining those changes over time. In doing so, the multi-level change process was discussed and found in documentation in relation to three stages of change discussed in implementation science: (a) Initiating discussions about the need for change and the change process, (b) implementing change, and (c) evaluating the impact of changes.

First, the participants discussed the initiation of change through facilitated discussions about inclusive education, their current practices, and the need for change. They described the discussion of change efforts and how those discussions evolved into identifying catalysts for their various change activities (n = 190). Specifically, they identified five catalysts, including: (a) champions and leaders, (b) the state department of education, (c) parents, (d) student data, and (e) the TIES Center. These catalysts will be discussed later in Theme Two.

Second, participants discussed facilitation as processes used to implement change during their change efforts (n = 388). These facilitative processes were collaboratively identified, planned, and implemented at multiple levels of the education system. Facilitative processes were used to: (a) establish multiple collaborative teams related to curriculum, instruction, and other aspects of services; (b) build commitment, vision, and shared understanding about inclusive education; (c) reflect on their current practices and identify aspects of their services that would need to be addressed in the change process; (d) use tools and action planning during the change process; (d) provide relevant professional development; and (f) allocate financial resources. These individual facilitative processes will be further discussed in Theme Three.

Third, the change process was facilitated by leadership teams at multiple levels of the

education system, and evaluated the impact of change efforts on students, their parents, instructional personnel, and administrators. The impact of these change efforts was notable in five areas: (a) access to the general education curriculum content; (b) instructional practices; (c) placement of students in general education contexts; (d) student and system outcomes; and (e) values and climate reflected across settings (See Theme Four).

The Director of Special Education was facilitating the change efforts by creating an environment in which a shared vision could be cultivated by both general and special education personnel. The Special Education Director described the process of facilitating change in this way:

> We started and developed a leadership team that was comprised of folks from special education, but also folks from general education as well. I also got the chiefs involved, which are the assistant superintendents in [our district], they're part of that leadership piece too. And we developed an action plan [that] identified strategic actions that we've already done, that we're in the process of doing, and things that we would still like to do. So, it's a fluid moving document of [actions]. Again, it started with a lot of professional learning, but it also started with me, I knew I had to engage.

As illustrated in this quote, the Director of Special Education facilitated change efforts through his personal vision and leadership.

Another participant shared that sentiment by saying:

> The [Special Education Director] had a vision of the things that need to happen. We need to bring these people on board. We're going to need somebody to go to the psychologists and do training with them. We need somebody to talk to the cabinet and do training with them. We need somebody to do this.

Participants consistently described how this was not a special education change; rather, the change would be deeply embedded into the way they operate as a district to educate all students in their system.

Theme 2: The role, focus, and combination of external support and the existence of internal champions within the multiple levels of the education system acted as catalysts for the implementation of sustainable systemic change.

In this study, participants described the combination of internal champions and external support as being critical to the facilitation of multi-level sustainable systemic change during the exploration stage. Internal champions were identified as district personnel that included the Director of Special Education, curriculum supervisors, instructional coaches, and the elementary and middle school supervisors of both general and special education. The external supports were identified as personnel with the TIES Center. This Theme has two Subthemes, one related to the external supports and one related to internal champions. This combination of external and internal pressure created the conditions needed for change to occur at each level of the system.

Subtheme 2.1: Due to the role and focus of TIES Center on multi-level sustainable systemic change, there was pressure from each level of the education system that assisted in facilitating the process of working toward sustainable systemic change.

In order to facilitate changes for inclusive education, the state department of education applied to collaborate with the TIES National Technical Assistance Center and was approved for participation. Once this approval happened, districts were invited to apply to collaborate with the state department of education and the TIES Center to increase inclusive education services for students with SCD. This external pressure and support led to the district applying for grant support from both the state and the TIES Center.

The TIES Center was tasked with three major goals: (a) moving students with the most significant cognitive disabilities from more restrictive educational settings into general education classes, (b) increasing the use of research- and evidence-based inclusive education practice and services, and (c) developing a technical assistance process that could be used by states, districts, and schools to engage in efforts for sustainable systemic change focused on inclusive education. As part of their charge, the TIES Center created a systematic process that led to concerted efforts among state, district, and school leadership teams to improve the impact of the district's change efforts. As an external support, the TIES Center did not tell the leadership team at any level what to do; rather, they led leadership teams through a self-reflection process that facilitated the change process at each level of the education system, incorporating the use of internal champions and leaders. This self-reflection tool, created by the TIES Center, was the Reflecting on Opportunities for Excellence in Inclusive Education (ROXIE).

The ROXIE is a set of tools for the state, district, and school level teams designed to assist teams to build a common understanding of inclusive education practices and policies, reflect on the extent to which their system (i.e., state, district, school) demonstrates those practices and policies, the priority of moving students into general education classes, and the creation of an action plan to facilitate multi-level systemic change for inclusive practices. The participants described their collaboration with the TIES Center and how reflecting on their current practices and policies was a catalyst for the state, district, and school leadership teams to plan and implement change. One participant stated that the reflection process, conversations, and thinking time were valuable tools, and said,

> It was more those conversations and when we would do the ROXIE and our action plans for each level. [There were] things that we didn't think about as a district or as a school

that could make a big difference and be important. I think it was that ability to spend the time thinking…With this, you were able to take the time, think through, [and] have conversations with other people.

As described in district documents (e.g., meeting minutes, ROXIE tool, action plans), the TIES Center's had a four-step process comprised of: (a) forming leadership teams at the state, district, and school levels; (b) completing the ROXIE reflection; (c) creating an action plan; and (d) implementing the action plan.

Though this is an oversimplification, the TIES Center's process and conversations that occurred during the use of the ROXIE at multiple levels were the initial catalysts for the district's change efforts. Table 6 shows the frequency with which the participants discussed this and other various catalysts. Champions and leaders (n = 83) and the TIES grant (n = 83) were equally recognized as catalysts for change by the participants, followed by student outcomes and data (n = 49), the state department of education (n = 17), and parents (n = 15). Though the catalysts were the least discussed among participants, their importance in facilitating the change process cannot be overstated. The combination of efforts between external and internal stakeholders while completing the ROXIE at each level of the system created the pressure necessary for the implementation of sustainable systemic change. Further, the TIES Center's focus on the entire multi-level education system allowed change to occur at each level of the system, creating the conditions for a common vision and alignment of efforts at the state, district, and school levels.

Table 6. Catalysts for Change by Participant

	Dist2	Dist7	Dist6	Teach2	Dist4	Dist1	Dist5	Teach1	Teach4	TIES1	Teach3	Dist3	Totals
Champions/leaders	12	8	5	15	7	6	4	6	1	14	0	5	83
State Department of Ed	1	1	1	0	1	8	3	0	1	1	0	0	17
Parents	1	3	5	1	0	2	0	1	0	2	0	0	15
Student outcomes/data	9	2	3	5	3	7	5	5	2	6	2	0	49
The TIES Center	3	13	11	4	11	6	7	0	1	20	2	5	83
Totals	26	27	25	25	22	29	19	12	5	43	4	10	247

Subtheme 2.2: The role and focus of internal champions on multi-level systemic change assisted in facilitating the process of sustainable systemic change.

One of the unique features of this district's change efforts described by participants and supported by documentation was their ability to engage internal champions in the change process. As one person stated,

> We have some champions at the district level, at the school level, and at the principal level [so] everyone who's been involved and passionate about this is going to continue to spread the word. You've got to share those success stories, and when those [stories] are seen as attainable, you're more likely to get that buy-in and people to jump on.

Participants described how this work was never seen as a special education change effort because it was embraced by both general and special education as the way they all operate as one education system. As one district person stated,

> [inclusive education] was very much something embedded in our school culture…I hate using words like project; I will refer to it as 'the work' [because] it's not an initiative for us. For us, it's about equity, inclusion, and achievement of kids with significant cognitive disabilities.

Prior to this change effort one participant discussed being siloed in special education, and how there was no collective collaborative space in which they could have these conversations. Getting both the general and special education curriculum and instruction personnel on board strengthened the change efforts, because of their endorsement, their collaboration in planning, and their content expertise. The content supervisors began endorsing inclusive education practices, making comments like the following:

> So that connection between the district level group, particularly the involvement of those content area supervisors, and the importance of educating all children at school, including children with significant needs, led to the science [curriculum] supervisor really getting her hands into the state assessment [and focusing on] what those essential elements are and how we can support that from a curriculum standpoint.

Their content expertise was vital to the change efforts because their knowledge of content assisted in identifying and prioritizing the essential elements of the curriculum for all students with SCD. This was a 'light bulb moment' for educators who previously believed that all students with SCD needed to know and access in the same way the exact content being taught for their peers without disabilities.

The internal champions strategically found willing schools, teachers, students, and parents to engage in this change effort. They then slowly built processes within the district and schools to facilitate the movement of students with significant cognitive disabilities into general education classes. For example, one participant stated:

> I honestly looked at the students and then the teachers [and asked] 'Which students and teachers do we think would be the most flexible and ready for it.' [We] then did scheduling changes, building schedules strategically that would allow for more flexibility in being able to put students in mainstream [i.e., general education] classes, or get their needs met within the gen-ed setting.

Since students with significant cognitive disabilities were already included in related arts (e.g., music, art, PE), including students in general education academic classes, the district and schools also enhanced services in the related arts classes to ensure the students were not just physically present, but also learning academic content. As the district was installing the change process,

they had to commit also to facilitating inclusive education practices.

Theme 3: Facilitative processes were collaboratively identified, planned, and implemented at multiple levels of the education system to address the need for sustainable systemic change related to the inclusion of students with SCD in general education classes.

During the initial implementation stage, multiple processes were occurring simultaneously to address the need for sustainable systemic change related to the inclusion of students with SCD in general education classes. Though these facilitative processes were greatly impacted by the COVID-19 pandemic, the district, schools, and classrooms continued to move forward with their change efforts. Overall, participants discussed facilitative processes 796 times (See Table 7).

Participants described the district as having focused on: (a) establishing multiple collaborative teams related to curriculum, instruction, and other aspects of services; (b) building multi-level commitment, vision, and shared understanding; (c) identifying needs at multiple levels of the education system assists in facilitating the change process; (d) using tools and action planning during the change process; (e) providing relevant professional development; and (f) allocating financial and practical resources at multiple levels of the education system. These processes were collaboratively identified, planned, and implemented at multiple levels of the system to increase the use of inclusive practices. Each of these processes is discussed in detail in the following sections.

Table 7. Facilitative Processes by Participants

	Dist2	Dist7	Dist6	Teach2	Dist4	Dist1	Dist5	Teach1	Teach4	Ties1	Teach3	Dist3	Totals
Commitment/Vision/ Shared Understanding	16	11	8	14	4	20	6	11	3	10	0	5	108
Financial Resources	5	3	3	0	2	14	0	2	1	2	0	3	35
Identifying Needs	24	10	8	8	15	21	8	11	4	28	7	9	153
Professional Development	17	9	5	16	14	14	12	6	3	26	6	10	138
Teams/Stakeholders/ Collaboration	22	16	19	27	26	23	10	12	6	33	11	20	225
Tools/Action Planning	19	12	14	4	9	25	12	5	6	16	4	11	137
Totals	103	61	57	69	70	117	48	47	23	115	28	58	796

Subtheme 3.1: The state, district, and schools established multiple collaborative teams related to curriculum, instruction, and other aspects of services.

Participants mentioned collaboration and teaming 225 times. This was the most frequently mentioned variable in this case study. Not only did participants mention it most frequently, but they also mentioned it in relation to each level of the education system (i.e., state, district, and school levels). In addition, district documents (e.g., action plans, meeting minutes, ROXIE participation) support the use of multiple collaborative teams. Both the district documents and participants discussed multiple collaborative teams such as: (a) partnerships between the TIES Center, state department of education, and District personnel; (b) professional learning communities; and (c) interactions with the TIES Center and the district equity coach. Each of these teams addressed issues related to curriculum, instruction, and other aspects of services. First, the district's change efforts began with a partnership between the TIES Center, the state department of education, and the district. District participants were excited about this opportunity for collaboration. One participant stated,

> When I learned about it through the state, it was very intriguing. It's definitely something that we wanted to target, because it's a group of kids that we've tried hard with over the years, but we know that we could always be doing things better, so it was a good opportunity. I was intrigued by that three-way partnership between the district, the TIES Center, and the state. It was a significant commitment from everyone; it wasn't just, "Hey, here's an opportunity" and it was a multiyear project.

The district embraced this opportunity to collaboratively facilitate systemic sustainable change for inclusive education practices. As one participant discussed it, there was "the expectation of collaboration." The Special Education Director tasked stakeholders in every department,

including the administration "cabinet" (i.e., executive committee of the district, such as, leaders from special education, general education, administration, assistive technology, related service providers, and transportation), to get involved and assist in facilitating the change process in the district. In addition, the Director of Special Education strategically selected the schools and teachers to be involved in the district's initial implementation of inclusive education practices. The district's efforts illustrate their commitment to facilitating systemic sustainable change for inclusive education practices at and across multiple levels of their education system.

Next, the district developed professional learning communities. According to meeting minutes and action plans, collaborative teams committed to meeting before or after school, and team members were given a stipend to work as a professional learning community during these additional hours. During these meetings, team members were able to problem solve, ask questions, and collaborate on strategies to meet the needs of specific students. In one school I observed this process in relation to a student who was displaying challenging behaviors. The kindergarten team, special educators, related service providers, district equity coach, and TIES Center personnel discussed the student's behaviors, potential communicative intent, learning needs, and educational goals. Based on the meeting minutes documentation and interviews, this collaboration, and the time to collaborate, were critical to the student's success in a general education classroom. These stakeholders took the time to thoughtfully consider the interests, strengths, and needs of the student, and came up with a cogent plan of action. These types of meetings were happening at schools across the district. One participant discussed this collaborative time when she said: "Time-wise, we needed to be able to work with the special educator to design instruction and build that capacity together and that takes time."

The technical assistance provided by the TIES Center and the district equity coach

demonstrate the ongoing efforts to collaborate across the district. In addition, the TIES Center initiated a cross-district network of coaches to collaborate during monthly meetings to debrief and discuss how to provide the best technical assistance to their school sites and teachers. This cross-district network of coaches assisted in facilitating the change efforts by collaboratively problem solving and brainstorming solutions to barriers to inclusive education practices that arose while providing technical assistance within their respective districts. One participant stated, "We had the individual school meetings and district meetings [to] get a pulse check on what was going on. I know that the [equity coach, TIES Center personnel, and district] instructional consultants were able to team weekly. That was really helpful."

Unfortunately, however, there were times that teachers displayed frustration. These frustrations were part of the growing and changing needs of the district, and the realization that collaboration among all stakeholders was critically important. One teacher stated,

> There were some [teachers] who totally embraced it and were like, "I got this." Then there were some who were like, "I can't believe we're doing this." I think it was an intimidation thing because they haven't had to modify [instruction] before. They were used to having an instructional assistant in the room, and a lot of people put the ownership [of modifying instruction] on the instructional assistant. But no, no. *You're* the educator. *You* have something at stake here too. *You* need to be more invested in the process of looking at the instructional materials to decide what will be appropriate. And if modifications need to be made, *you will* collaborate with the equity coach and folks. But it requires more involvement in communication and the whole collaboration piece.

Despite these frustrations, participants discussed the building of genuine relationships with the district equity coach and TIES personnel, and how that rapport positively affected student and

system outcomes by maintaining their engagement and buy-in for the change efforts. The district acknowledged that they needed to build a shared understanding of inclusive education to create sustainable systemic changes.

Subtheme 3.2: Facilitative processes were used to build commitment, vision, and shared understanding about inclusive education.

Creating a common vision of inclusive education was a recurring Theme among the participants. One participant stated, "It has to be a part of who you are, who the school is." This commitment was evident in the participants' discussions and district documentation. The participants discussed how they worked to build commitment throughout their multi-level education system and to choose the "right" people for initial implementation; however, they discussed how even without buy-in from all individuals, the district consistently demonstrated a commitment to inclusive education, and that commitment further influenced the behaviors of individuals.

The district leaders knew they wanted to facilitate systemic sustainable change for inclusive education practices. They worked to build a common vision among district and school personnel because, as they stated,

> We're in the business of continuous improvement; we're always trying to improve what we do. When I learned about this through the state department of education – they had put a call out for applicants – it seemed to connect well with where our district was as a system, with our current vision, with where we want to be as a system, and with our strategic plan.

This comment connects to the district's change efforts to build multi-level engagement in the facilitation of inclusive education practices, as well as to the commitment to a common vision for

all stakeholders in the multi-level education system. Another participant discussed how she felt about their efforts to build a shared understanding when she stated:

> I think it has a lot to do with the people and their passion and their vision…I believe it's the vision of the special education supervisor…She's very good at collaborating with all disciplines, such as supervisors of science, social studies, and ELA. So, it's not just a special education thing… She tends to pull everyone in and it's a shared belief.

This quote also demonstrates how the district's work was more than a special education change effort; their work toward inclusive education was embedded within every aspect of their district and was committed to by general education teachers and supervisors. The district's ability to engage stakeholders throughout the district and across disciplines was a unique and powerful feature of this district's change efforts.

The Director of Special Education explained how they engaged stakeholders in committing to the change efforts in their district. He stated:

> We started in two schools, and I knew that I needed to have leaders of those schools who valued, embraced, and believed in special education and inclusion with outcomes. It's not just about space; it's not about being there. It's about inclusion and access with student-specific outcomes. I purposely picked an elementary school and a middle school; not just picked, but engaged in collaborative conversations, talked about the opportunities, and had two principals buy in. And again, I knew that there were two principals that would champion this work, but they were also very well respected by their colleagues and peers within their groups. I had two great leaders in our two demonstration schools that we started with, and we made great progress in both of those places.

This quote illustrates the impact on the system when the Director of Special Education

strategically selected leaders and worked to create a shared vision for this work that ultimately facilitated the change effort progress into a shared vision at the state, district, and school levels. Another participant shared that they picked the "right people" in a school. She said, "We chose the right people to engage. The people that are very well respected by the staff because they're the ones making a change. The teachers are going to listen to people that are 'living the life'." This participant went on to explain how professional development tied into the change efforts in the district and allowed time for stakeholders to commit to the common vision.

Conversely, even some individuals who did not want to engage in the change efforts for inclusive education began to share a common vision over time, demonstrating that initial buy-in of all stakeholders was not necessary for change to occur. One teacher explained this in detail when she discussed how one of her instructional assistants wanted to quit because she believed inclusive education would never work for students with SCD. One day, though, she saw the students with SCD reading and said, "Oh my god, they're reading!" After that the teacher went on to say, "But once they shared the same vision for the kids as learners, as competent learners, they all stuck around, and they all got really good at what they were doing." This was an example of a "see-it-to-believe-it" phenomenon that happened when instructing students with SCD in inclusive general education settings in this district. The school and classroom level teams realized that building a common vision with special education teachers, general education teachers, and instructional assistants was critical. One participant shared,

> Empowering support staff was huge, and all comes from sharing that same vision for the kids – and that same vision is being shared with the rest of the building – that these are *your* kids and they're not *my* kids that are *guests* in your classroom. *Those are your kids that are part of your class*.

Participants shared numerous stories about general education teachers saying these are "our kids," demonstrating a huge shift in the collective values and common vision within the school. This was also strengthened by the commitment from general education teachers, as exemplified by one participant in this way: "With the general educators who have really figured this out, who really embraced this, who really share that vision, they will talk about the kids as their kids. As part of their class." Creating this commitment took time, collaboration, and reflection from personnel across multiple levels of the education system (e.g., the TIES Center, the state department of education, the district, and school/classroom personnel).

Subtheme 3.3: The district reflected on their current practices and identified aspects of their services that would need to be addressed in the change process.

Once awarded the support of the TIES Center, the district and selected schools completed a process called Reflecting on Opportunities for Excellence in Inclusive Education (ROXIE). The ROXIE is a set of tools designed to assist leadership teams at the state, district, and school levels as they reflect on current evidence-based practices for inclusive education and their current inclusive education practices. This collaborative, reflective process assisted the state, district, and school leadership teams in producing an action plan for developing and maintaining services that were aligned with evidence-based practices. The importance of the ROXIE was mentioned by 75% of the participants. The respondents who did not mention the ROXIE were all teachers who had not been a part of the reflection process, thus 100% of the participants who had participated in the ROXIE discussed the importance of that process. One district participant mentioned:

> The ROXIE was valuable for action planning. One of the valuable things I found about the TIES Center's process for looking at inclusive practices, was that you have this all-

day long reflection process, but then from that, the group identifies their needs and how to go about addressing those needs.

This time for thoughtful reflection and action planning assisted the leadership teams to facilitate systemic sustainable change for inclusive education practices at multiple levels of their education system. Their change efforts did not happen without thoughtful reflection and difficult conversations. Once the ROXIE was completed and an action plan was created at each level of the education system, collaborative teams worked to incorporate the targeted changes into their policies and practices. Their reflections during the ROXIE were recorded in documents used by the district, including reflections from the State ROXIE, the District ROXIE, and multiple School ROXIEs.

State ROXIE. At the state department of education, leaders of key sets of stakeholders participated in the State ROXIE process. Some of the stakeholders included the assistant superintendent of special education, general and special education curriculum specialists, technical assistance providers, parents, parent service and advocacy organizations, institutes of higher education, teacher licensure personnel, and assessment and monitoring personnel. In addition, members of the leadership teams for each of the participating districts were members of the state leadership team, ensuring communication across the state and district leadership teams.

They reflected on both EBPs for states and their practices at the state level, resulting in a score of 67 out of a possible 110 points. These scores are only meant to assist a leadership team in reflecting on the extent to which the participants perceive their practices as aligning with evidence-based practices; as such, the next iteration of the State ROXIE might elicit lower, similar, or higher scores, depending on the understanding of evidence-based practices held by leadership team members at that time. The goal of the ROXIE was to reflect on current practices,

identify the strengths and weaknesses, and then create an action plan that facilitates systemic sustainable change for better alignment between the system's practices and evidence-based practices. At the state level, the ROXIE had a relatively even distribution of scores from the main categories, which included: (a) state values and climate, (b) access to general education, (c) leadership, (d) program development and evaluation, and (e) program instructional supports. The section that scored the "highest," meaning they were doing well in that category, was leadership, but their lowest scoring item (i.e., certification requirements) was within the leadership category (See Figure 9). Once the state department of education completed the ROXIE, they completed an action plan.

Figure 9. State Board of Education ROXIE Score Summary

ROXIE SCORE SUMMARY

Domains and Sub items		Score
State Values and Climate		
1.1	Mission Statement	4
1.2	Access and Equity	4
1.3	Proactive and Collaborative Education System	3
1.4	Respectful Language	4
SCORE		15
Access to General Education		
2.1	Neighborhood Schools	3
2.2	Access to General Education	3
2.3	Physical Accessibility	
2.4	Inclusive Professional Development	3
2.5	State Alternative Assessment	4
SCORE		13
Leadership		
3.1	Key Staff for Inclusive Education	4
3.2	Family Participation in State Processes	4
3.3	Evidence-based Practices	3
3.4	Communication Competence	4
3.5	Certification Requirements	1
SCORE		16

Domains and Sub items		Score
Program Development and Evaluation		
4.1	Evaluating Progress Toward inclusive Education	3
4.2	TA and Coaching	4
4.3	Hiring Procedures	2
4.4	Family Leadership and Advocacy	4
SCORE		13
Program Instructional Supports		
5.1	Positive Peer Relationships	
5.2	Positive Behavior Supports	3
5.3	Data-Based Decision-Making	3
5.4	Post School Transition Planning	4
SCORE		10

ROXIE TOTAL SCORE 67

District ROXIE. The district completed the District ROXIE in 2019, and as a doctoral student, I was invited to observe and take notes during the process. One of the most notable aspects of this activity is the collegiality demonstrated among all the leadership team members. Although they did not always agree, the members were able to come to a consensus on their reflections for each evidence-based practice. As I watched the process, the TIES Center facilitator asked members to reflect on a specific evidence-based practice included on the ROXIE, the members discussed the practice in small groups, then independently used a rubric to score the extent to which the district's services were aligned with that practice. Then the facilitator asked the members with the highest and lowest scoring why they perceived the district as deserving those scores. Once members explained the rationale for their scores, the facilitator again asked the members to use the rubric and provide a score. If there was not agreement across all members, the facilitator facilitated a discussion until a consensus was reached across

members. This process was similar to the process used at the state and school levels. Members that attended the district ROXIE included the: executive cabinet members, Director of Special Education, TIES Center personnel, Assistive Technology specialist, general and special education curriculum specialists, teachers, principals, and parents. Additionally, members of the state leadership team and members of the schools selected for participation attended this time of reflection, ensuring communication across the state and school leadership teams.

The District ROXIE had 195 possible points, and the district scored themselves at a 94 (See Figure 10). Their lowest scoring items included (a) knowledge of evidence-based practices, (b) data collection, (c) district inclusion facilitator, (d) student participation, (e) professional development planning, (f) communicative competence, (g) equitable assessment instruments, and (h) grading. Their highest scoring items included (a) having a transition specialist and an assistive technology specialist, (b) report cards, and (c) disability incidence rate (i.e., a rate reflecting the natural proportions of students with disabilities in their district/schools). This District ROXIE reflection process related directly to their district action planning.

Figure 10. District ROXIE Score Summary

District-Level: ROXIE SCORE SUMMARY

LRE DATA AND ACCESS TO GENERAL EDUCATION	
	SCORE
1.1 Neighborhood Schools	3
1.2 Advocate for Neighborhood Schools	2
1.3 Inclusive Transportation	2
1.4 Incidence Rate	4
1.5 Accessibility	2
1.6 Emergency Plans	3
1.7 Scheduling	2
1.8 Articulation	2
TOTAL SCORE	20

STUDENT PROGRESS	
SUB ITEM	SCORE
3.1 Appropriate Assessment	2
3.2 State and District Assessment	5
3.3 Assessment Instruments	1
3.4 Report Cards	5
3.5 Grades	1
TOTAL SCORE	14

SYSTEMIC CLIMATE	
SUB ITEM	SCORE
4.1 Values and Expectations	2
4.2 Collaborative Systems	2
4.3 Respectful Communication	4
4.4 District Mission Statement	3
TOTAL SCORE	11

INFRASTRUCTURE – PROGRAM DEVELOPMENT AND IMPROVEMENT			
SUB ITEM	SCORE	SUB ITEM	SCORE
2.1 Knowledge of EBPs	1	2.12 Behavior Specialist	2
2.2 Data Collection	1	2.13 School-Wide PBIS	4
2.3 Family Participation	3	2.14 Collaborative Teams	2
2.4 District Improvement Plan	2	2.15 Student Relationships	3
2.5 Models of Support	3	2.16 Instructional Goals	2
2.6 Teach Advocacy Skills	2	2.17 Student Participation	1
2.7 Hiring Procedures	2	2.18 PD Plan	1
2.8 District Facilitator	1	2.19 Inclusive PD	2
2.9 Transition Specialist	5	2.20 Specialized PD	1
2.10 Interagency Agreemen	4	2.21 Communicative Competence PD	3
2.11 AT/ACC Specialist	5	2.22 Joint PD	2
TOTAL SCORE	52	TOTAL SCORE	23

TOTAL ROXIE SCORE	94

School ROXIE. Though the onboarding of new schools in the district was a continuous process, there was one school that consistently was described as an exemplary school that engaged in these change efforts in the district. The Exemplary Middle School (EMS) initially completed the ROXIE in 2019, before they initiated any changes in their practices. Some of the leaders of key stakeholders that conducted the school ROXIE included: the principal, general and special education teachers, district curriculum specialists, related service providers, related arts teachers. To maintain consistency with the sustainable systemic change efforts, personnel from

the state and district attended the school ROXIE, to ensure cohesive communication among all stakeholders engaged in these change efforts.

When they reflected on the evidence-based practices and the extent to which their practices in the school aligned with those practices, the leadership team members scored the school with a 31, out of a possible 85 points (See Figure 11). Though none of their scores were particularly high, their lowest scoring items included: (a) scheduling and flexible models of support, (b) inclusive practices, (c) collaborative teams, (d) communicative competence, and (e) professional development on evidence-based practices. The two highest scoring items were student relationships and report cards. The EMS leadership team then completed their action planning process that included action steps on how to improve their lower scoring items.

Figure 11. Exemplary Middle School ROXIE Score Summary

School-Level: ROXIE SCORE SUMMARY

LRE DATA AND ACCESS TO GENERAL EDUCATION	
ITEM	**SCORE**
1.1 Placement	2
1.2 Accessibility	2
1.3 Scheduling and Flexible Models	1
1.4 Articulation	2
TOTAL SCORE	7

INFASTRUCTURE – PROGRAM DEVELOPMENT AND IMPROVEMENT	
ITEM	**SCORE**
2.1 On inclusive Practices	1
2.2 Family involvement	2
2.3 Transition	2
2.4 School-Wide PBIS	2
2.5 Collaborative teams	1
2.6 Student Relationships	3
2.7 Curriculum Context/ instructional Goals	2
2.8 PD on Instructional Context	2
2.9 Communicative Competence	1
2.10 PD on Evidence-Based Practices	1
TOTAL SCORE	17

STUDENT PROGRESS	
ITEM	**SCORE**
3.1 Appropriate Assessment	2
3.2 Report Card/ Grades	3
TOTAL SCORE	5

SYSTEMIC CLIMATE	
ITEM	**SCORE**
4.1 Values and Expectations	2
TOTAL SCORE	2

TOTAL ROXIE SCORE	31

Subtheme 3.4: The district used tools and action planning during the change process.

Participants mentioned tools and action planning 137 times. A variety of tools were mentioned by participants as being critical to the success of their change efforts. Examples of tools that were used included: (a) the ROXIEs; (b) documents and processes for action planning; (c) the TIES Center's 5-15-45 Tool; (d) documents and processes for transitioning students from preschool-to kindergarten, between grades, and between schools; and (e) resources on the TIES Center website. Since the ROXIE has been extensively explained, this section will discuss the remaining tools discussed by the participants.

Action Planning occurred at the state, district, and school levels after the ROXIEs were completed. At each level the leadership team developed an action plan to meet the needs of their specific system, as well as the learning needs of their students. In discussing changes across the multiple levels, participants discussed the need to align efforts across the levels of the education system. For instance, one district participant stated, "We have teams at the school level, at the district level, and at the state level. We work to make sure that there's alignment between all three groups." This alignment was evident in the goals developed through their action planning process, resulting in goals on their strategic plans that were aligned with the goals of the TIES Center (e.g., increased time in general education, improved instructional effectiveness, increased engagement, and systemic support), as well as goals across the levels of the system.

State. At the state level goals focused on four main ideas: (a) increasing placement of students with SCD in LRE, (b) preparing teachers in general and special education at IHEs, (c) forming a network of district coaches, and (d) increasing leadership to build capacity for meeting the learning needs of students with SCD. Though some progress was made related to these goals, high turn-over at the state level restricted their progress. For example, as the lead personnel

responsible for this collaborative work changed, state level activities were postponed until a new lead was identified. Time also was lost while the new lead learned about the project, processes already used, status of the state action plan, and status of collaborative work with the districts. Thus, less time and effort were spent toward meeting the state goals. In relation to the state goals, progress was made mostly in relation to two goals. First, state and district LRE data over multiple years were analyzed to identify trends in the LRE placement types, and potential issues related to intersectionality of disabilities and other variables (e.g., race, socioeconomics, location). Second, survey data were collected from special education teachers on their preparation to meet the learning needs of students with significant cognitive disabilities, providing support for collaborative work with IHEs related to pre-service teacher preparation, and with the state department of education related to the provision of research-based technical assistance with coaching for practicing teachers. Third, with the TIES Center personnel engagement, the state department of education-initiated efforts related to the forming of a cross-district network of coaches focused on inclusive education for students with significant cognitive disabilities.

District. Due to the district's on-going sustainable systemic change efforts for inclusive practices, the documentation included three district action plans. While these plans across the years demonstrate commonalities, the depth of the change efforts changed significantly from year to year as the district leveraged these action plans to create sustainable systemic change for inclusive education practices. According to several participants, the action planning process was incredibly valuable. While reflection and action planning might take a significant amount of time for leadership teams, in this case a full day, participants were clear that its value cannot be overestimated during the change process.

Year One Action Plan (July 2019). In year one of this collaborative work the overarching goal for the district was to define inclusion, its benefits for students and adults, and how to move forward. To that end, various activities were decided upon, a leader was chosen, a timeline was developed, evaluation plans were decided upon, and needed resources were identified. The district leadership team identified 15 activities that assisted in the district achieving their goals. These activities were identified, planned, and implemented by collaborative teams of stakeholders and included a significant amount of professional development at all levels of the district. The action plan described professional development as a series of workshops/webinars labeled as a "performance academy" for all stakeholders involved in the change efforts for inclusive education practices. The district leadership team began with developing a shared definition of inclusive education, then developed an "elevator speech" to quickly explain the purpose, shared understanding, and expectations of their change efforts. They then provided the time for teachers to collaborate and complete the professional development workshops/modules, specifically for standards-based instruction with specially-designed instruction embedded within general education classes and instruction, collaboration and co-teaching, and standards-based IEP development. Professional development opportunities also were created for families about IEP development and LRE data. The district simultaneously began to gather video clips as resources for demonstrating inclusive practices and documenting their professional growth as an education system. In addition, district level changes were identified, such as adding inclusive practices into the teacher evaluation instrument and requiring teachers to attend professional development on inclusive education practices. These professional development activities were decided upon, then a delivery plan was created to meet the needs of the stakeholders attending the professional development activities. The district also decided to

include students with SCD in all district level professional development; this meant that all professional learning opportunities included examples of the use of content being taught (e.g., math, reading) for students who have SCD within general education settings.

At this time, the district equity coach was hired. According to the action plan multiple coaches would be "available during the TIES Center's visits to work with district/TIES personnel to build capacity for scaling up inclusive education across the district." Each professional development activity had evaluation criterion to gauge if the activity was successful.

As the district devised their action plan for inclusive education, they used phrases such as "our kids," "all in one room," "curriculum is accessible across the board," "presume competence," and "collaborative and flexible teams." The district leadership team wanted it to be difficult to differentiate between the special education teacher, the general education teacher, and any instructional assistants because they wanted "all adults to support all students in the room." They wanted true collaboration in instructional delivery, implementation of inclusive practices, and evaluation of student progress. In this action planning process, they decided that all general education curriculum development teams would have special education teachers and include high expectations for all learners, including those with SCD. They also valued parent input, training, and support as part of their action planning. The district wanted teachers to see how beneficial and enjoyable inclusive education was when their collaborative teams were supported to implement inclusive practices.

Year Two Action Plan (May 2020). The action plan for 2020 did not include an overarching goal, but had 19 action steps, compared to the previous year with 15 action steps. Though some of the action steps were similar, they added depth to the action plan and strategically aligned the plan with available resources. Instead of creating a plan in isolation, the

district created a plan to align with the goals of the TIES Center, other the district goals, and the goals of the Division of Early Intervention and Special Education Services (DEISES). DEISES was a division of the state department of education that allocated resources for collaboration, engagement, and supplemental funding. Previously, the action plan discussed how to define inclusive education practices, but in year two the district was strategically embedding inclusive practices into their action plan, professional development, and resources at multiple levels of their education system (e.g., state, district, school). After the district aligned their action and strategic plans with those developed within other parts of the system (e.g., TIES Center, other district goals, and DEISES), they began planning professional development for each department in the district.

For year two the district decided to target professional development across all departments in the district, including: (a) the superintendent, (b) the executive cabinet, (c) department chiefs, (d) families, (e) general and special education teachers, (f) office of curriculum and instruction, (g) office of special education, (h) school-based administrators, (i) school psychologists, (j) related service providers, and (k) new teachers. The professional development focused on the "importance of inclusion and how they can support students with the most significant cognitive disabilities." During this year the district also created performance academies and required stakeholders to attend professional development activities about specially-designed instruction. At the request of district and school personnel, an additional professional development activity about assistive technology strategies was added to their action plan. The district also created an orientation for new teachers and provided professional development activities for both general and special education teachers on evidence-based practices for all students, including students with SCD. This support for new teachers ensured

sustainability for inclusive practices because new teachers started their careers in the district with the philosophical underpinnings for inclusive education for all students.

When monitoring progress on their action steps, the district used a color-coded system to indicate progress on their action steps (e.g., orange signified "completion" of an action step, blue signified activities for the action step were "in progress," and green signified activities for the action steps were "not initiated"). Of the 19 action steps, 6 were completed, 4 were in progress, and the remaining 9 were not initiated; however, the district documented rationale statements when there was a lack of completion, mostly related to the impact of the COVID-19 pandemic on their progress.

Year Three Action Plan (October 2021). The district wrote a new action plan in October of 2021. They continued many of the professional development goals and the strategic alignment from the previous year but added action steps and an overarching goal which was to "Improve inclusive opportunities for students with the most significant cognitive disabilities through the implementation of evidence-based best practices." In year 3, there were a total of 28 action steps. Of these, 6 action steps had been completed during year 2 but were kept on the action plan; 11 were reworded from year 2; and 11 were new action steps. These provided more depth in their action planning. For instance, content was added to expand the district's change efforts related to the implementation of evidence-based inclusive practices to additional schools. These schools would be beginning the change process, while the original schools would continue their change process, resulting in schools being at different places in the change process. Of the 28 action steps, the district completed 10, were making progress on 13, and had not yet initiated work on 5. Over all three years, there was one consistent action step that was "not initiated" at any time; this was an action step concerning the inclusion of an indicator about inclusive practices on the

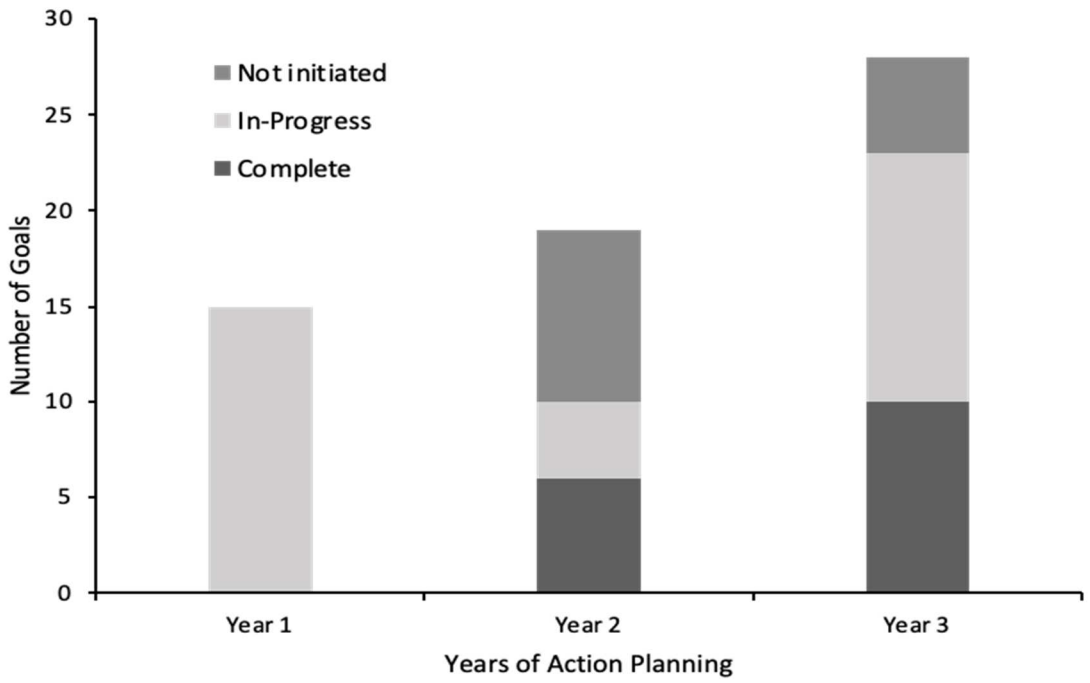
teacher evaluation instrument. Instead of addressing this indicator on the teacher evaluation instrument, the district decided to have principals use a classroom walk-through observation form that evaluated the use of inclusive practices until the teacher evaluation instrument could be updated by the district.

There was a notable shift in the action plans from focusing on professional development on inclusive education practices, to focusing on engaging the preschool department and on planning, implementing, and evaluating progress on the curriculum. Due to the district's focus the previous year, as well as aligning their efforts with DEISES, there was a significant shift in preschool programming for all students. One participant explained how they added general education pre-K to all elementary schools. She stated, "Now [we] increased the participation of our kids with disabilities in those Gen Ed Pre-K programs." As part of their move toward an inclusive education system, the district leadership team wanted to phase out regional programs (i.e., classes in one school that served students with a specific type of disability from multiple grades in multiple base schools). Through their evaluation of current practices, the district determined that the regional programs that were geographically located throughout the district, and often far from the student's homes, were the only preschool option for students with disabilities; thus, the district action plan needed to reflect a shift in services for preschool-aged students. The existing preschool programs were housed in regional schools; therefore, the district determined it was necessary to locate their preschool services within students' base schools (i.e., closest to their home). Action steps were created for professional development for preschool staff on the importance of inclusive education and the support needed for the success of all students, including those with SCD. The district also wanted to create documents for planning transition from preschool to kindergarten to ensure seamless transitions into base schools. To accomplish

this, preschool teachers were tasked with learning new curriculum and evaluation tools.

In addition to preschool curriculum tools, this action plan targeted curriculum action steps for all grade levels, specifically in relation to identifying the "essential elements" of the curriculum for each subject area. Participants regarded "essential elements" as the "most important curriculum content" for students with SCD to learn. These essential elements were identified by a collaborative team of curriculum and instruction experts, including special and general education teachers. Identifying the essential elements was an ongoing effort and was completed for science and social studies. The district then is targeting math and English language arts. To increase these change efforts, professional development was created to address standards-based instruction, collaboration and co-teaching, and standards-based IEPs. This demonstrated an extension beyond the previous year's action plan because they committed to a plan for sharing, delivering, and evaluating the lessons learned through these professional development activities. The distinct action plans had an impact on the efforts at the school and classroom levels and were shared by district leadership team members with the state leadership team.

Figure 12. Number of District Action Planning Action Steps per Year and Action Step Completion



Note. This table summarizes the action steps not-initiated, in-progress, and complete. Though many action steps were in-progress each year, not as many goals were completed.

School Action Planning. The district continues to engage new schools in their change efforts to implement inclusive education practices for all students, including students with SCD. One of the initially engaged schools in this district, however, was considered an exemplary school and was furthest along in the change process. Due to the rapidly changing nature of the school action planning process and the consistent on-boarding of additional schools, this section will focus on this school as an example of the sustainable systemic change process focused on implementing inclusive education practices within the district.

Exemplary Middle School (EMS) was the school most often referred to by participants as an example for sustainable systemic change towards inclusive education practices. As one participant stated:

> I think the key to our success at EMS was we were very deliberate in all of our actions. People will get excited when they do this [work]. Sometimes you can move too fast at the cost of a student or their success, or even a staff member. I think the key was we took very, very deliberate steps. We stuck to our plan, with some modifications, but overall we stuck to our plan, [and we] chose the right people to engage.

At EMS, the school leadership team decided on action steps directly resulting from their ROXIE reflection process. They focused one of their action planning goals on creating, delivering, and implementing professional development on: (a) evidence-based instructional strategies, (b) specially-designed instruction, (c) presumption of competence, (d) cognitive load, (e) communicative competence, (f) active participation, (g) Least Restrictive Environment, (h) ownership of students, (i) embedded instruction, and (j) equity. For this goal, the school engaged teachers of science, social studies, physical education, and related arts, as well as IEP case managers and instructional assistants. This school also included learning opportunities for peer buddies to learn about similar concepts (e.g., communicative competence, presuming competence, age-appropriate interactions). These professional development activities were embedded in the school's efforts to provide inclusive education practices and were seen as an equity issue for students with SCD. Since the school leadership team's engagement in the ROXIE process indicated a lack of collaborative teaming, they decided to create a process and action steps for collaborative teaming, including how instructional assistants, general education and special education teachers interacted and worked together.

Transition Planning. District and school personnel indicated there was a lack of transition planning from grade-to-grade and school-to-school, so one district leader decided to create a transition planning process and document. During the interviews, one participant

described this new process in detail:

> Now we have a transition process that includes not only a training on AAC [Augmentative and Alternative Communication], but also a training on what works with the student, what supports need to be in place, and what the environment should look like. Here are the things the student really likes. Here are the things that don't work with this student. And setting that up followed by at least monthly sessions with the whole team where the [district] equity coach would go and the gen ed and special ed teachers were there. In some cases, the whole grade level team came. I mean, it really was a huge shift, rather than dumping the kids and checking in on them.

This transition process encouraged inclusive education practices by maintaining and ensuring support for students as they transitioned across grades and schools. By using this transition process, the supports he or she needed were already in place when a student transitioned to a new placement.

The TIES Center 5-15-45 Tool. The 5-15-45 Tool from the TIES Center was developed to address the question of how to assist states, districts, and schools in using universal design for learning when building inclusive education practices, including collaboration, to meet the learning needs of students with SCD. The process of using this tool acknowledges that teachers' time is valuable, so it provides creative ways of using time within teachers' busy schedules. This tool assisted teachers in learning new practices when they had limited amounts of time in which to do so; that is, whether they had 5, 15, or 45 minutes to focus on the issue at hand. As such, it was responsive to teachers' primary lesson goals and their limited time for collaboration to identify and plan inclusive practices. One district participant stated:

> The 5-15-45 Tool from the TIES Center has been very helpful… if you have 5 minutes,

> here's what you can do [to support inclusive education practices]. If you're lucky enough to have 45 minutes here, here's what you can do [to support inclusive education practices].

In the field of education, the 5-15-45 Tool was an example of an ongoing process of reflection, training, and refinement used by collaborative teams. The 5-15-45 Tool was one example of how complex practices and processes were packaged to build teacher capacity and meet their own learning needs. Another participant stated,

> The most beneficial tool has been the 5-15-45 Tool. We can utilize [it] to pass right down to a teacher that is quick, simple, and easy. It's nice to be able to give teachers something like that; something that they're going to see more immediate success with, so they buy-in.

Subtheme 3.5: For sustainable systemic changes to occur, professional development occurred at all levels of the education system.

Professional development was collaboratively identified, planned, and implemented at multiple levels of the education system. Professional development was mentioned frequently by participants (n = 138); as well as extensively documented in the documents provided by the district. Using the data from the ROXIE and the action plans, the district developed professional development activities that assisted in meeting their goals. During the interviews and in their documentation, the district: (a) explained the need for professional development, (b) described their professional development opportunities, and (c) provided concrete examples of their professional development.

The Director of Special Education invited TIES Center personnel to speak to the executive cabinet, schools, and teachers to share research data about the benefits of including

students with SCD in general education classes. Until this district meeting occurred, little was known or understood by stakeholders across the district, schools, and classrooms about the rationale for facilitating change efforts related to inclusive education. During this initial meeting, a clip of Including Samuel was shown, and a TIES Center Brief was shared. This brief was known as "10 Reasons Why" by the district and it described ten reasons for supporting inclusive school communities (Vandercook et al., 2018). Briefly, the "10 Reasons Why" document reviews the research about the benefits of inclusive education practices for all students and was widely embraced by the district as their rationale for change (Vandercook et al., 2018). The district leadership team then scaffolded their professional development opportunities to mirror these 10 reasons for change. As one participant stated, "The district leadership team took the TIES document, the "10 Reasons Why", and they broke it up into different months, so they did one reason each month." Another participant said,

> The 10 Reasons Why...we have used that as we're doing some presentations to faculty; sometimes not in the entirety as it's been intended, but [rather] breaking it down and taking it as discussion points in areas where we know we're a little bit weak. That has been a beneficial tool.

It was a beneficial tool because it gave district and school personnel common language as they discussed the facilitation of sustainable systemic change efforts.

Participants described the ongoing professional development at the district and school levels and who was involved in the professional development. One participant stated,

> We had monthly meetings where, for half the day, we would have our special-ed teacher, our speech and language pathologist, our content teachers, supervisors (e.g., middle school special education and general education), and content supervisors [together]. We

> would just co-plan and get things organized and create resources. We did professional development with our instructional assistants. That professional development was on instruction and instructional aids they could be creating; but then it was also on building the independence of our students. That's very important as we go forward — presuming competence.

The district produced a professional development calendar and scheduled 10 professional development opportunities for all stakeholders. At times, the TIES Center personnel conducted these activities; other times district personnel conducted these activities for the stakeholders.

Examples from professional development included a TIES Center overview, communicative competence, the IEP process, specially-designed instruction, cognitive load, inclusive education best practices, mindset, essential elements, snapshot transition form, and content specific topics. Each professional development activity focused on one of these topics, beginning with an explanation of the TIES Center's purpose for collaborating with the district on these change efforts. Each of these activities reiterated the premise that all students were general education students first, then built on the topics that were relevant and timely for teachers. One participant stated,

> They did professional development around collaboration, presuming competence, least dangerous assumption. There were about, I think, 10 different professional development pods that they did. They did it over the course of a half a year…then we did things around how to modify materials, understanding cognitive load, working with the adult support for how to fade supports, how to realize the changing role that they have, and how that changed and evolved over time.

These professional development opportunities were provided at the district and school

levels but focused heavily on the schools that were implementing changes in their services. The professional development about specially-designed instruction was provided by three district leaders, including a special education specialist, a general education specialist, and an instructional consultant. One teacher discussed how this content assisted all the students in her class as she learned to modify lessons to meet the unique needs for each student in the class, as well as how inclusive education practices make instruction more accessible for all students. Teachers that have taken on the responsibility of modifying assignments have become experts in modifications and they are empowered to continue this work. Learning to modify materials and adapt instruction was an integral part of the technical assistance provided to facilitate change efforts in the district. The activity on the IEP process was developed and delivered by the supervisor of middle school special education. The same supervisor of middle school special education, a special education teacher, TIES Center personnel, and a district equity coach conducted the session about cognitive load. The professional development session developed for inclusive education best practices assisted with the understanding of presumption of competence and the least dangerous assumption. Finally, the transition snapshot session was the direct result of the ROXIE and action planning process. This was identified as a need for students transitioning to and from schools and was designed to take teacher time into consideration. This tool was developed by a district-level assistive technology specialist. These professional development activities were planned based on the ROXIE, addressed in the action plans, and implemented as part of the systemic change efforts across the district and schools.

Subtheme 3.6: The allocation of financial and practical resources at multiple levels of the education system assisted in facilitating change efforts.

The allocation of resources was mentioned minimally (n = 35) by participants but was

still an important component of the change efforts. The state department of education allocated $100,000 to support the district as they engaged in these change efforts. The district allocated this and other district funding to: (a) hire personnel and (b) support teachers and instructional assistants in the development of professional learning communities. In addition to funding, the district also provided practical resources, such as time to adapt and share classroom materials and support to respond to students' needs (e.g., providing lockers that were accessible).

Using the funding provided by the state, the district was able to hire a part-time district equity coach who had extensive experience in providing evidence-based inclusive education practices for students with SCD. District personnel respected his knowledge and looked to him for assistance in supporting students in the schools. His background and personality created an atmosphere that encouraged change efforts at the school and district levels because he listened to teachers, acknowledged their concerns, and suggested ideas for how to accommodate their students' learning needs.

In addition, the district's use of funding to support extra time for teachers to collaborate was discussed by 100% of the teachers. The general and special education teachers valued this time to collaborate among themselves and with their instructional assistants to provide evidence-based inclusive education practices for their students with SCD. The district's ability to pay teachers for this additional time was a benefit of the funding from the state department of education.

The district's provision of practical resources included the development of a district-wide repository of classroom materials that, once made by one collaborative team, were available to other collaborative teams across the district; that is, every school developed adapted lessons and uploaded them to the district Google Drive so everyone in the district could access them. EMS

was the first school engaged in the district's sustainable systemic change efforts and, therefore, was the leader in adapting and creating materials. Using the district's Google Drive, collaborative teams at EMS were able to share the resources they made with the rest of the district. As schools joined the district change efforts, they learned about this repository of resources and when planning to teach a lesson, looked there for adapted materials before developing a lesson. One teacher, in one of the new schools, explained how she shared the resource with a physical education teacher, saying:

> I gave him the TIES folder for health. He came in and then we had an informal conversation. I showed him [the resource], and what we are doing. He is now taking ownership [and saying] "These are *my* students and *I* need to modify." That is nice to see.

The use of their regular work hours also was a valuable practical resource provided for teachers and instructional assistants to create these adapted materials. One benefit of COVID was the teacher and teacher assistants having the ability to collaborate virtually for the creation of adapted materials. One participant stated,

> Actually, COVID helped with that a lot. When we had COVID we had a Wednesday schedule where we were allowed to work from home. The students did asynchronous work. That gave the instructional assistants opportunities to learn technology. Basically they [learned the] whole Google platform, how to modify work that was appropriate for the students. Once they started doing that, then they could kind of take that and just roll with it now that they are in the classroom.

School personnel mentioned asking SCD what they wanted to be able to do in the school and what they wanted to access in the school building. Given this information from students, the collaborative teams worked diligently to ensure students' desires were met. One participant

stated:

> We looked at homeroom and built independence there. We [also] made modifications to locker assignments, so that our students who are in wheelchairs were able to [get to their lockers quickly and] reach [inside their lockers]. We started getting down to that nitty gritty piece of each day; how can we get them closer to what the gen-ed students were doing? That was a big piece of it, as well. Ask them; they will start telling you!

In addition to time for adapting resources and access in the school building, teachers were given time to engage in professional development activities and professional learning communities. These resources, both financial and practical, assisted in facilitating the change efforts across multiple levels of the education system.

Theme 4: Commitment to sustainability was embedded within the multi-level systemic change effort.

According to implementation science literature, once full implementation has been reached it is important to address sustainability. This district has not yet reached full implementation, however, based on interviews, observations, and documentation some schools within the district are close to completing all stages of implementation. The multilevel educational system demonstrated a commitment to sustainability through their on-going efforts related to improving evidence-based inclusive education practices for students with SCD. The multilevel system embedded these practices in their system-wide procedures that impacted placement and instruction for students with SCD and in their efforts to provide professional development for each stakeholder in the system. The district's multilevel system change efforts were evident in their documents and interviews, as well as during observations. As the district moved through the proscribed stages of implementation science (i.e., exploration, installation,

initial implementation, and full implementation), they were mindful to build their education system's capacity to sustain their changes. There was evidence of commitment, common understanding of EBPs, and implementation of inclusive education practices at every level of the education system. Cohesive change efforts were made at the state, district, and school levels that kept information flowing within and across the levels (i.e., state, district, school). For example, during the ROXIE reflections, stakeholders at each level were involved. Members of the district leadership team participated in the State ROXIE, and members of the state leadership team participated in the district ROXIE. Likewise, members of the district leadership team participated in the school ROXIEs. Action plans at all three levels were reviewed by members of all three leadership teams to foster a common understanding of the state of services and identify aligned activities to accomplish the desired changes. Collaboration occurred within and across each level of the system, to facilitate sustainability at the (a) state, (b) district, and (c) school levels.

Documents and interviews support working toward sustainability at the state level by describing the state department of education's plans to annually analyze LRE data, involve Institutes of Higher Education (IHEs) in preparing new teachers in inclusive education practices, and mentor district coaches on inclusive education practices and implementation science. The data analysis at the state level reveals placement trends that have been consistent with national trends, meaning that students who were eligible for the alternate assessment were most frequently being placed in LRE Placement C, with 0-49% of their time spent in general education. The state department of education committed to moving students out of LRE Placement C when they agreed to participate with the TIES Center. By annually analyzing their LRE data and supporting districts in their efforts to move students with SCD to LRE Placement B or A settings, the state is demonstrating their commitment to sustainability of inclusive

education practices. The state department of education also considered their credentialing programs for general and special education teachers and began working with IHEs to better prepare pre-service teachers to teach students with SCD in general education settings. Finally, the TIES Center collaborated with the state department of education to create a state-supported cross-district network of inclusive education coaches. This network was instrumental in giving district coaches time to collaborate, identify barriers to inclusive education, and brainstorm possible solutions to those barriers. The combination of these three efforts demonstrates the state's ongoing commitment for facilitating and sustaining systemic change across all levels of the education system.

At the district level, district personnel knew that their next step in the change process was to make their changes sustainable. Their change efforts were so deeply embedded across their entire system, traversing both special education and general education disciplines, that it would be difficult to undo the changes that have been made. As one participant stated, "I think that there's a systemic push that's going to continue." During an interview, I asked one of the participants, "What happens if this funding disappears?" She said,

> Well, then we just need to make a priority in different areas of the budget. That's going to be the reality of it. If it's a districtwide initiative or belief, then we need to make sure [these efforts are sustained]. Things will get easier as it's embedded in the curriculum and resources, so things will start getting easier as it continues to be a part of our professional development with our teachers.

Another district person described the systemic sustainable nature of their change effort by stating, "I think that [the changes] are systemic. There are definitely people at the district level that are passionate about this work. So, I think there's a lot of investment, which to me, identifies

that as systemic." The district's commitment to systemic sustainable changes was reflected in their decision-making processes, their action planning, and their comments. They displayed pride and intentionality in all of their change efforts.

At the school level, positive outcomes related to sustainability of the district's changes were also visible. The students with SCD were more frequently in general education classes and, when in those general education classrooms, they displayed autonomy and agency throughout their school day. The students were proud to be general education students and worked hard in their classes. In addition, the general and special education teachers were prepared to make instruction and curriculum content accessible in their classrooms, by using principles such as Universal Design for Learning, Opportunities to Learn, and evidence-based inclusive education practices.

To expand and sustain these changes across the district's schools, the district expanded to additional schools across the district, and embedded inclusive practices more deeply and widely within schools. This was evident in two ways. First, the district focused on placing preschool students in general education kindergarten in their base school, instead of regional self-contained special education classes. By doing so, additional elementary schools became engaged with the district's change process (e.g., became engaged in professional development; collaborated with the district equity coach). Second, the district focused on placing students who were transitioning to middle schools into general education 6th grade classes in their base middle schools. This strategic action increased sustainability by eliminating the option for placement in regional self-contained, regional programs for students who were transitioning from preschool to elementary school, and from elementary to middle school. Due to this combination of efforts, the district simultaneously impacted both placement of students in general education classes at the

elementary and middle school levels.

Finally, there was no better way to illustrate school level changes than this quote by a teacher,

> Oh, this should be forever. This is long-term. People say, you need a lifestyle change. This is the way it's going to be. This is the new norm. I don't see the reason to move backwards or regress. You have to look at each student on an individual basis and be honest about what supports they need to be successful in a [general education] classroom and make it happen. [The students] are working on grade level content! You've got to try it. I'd rather someone try it to find out whether it's going to be beneficial for the student, versus just shooting the idea down [i.e., placement in general education] without having an opportunity to implement it to see how it goes. Because with our situation, had we not tried, we would never have known. And then that would have been a loss to the students. It would have been a total disservice.

Theme 5: The change efforts across multiple levels of the education system resulted in a significant impact on students, instructional personnel, and administrators.

During the full implementation stage of sustainable systemic change efforts there were notable changes in the district's services that resulted in significant impacts on the students with SCD, their parents, instructional personnel, and administrators. After completing the ROXIEs and developing action plans, district and school leadership teams implemented activities related to their change efforts. Nearly five years after the beginning of the project, the impact of these efforts was evident and discussed by participants 679 times. Unfortunately, parents and students could not be interviewed directly due to the lasting impact of the COVID-19 pandemic. However, the participants and documentation of the sustainable systemic change efforts provide

information related to others' perceptions of the impact on the students with SCD, their parents, instructional personnel, and administrators in numerous ways. These include: (a) students' access to the general education curriculum content (n = 179); (b) instructional practices (n = 147); (c) placement of students in general education contexts (n = 111); (d) student and system outcomes (n = 133); and (e) values and climate reflected across settings (n = 109). These Subthemes were also supported by observational data collected by the researcher; including data on LRE; pictures of adapted materials; a review of the repository of instructional materials; data on the students' membership, participation, and learning; and the overall climate that was reflected during visits to schools.

Table 8. Impact of the Change Efforts by Participant

	Dist2	Dist7	Dist6	Teach2	Dist4	Dist1	Dist5	Teach1	Teach4	TIES	Teach3	Dist3	Totals
Access to General Education Content	17	13	17	32	23	15	11	16	3	10	17	5	179
Instructional Practices	7	8	9	38	19	5	10	10	5	12	15	9	147
Placement/Setting	11	10	18	12	11	7	1	12	2	8	10	9	111
Student and System Outcomes	10	3	8	29	11	18	6	7	2	19	15	5	133
Values and Climate	14	8	2	12	11	13	9	13	2	9	8	8	109
Totals	59	42	54	123	75	58	37	58	14	58	65	36	679

Subtheme 5.1: Multi-level systemic change efforts regarding inclusive education resulted in changes in access to general education curriculum for students with SCD.

The district adhered to facilitative processes that were collaboratively identified, planned, and implemented at multiple levels of the system, thus these processes produced outcomes aligned with the components of services addressed through those processes. For example, when the district committed to reflecting on their needs, developing an action plan, and implementing their action plan, there was a direct impact on the students' access to the general education curriculum. After participating in professional development that demonstrated how to provide students access to the general education curriculum, the district began to understand how to implement evidence-based inclusive education practices that supported access. This was demonstrated by a participant who said:

> I think that "presumed competence" piece was humongous; it was huge, *huge*. The teachers started sharing what the students learned. I remember one little kiddo, he would walk up to the teachers, and he would start explaining to them the difference between a liquid, a gas, and a solid. As students learned more and they shared more of what they knew, it really changed the mindsets of our teachers and our staff. Like, holy moly, what have we been missing? Look what we've been missing! That was really great. The other piece is just that understanding of what an IEP meeting is and everyone's role in the IEP meeting; how we determine service hours [to support access to the general education curriculum].

The participants discussed changes in access to the general education curriculum for students with SCD in several ways. First, the district changed their decision-making processes to allow all students access to the general education curriculum. Second, they changed their procedures to

include all stakeholders in the implementation of inclusive education practices addressed in their change efforts. Third, they provided time for collaborative teams to modify student work to provide them access to the general education curriculum.

In relation to their decision-making processes, for students with SCD the district default had been to send the students to regional programs of self-contained classes, which provided no access to the general education curriculum. The district began revamping their decision-making processes to include discussions about the student's need to have access to the general education curriculum. For example, one participant shared the following:

> We are no longer saying, right off the bat, this student should go [to a regional self-contained class] because we think that they may end up on a life skills curriculum or a life skills alternative framework at some point; [we are now saying] the student should go to their home school. We're starting with the student should go to their home school, and we put the supports there. Previously, we would never send them to their home school; we wouldn't give them an opportunity to go to their home school. Now I feel like once we changed the process and began to say, "Oh, you're not sending this student [to a regional self-contained class]," then it became a rule and people just followed that rule for the last two years.

Previously, the district presumed students with SCD should follow a life skills or alternate curriculum; however, once that changed, students with SCD began attending their base schools and matriculating through grades in the same way as their classmates who do not have disabilities. This was a huge shift in the decision-making process that resulted in a commensurate change in the students' access to the general education curriculum content. The participants also discussed how the district identified essential elements of the general education curriculum to

support access to the curriculum for their students with SCD. Adding these essential elements was a result of the collaborative efforts between the general and special education personnel, and their decisions about what was critically important for students with SCD to learn. As one participant shared,

> We are identifying the essential elements in the curriculum now. All of our curriculum eventually will have what that will look like for some of our kiddos. We have to adjust according to the student, but there's going to be lots of resources in there.

Instead of learning every aspect of the general education curriculum like their classmates who do not have disabilities, then students with SCD would focus on the essential elements of the general curriculum. With the new decision-making processes, collaborative teams were making curriculum decisions with all students in mind, including students with SCD.

Second, the district purposefully had stakeholders from general and special education, related arts, and related services, as well as instructional assistants and the district equity coach attend meetings regarding the provision of access to the general education curriculum for students with SCD. For example, instead of only science teachers identifying essential elements of the science curriculum, the district began inviting special education teachers and other district personnel to be on each curriculum team. One participant stated,

> From the curriculum and instruction standpoint, the director of special education has required all of the curriculum writers to have special educators on their team, which is an important piece. So, at the curriculum level, [the district wants] curriculum supervisors to have [electronic] folders that are accessible to their teachers for students who need adapted resources. So, if I am a health teacher, I will have at my fingertips all the curricular resources appropriate for a student who might have this type of need or that

type of need.

All of the teachers reported the impact of their new procedures on student access to the general education curriculum content. One teacher said,

> Our speech/language pathologist — oh, the energy! And the focus! And the willingness to collaborate! She was talking about how to adapt this – working on adapting materials, working on vocabulary, delivering all of their speech and language services in their science or social studies classes! She is coaching the instructional assistants on what they were doing to support students with SCD in the content areas when it came to their speech and language goals.

One teacher explained that general education teachers needed permission to focus on essential elements of the curriculum for students with SCD, instead of on every piece of the curriculum. Once they understood that they were targeting essential elements of the curriculum, the general education teachers could better modify their instruction to meet the needs of their students. One special education teacher said, "The fact that the kids are getting their instruction from content area experts is really outstanding." The special education teachers also explained how they worked closely with instructional assistants to modify materials needed for their students with SCD to access the general education curriculum.

Third, participants described how planning time was a necessity for students with SCD to have access to the general education curriculum. Without common planning time, collaborative teams would not have materials ready for students when they arrived in classrooms. When asked, one participant stated that the most important resource for students with SCD to have access to the general education curriculum was…

> Planning [time]. If you're making a shift, you need time for that general educator and

special educator to co-plan. That has to happen. Then you also need the instructional materials and resources to be able to make it work.

The impact of their efforts to identify essential elements of the curriculum and put these essential elements on the district's Google Drive allowed for increased access to the general curriculum once a student with SCD returned to their base school.

Subtheme 5.2: The multi-level systemic change efforts regarding inclusive education resulted in changes in instructional practices for students with SCD.

As described in Chapter 2, students with SCD often need accommodations or modifications to curriculum content and/or instructional supports to facilitate their acquisition of general education curriculum content. In this district case study, the most common supports observed, documented, and described by participants were material supports and personal assistance with an instructional assistant. In addition to these frequently mentioned supports, the observational data reflected other examples of accommodations and modifications evident during classes, including (a) systematic instruction, (b) self-determination, and (c) embedded instruction.

Material supports. Material supports included a variety of modified videos, pictures, and texts. The district equity coach and TIES Center personnel assisted the district in building a common understanding of how to modify instructional practices to meet the needs of students with SCD in general education classes. One participant described these material supports by stating,

> Certainly, the training for the general educator has allowed a better quality of service to be delivered in the gen ed setting, and greater access to instruction in the gen ed setting, which has been awesome. I'm not sure if you've had a chance to see some of the materials

> that were developed that were used to support students in accessing grade level content, but that has really taken off. And the pride that teachers have taken in the development of those things, which is a whole other level. It's one thing to do right by a kid; it's a whole other thing to want to show your peers how you went about doing right by the kiddos. So, it's really snowballing!

General and special education teachers, instructional assistants, related arts teachers, and the district equity coach were proud of their accomplishments when learning how to modify materials. As one teacher stated, “We have a huge resource now of digital materials; a file filled with folders of hands-on materials.” When I observed in classes, these supports were evident, but the instructional personnel also wanted to show me their repository of resources they all had made over the past four years. In addition to their online resources, there were two filing cabinets full of modified materials. A teacher explained the process used to make modified materials and the excitement of the instructional assistants who created these materials. She said,

> There is nobody sitting on their phone; there's nobody reading the paper. They are collaborating with each other to say, "Hey, how did you do this? What's working best? Oh, I think we did this one last year. Let's check the files. So, the instructional assistants are working all the time, which is amazing because that's not where we started.

Examples of modified materials are included in Appendix C.

Personal Assistance. A second type of instructional support most frequently evident in the data collected for this district was assistance provided by instructional assistants who facilitated the engagement and involvement of students with SCD in the general education class instructional activities. The TIES Center personnel and district equity coach worked closely with instructional assistants so they could provide appropriate support during classes (e.g., pre-

modifying the material supports needed for a lesson). In addition to modifying materials, the district equity coach encouraged instructional assistants to keep some distance between themselves and the students being supported, facilitating the students' engagement with their classmates and materials. As discussed later in the observation section (Subtheme 4.6), students were more likely to be directly supported by instructional assistants in special education classrooms, than in general education classrooms.

Other Supports. During observations there was evidence of systematic instruction, self-determination, and embedded instruction. In general education classrooms, instructional assistants provided systematic instruction in the form of prompting during instruction. Self-determination was evident in the choices given to students for seating, lunch, and participation opportunities. For example, when students went to lunch, they had a choice about where they wanted to eat, what they wanted to eat, and with whom they wanted to eat each day. The students also had a choice in how they participated, as they were able to choose whether they wanted to use handwriting, typing, or speaking to complete their assignments. Finally, instructional opportunities and supports were embedded into the students' days in a variety of ways. For example, when one student was able to cut out digraphs and hold them up, rather than saying the sounds verbally. Another student had a white board with a visual prompt to write a sentence; the opportunity to write was embedded into his day, and the task was pre-modified for him so he could complete the same writing assignment as his peers in the classroom.

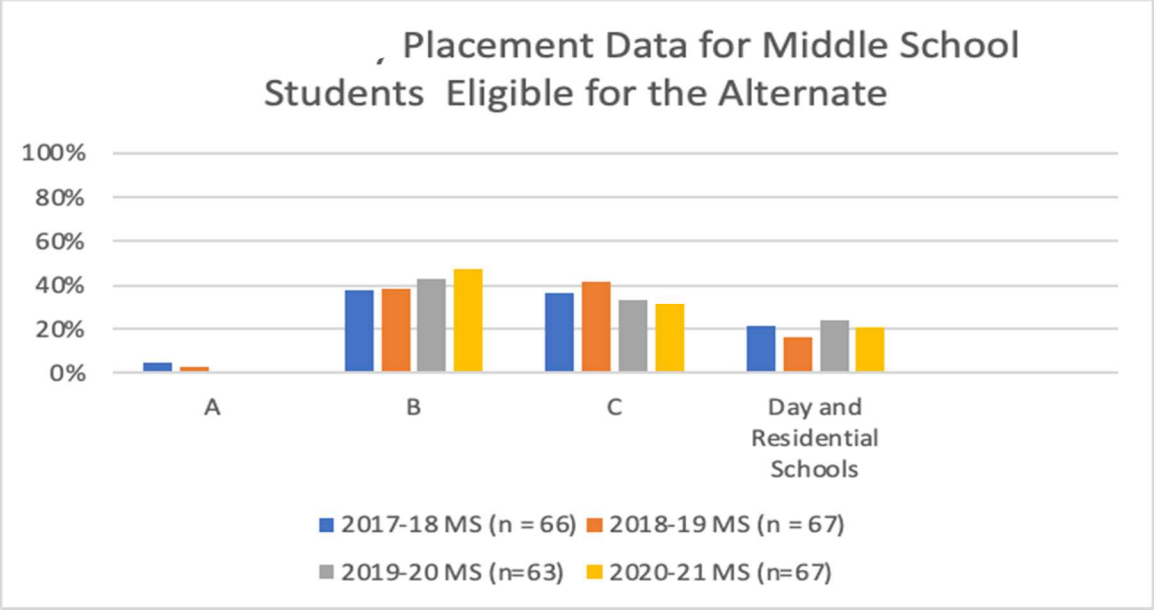
Subtheme 5.3: As a result of the multi-level systemic change efforts regarding inclusive education, changes in placement in general education contexts occurred for students with SCD.

The TIES Center personnel collected data from 2017 through 2022 IEPs of students who

were eligible to take the state's alternate assessment to determine trends in the district's Least Restrictive Environment (LRE) placement data. Using the alternate assessment as a metric for finding students with SCD has been documented in the research literature (Kleinert et al., 2015). Data on graphs from the TIES Center indicate positive changes in middle school and district LRE data (i.e., LRE placement A, with 80% or more of the school day in general education; LRE placement B, with 79-40% of the school day in general education; LRE placement C, with 39% or less of the school day in general education; LRE placement D in a separate school). The multilevel change efforts demonstrated an impact on student placement in two ways: (a) the district LRE placement data; and (b) the district's decision-making processes for placing students with SCD.

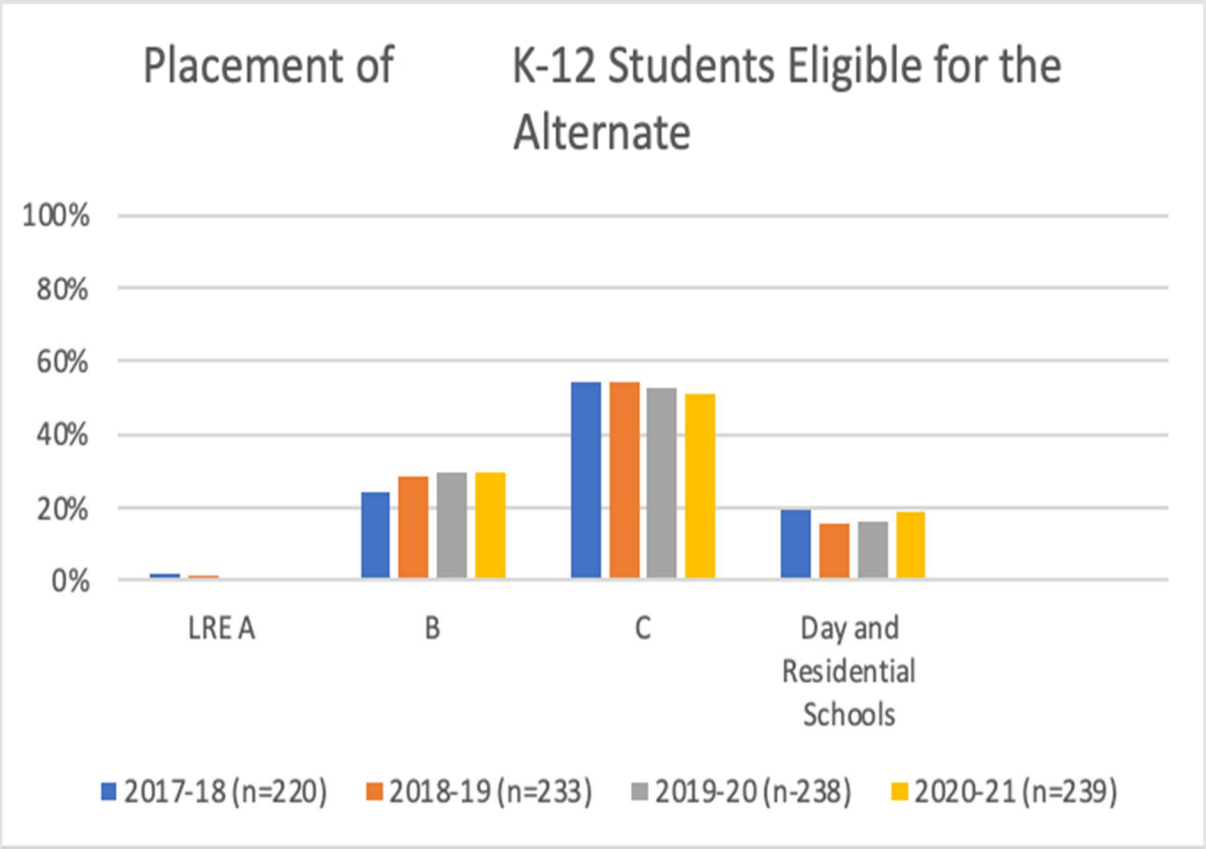
At the district's middle school level, changes in placement data indicated an increase in placement in general education classes, as well as a concomitant decrease in placement in special education classes. In these middle schools, there was evidence of placements in LRE B trending upwards, and LRE C trending down (See Figure 13). The concomitant changes indicate that students with SCD were moving from LRE C to LRE B, thus spending 79-40% of the school day in the general education classroom. In contrast, these changes were not seen in LRE A and LRE D. For example, in 2017-2019, there were students in placement A, but in the past two years (2019-2021) there was no evidence of students being placed in LRE A, indicating a decreasing trend. Data for placement in LRE D indicates that placement in this setting decreased in the 2018-2019 school year, but increased in the following year, then decreased again in 2020-2021. These data indicate that changes in LRE continue to be variable. While positive changes are indicated at the middle school level, concurrent positive changes are not as significantly reflected in the overall district data.

Figure 13. District Placement Data for Middle School Students Eligible for the Alternate Assessment



Another graph created by the TIES Center includes placement of all students in the district who were eligible for the alternate assessment (See Figure 14). At the district level there were similar changes to those indicated at the middle school level, although they were not as obvious because not all schools were involved in the change efforts. This graph indicates that students eligible for the alternate assessment were not in Placement A during the 2019-2021 school year; however, students were placed in LRE A in 2017-2019, however, placement in LRE B was trending upward and remained consistent for the past two years, while placements in LRE C were trending down. Despite this trend, there remains a disproportionate number of students eligible for taking the alternate assessment placed in LRE C. This graph also indicates that there was a slight increase in LRE D in the past year (2020-2021).

Figure 14. Placement of K-12 Students Eligible for Alternate Assessment in the District



Based on the participant interviews and district documentation, COVID had a significant impact on the district LRE data from 2019-2021. One participant shared,

> I can give you lots of metrics that show that we're making progress, but ultimately at the end of the day, the LRE data is where the rubber meets the road. If you looked at the data by student minutes in the LRE, definitely [change is occurring]. But are we moving [students] from LRE C to LRE B, or from LRE B to LRE A? Yes, but [those changes] are just going to take time [to be reflected in the LRE data].

That is, the district was making progress in relation to students having increased minutes in less restrictive settings, especially at the middle school level, but those increased minutes did not yet match the percent of time required to result in a change in LRE placement, per se. To further

explain, a student's time in general education might have increased by 20% overall, but that student continues to be placed in LRE B. For example, a student could move from 40% to 60% of time in general education classrooms, and still count as a student in LRE B; therefore, the student's overall minutes increased significantly, but the LRE placement remained the same. These LRE changes took longer than the stakeholders hoped. As one participant stated, "COVID really did dampen a lot of the [placement change] momentum." Overall, in the district's middle schools, there was increased evidence of positive changes in LRE data, particularly in LRE B and C. Though there was no evidence of students being placed in LRE A in the past two years of district data, Placements in B were trending upwards while placements in C were trending down. The global pandemic had an impact on placement data for students with SCD, so while they did not make as much progress as they hoped, the district still made positive changes in individual students' placements.

Additionally, placement changes were evident was in the decision-making processes at the district level. One participant stated, "We really revamped our structure for the process behind our decision making." Though separate placements still existed, as a district they had not sent new students to their regional self-contained special education classes for two years. One participant stated,

> Schools have IEP teams make decisions about where kids need services. Since [working with the] TIES Center, there are *no* schools at the middle school level where, if a kid [with SCD] is out of gen ed pretty much all day except for lunch. That doesn't exist *anywhere* since [working with] the TIES Center.

Another huge shift in the IEP decision making process related to placement occurred at the preschool level. As mentioned in their action plans, the district had been placing students

with SCD in regional self-contained classes based on their disability, but this changed so that students were entering a general education kindergarten in their base school. One participant explained this process by stating,

> We really made a shift for this school year [2021-2022]. We have kids now in their kindergarten classrooms. So, coming out of preschool [services], we didn't send *any* students to a regional class. They all went into their base school kindergarten classroom, which is great, and it's not something we've always done.

Due to the recency of this change (2021-2022), the overall district LRE data do not yet reflect the impact of this new decision-making process. Now, when students with SCD enter kindergarten, they enter their base school with teachers who were trained and committed to these change efforts.

Subtheme 5.4: As a result of the multi-level systemic change efforts regarding inclusive education, there were specific positive outcomes for students with SCD and the education system.

In addition to the changes discussed above in relation to students' access to general education, teachers' and instructional assistants' use of instructional practices, and processes used for placement decisions, there was evidence in interviews (n = 133), documentation, and observations related to other positive changes and outcomes for students and the system. For example, changes were made in the district, schools, and classrooms that led to changes in: (a) structure (i.e., scheduling, physical building structure), (b) acceptance and membership for students with SCD, (c) opportunities to learn general education content, and (d) capacity to implement inclusive education practices.

Participants described structural changes within the district, such as changes to the

physical structure of the schools, and internal processes put into place. For example, physical structure issues described included the decision to place lockers in accessible locations for students with SCD, and physical accessibility within and outside of the school building, including the design of new schools. As a part of the reflection process, the district and schools considered accessibility for students with SCD. One school realized that they had not thought through the assignment of lockers for students with SCD; in fact, they had not even assigned lockers to some of their students with SCD. Upon their ROXIE reflection work, the school decided to assign students lockers close to their homeroom classrooms and use the ones on the bottom for students who use wheelchairs. The school also inventoried their outdoor spaces to ensure they were physically accessible for all of their students. When I went to observe, I noticed that during a "flex time" many students with and without disabilities were outside congregating in one area. When asked about it, a teacher smiled and explained that all the students moved to that particular location because it was one location that was accessible for the students with disabilities, so their classmates joined them there, instead of interacting in other areas that were not accessible for all the students. I also noticed options for flexible seating within classrooms and lunchrooms. For example, there were options for sitting at desks or tables in the classrooms. In the lunchroom there were typical lunch tables, but also circular tables that were more accessible for students using wheelchairs. As the district was designing a brand-new school, one participant stated,

> They're designing a new school for our county and the architects were like, "Okay, so here's where your [regional self-contained] classrooms will be. And this is where... " And [a member of the district leadership team] was like, "What? No, stop, we're not doing that anymore." And the architects were like, "What?" And [the team member said] "No, no,

> no more self-contained classrooms. There's no reason for a kid to have a separate room to go and learn. We can have rooms for resource [classes] that have maybe bigger bathrooms for some of our kids who need the bigger bathrooms, but we're not having a set kitchen. Those rooms are gone. That's a systemic change.

These structural changes within the school and district were important, but equally important was the building of schedules to meet the needs of students with SCD. One participant stated, “We would strategically build schedules that would allow for more flexibility in being able to put students in mainstream [general education] classes, or get their needs met within the gen-ed setting.” One teacher discussed how scheduling was more of a “procedural thing” that principals had to carefully consider. Teachers would get excited about having students with SCD in their classrooms, then see the schedule that was built and would be sad they were not getting the students sooner in the year. One participant described a teacher who was “very rigid,” but she explained,

> I had a Spanish teacher who was looking at her schedule and was so excited that students [with SCD] were coming into sixth grade and she goes, "Oh, I am going to get them, and I am ready.” Then I am starting to plan, and she is like, "Oh, I do not get them till fourth quarter?" And she is bummed that she did not get the students until the fourth quarter. They are looking and finding out when kids are coming into their classes, starting to plan, and that was not always a consideration.

This quote addresses both the scheduling process and a new level of acceptance among teachers.

Acceptance was another student and system outcome mentioned by the participants. As one participant stated,

> I think our schools and kids without disabilities are benefiting from this as well. I think

> we're improving the cultures of schools and communities as well, where everyone is accepted and embraced and valued for their own unique abilities. Our kids have always been loved. We live in a good community here, we take good care of each other, there's benefit in that. But again, I think our work, specifically in special education, is a model for us to do some other things as well and support each other in a better way.

That quote embodies the feeling of acceptance, love, and support that surrounded these change efforts. One participant explained how you cannot quantify acceptance saying,

> The culture of the building... Other students started realizing the abilities of all students in the school, even those that might be a little bit different. I think that was really critical. [These smaller changes] just changed the culture of the building with acceptance and celebration of what everyone can do. That was a huge change; a huge, *huge* change. It provided some leadership in the classroom. Last year in an eighth-grade foundational class, we did have a couple students with SCD. The leadership that we saw out of the gen-ed students who were able to support and help [these students] was awesome. It was definitely a "look out for each other kind of thing," which was super cool. I think that's just the things you observe. There's no data to support that, but it was definitely a piece of it, for sure.

There was a systemic culture of acceptance and support throughout the multilevel system, but especially visible within the schools and classrooms.

Furthermore, using a modified Membership, Participation, and Learning (MPL) tool (McSheehan et al., 2009), to document acceptance of the students with SCD this tool measured student's membership and participation (see Table 9, Table 10). Throughout the district and school change efforts, improvements were made for students with SCD to be an integral part of

their schools and classrooms. Membership and participation have increased for all students with SCD. This MPL documentation showcases the significant increases in membership and participation for four students (Table 10), and the overall improvements in membership and participation (Table 9). Overall student membership increased by 28.5%, and participation increased by 193.9%. As one teacher described,

> [This student with SCD] is a shining star. He came in and people would think that the other kids in the room would have set the example. But I say the reverse, he set the example by raising the bar with expectations. He wants to do a good job and he loves positive feedback. But in the process, he raised the bar in the room. We have more students who would have been more reluctant to participate, beginning to speak up. So to me that's a positive change for the entire classroom environment.

Table 9. Total Membership, Participation, and Learning (MPL) Data

Initial Membership Score (n=4)	Most Recent Membership Score (n=4)	Increase	Initial Participation Score (n=4)	Most Recent Participation Score (n=4)	Increase
70.2%	90.2%	+20% points 28.5% increase	19.7%	57.9%	+38.2% points 193.9% increase

Table 10. Membership, Participation, and Learning (MPL) Data by Student

Student	Initial Membership Score	Most Recent Membership Score	Increase	Initial Participation Score	Most Recent Participation Score	Increase
MS 1 (6th gr.)	64.6%	85.4%	+20.8% points 32.2% increase	33.3%	59.3%	+26.0% points 78.1% increase
ES 1 (1st gr.)	44.4%	100%	+55.6% points 125.2% increase	3.7%	83.3%	+79.6% points 2151.4% increase
ES 2 (K)	76.0%	78.4%	+2.4% points 3.1% increase	25.0%	33.3%	+8.3% points 33.2% increase
ES 3 (K)	88.2%	97.0%	+8.8% points 10% increase	16.7%	53.0%	+36.3% points 217.4% increase

The documented MPL data also suggest increased opportunities to learn and participate with peers in general education classrooms. Academic changes have been explicitly addressed in Subthemes 5.1, 5.2. And 5.3 above, however, there were additional academic changes that were systemic. For example, one special education teacher explained how she collaborated with general education teachers and instructional assistants to find the essential elements of the curriculum. Instructional assistants began a process of asking the general education teacher, "So, out of these 10 questions, which ones really are those essential elements?" The instructional assistants then were able to focus on students with SCD learning those specific skills within the general education classroom. Additionally, the instructional assistants were able to bring modified materials to the general education classroom and use those to assess student knowledge. A general education teacher stated,

> So, when we give the students an assessment online, they use Google Forms. There may be like three written response questions. So, with [this student with SCD], what we would do is look at the questions that we would feel are most important for him to really demonstrate his understanding of the concept. We may eliminate two of the questions. We just want the student to give us solid writing to show his understanding of a concept. Because for me, the bottom line is, it's not about quantity, it's the quality. And really at the end of the day I just want to know, does he understand the skill?

In addition to academic materials being modified, academic time was being honored by the district, schools, and classroom teachers. One participant shared,

> In general, academic time was more valued by everybody. The one kid who still has pullout for OT, now has that service during flex time. So, the student is not missing any of his classes. Everybody is seeing the value of, "We don't want to take him out of science because he's got stuff he needs to learn."

These academic changes were evident during observations and interviews, and in the availability of adapted materials available in the schools.

Finally, another major student and system outcome was the extent to which the district, school, and classrooms were prepared to provide for the academic, social, emotional, and physical needs of students with SCD. When the district took the time to reflect on their practices, processes, and infrastructures using the ROXIE, they then developed an action plan that was leveraged to provide relevant professional development at every level of the education system. As described in Subtheme 3.4, professional development was collaboratively identified, planned, and implemented at all levels of their education system. Given their professional development focus, the district's level of preparedness was enhanced by their new shared understanding and

commitment to change and use inclusive education practices. As one participant stated,

> The staff understood that here's what we're trying to prepare our students to be able to do. If we get them to certain [skill] levels, that opens up different opportunities for them, as far as independence, because we've got five different post-secondary programs. Depending upon where the students are, that makes them eligible for different programs. Our goal [now] was to get everyone eligible for all five. I think that was really good just to change the mindset [of all district and school personnel]. It was an amazing staff; they love kids, but this was definitely a piece they just didn't have a lot of knowledge about. That was a really critical point. As we started building and moving forward, this [mindset change] was critical in what we were trying to do as well.

Subtheme 5.5: The multi-level systemic change efforts regarding inclusive education for students with SCD resulted in changing values and climate at the state, district, school, and classroom levels.

Though evident throughout this case study, the shifting values and climate have been embedded into the participant's comments, district documentation, and observations; however, there were a few specific comments about values and climate that explain these shifts. Participants discussed the shifting climate (n = 109) as (a) personnel turnover, (b) belonging, and (c) mindset.

As the district began shifting to inclusive practices, personnel turnover occurred in the district, school, and classroom levels. Some of the turnovers were positive changes, such as a principal shifting to a role in the district and a science teacher moving into a district science position. Additionally, the Exemplary Middle School replaced a special education teacher who was apprehensive about inclusive education with a teacher who was willing to commit to learn

and use inclusive education practices. While these were examples of positive personnel turnover, there was also personnel turnover that was not as positive. For instance, the district had teachers who left because they were apprehensive about the change process. One teacher described this process of turnover by giving her views of the shifting climate. She stated,

> Some of those apprehensive folks are no longer here. This is the future. It's the bottom line; these kids do need to be included. For me, that day you were here to observe, that was an eye-opening experience for me. Because that's the first time we had a kid from a self-contained special education class come into English Language Arts. Normally they have been in social studies and science, but now they're coming to literature. And [for me] to see just how capable this student is of being successful, for me it was like, "Okay, then he can't go back to a self-contained classroom. This is where he belongs." But I think the students need to have people advocating for them. Not just their case managers advocating, but other regular educators who are working with these students, who can see what their strengths and their weaknesses are and help them develop skills. To me it has to be a whole team effort.

At the time of my observation, I had not realized it was that student's first day being included in English Language Arts. I had not realized this because all of the supports were in place for him; that is, the content was modified, and he had adult support when he needed it during the class session. He completed a similar activity as his peers, but the general education teacher and the instructional assistant modified the activity to have less content (see Appendix C). This exemplifies the change in climate and values because they were ready for him on the first day of his transition into the general education classroom.

In addition to placement slowly shifting, there was also a shift in the way people felt

about placing students with SCD in the Least Restrictive Environment. One teacher stated, “Being in general education classes is the perfect fit. It's a fit like a glove for him because he's thriving in there. It is where he belongs.” The district also put safeguards in place so that students would not be automatically placed in self-contained special education classrooms. One participant stated,

> The district put [a process] in place so that any kid who is going to be sent to a regional self-contained class or school in kindergarten, or any other time, the [IEP team] has to contact the district office. The district office will say, "Explain to me why this kid can't get these services at their home school." So it's not a, "You can't send this kid there," but it's definitely a, "Why are you sending this kid there?" So that's one of the big changes that happened over a couple of years.

Another teacher shared a conversation she had with a student with SCD about belonging in the general education classroom. She stated,

> He has a solid work ethic. I think that speaks volumes to his character and his desire to learn. And he loves being in there. He even said to me, "You know, I'm glad I'm in here." I was like, "Oh, we're definitely glad to have you. I wish you were here a long time ago, but better late than never." But he's one of the hardest working students in that room. I wish we could clone him because I was like, "If you could take your work ethic and spread it around and sprinkle it like seasoning on the rest of the folks in the room, oh, my gosh, the things that we could do." But he's amazing.

Her response validated his feeling of belonging in her classroom and acknowledged the district efforts to place students with SCD in general education classrooms.

The district’s ongoing commitment to sustainable systemic change led to an improved

mindset for personnel in the district, particularly at the middle school level. One participant shared,

> I think that everybody has shifted into being more inclusive than they had been. So I don't believe there's anybody currently – and I mean currently meaning the '21/'22 school year, *that* recently – currently of the mindset that if you are a student with SCD, that you are in a classroom with a special educator, all day, at the middle school level.

Another teacher who was new to the district shared,

> I was really nervous. I know not every student is going to love history, but I want them to at least enjoy being in the class. So, I was overanalyzing everything. I was like, "How am I going to do this? I don't know what to do." Before I even got to know the kids, everyone was like, "You're going to get to know them. You're going to figure it out." That's how my mindset changed to, "Oh, you know what? We can do this! I'm not expecting them to memorize everything, but when they're in the class, they can still enjoy it." So that's kind of how I changed my mindset.

These two examples illustrate the impact of the shifting mindset at the individual level, but also the collective mindset shift. Such shifts were exemplified in examples about individual students, in student work samples (See Appendix C), in meeting minute documentation, and in their action steps to improve inclusive education practices. Another example one teacher shared was an example about a student whose behavior improved when he was included with his peers in general education classrooms. She said,

> Since I put him in this English Language Arts class, he is so cognizant of his own behavior. He is so excited about being there. He's doing well. He's like, "I'm in eighth grade now, and I know how to behave." Just a lot of really positive statements and his

behavior in other classes has improved.

The district also embraced these change efforts for inclusive education practices, thus changing the values and climate of the district overall. There were numerous stories embedded in this case study that illustrate examples of the shifting values and climate that coincided with the catalysts and processes, particularly their reflection on evidence-based practices for inclusive education for students with SCD.

Subtheme 5.6: The change efforts had a positive impact for students with SCD accessing the general education curriculum, instructional practices, and placement/setting.

The TIES Center classroom snapshot tool is a document that uses a time sampling protocol to collect data on the use of evidence-based inclusive education practices (e.g., co-teaching, explicit instruction, flexible grouping, technology, positive/corrective feedback, scaffolding, time delay, extended wait time, prompt hierarchy, graphic organizers etc.). These observations and tool help measure the impact of inclusive practices in general education settings. Findings from my 26 hours of observations indicate stark differences in the use of evidence-based inclusive education practices between general and special education classrooms (See Table X). Some of these include the use of communication strategies, evidence-based practices and specially-designed instruction, curriculum, and instructional personnel.

Use of Communication Strategies. Regarding the accessibility of augmentative and alternative communication (AAC), AAC was accessible during 66% of the time sampled observation periods, in special education classes, and accessible 16% of the time in general education classes. These data indicate an increase (i.e., 50%) in the accessibility of AAC for the student's use in a special education class than in the general education classrooms. When students were in the special education classrooms, the teachers placed the student's AAC device

on their desk within the student's reach. Sometimes they would model the use of the AAC device in special education classrooms, but it was disconnected from academic topics (e.g., the student kept pointing to "something hurts" and the instructional assistant spending several minutes problem solving with the student). However, AAC was not needed as often in the general education classroom (e.g., 78% of the time sampled observation periods it was not needed) because students were listening to instruction and following classroom procedures.

There were more opportunities in special education classes for explicit instruction in how to use their communication device or with the teacher modeling the use of an AAC for a student; whereas, in general education, there was less time for explicit instruction or modeling of an AAC device because the students were learning academic content. From the observations, it appeared that students were less likely to need AAC in general education classrooms because they were engaged in grade-level academic content, including listening to instruction, answering questions, and generally doing the same activities as their peers without disabilities. The students did, however, require their AAC devices to fulfill specific purposes, such as use of expressive language to ask or answer questions.

Use of Evidence-based Practices and Specially-designed Instruction. In general education classrooms, instructional evidence-based practices (EBPs) were used 80% of the observational intervals and used in the special education classrooms 75% of the observational intervals. Examples of instructional EBPs included co-teaching, explicit instruction, flexible grouping, technology, positive/corrective feedback, scaffolding, time delay, extended wait time, and graphic organizers. Although EBPs were used for a higher percentage of observation periods in general education classrooms, specially-designed instruction (SDI) was used more frequently in special education classrooms (e.g., 75% of the one-minute observation intervals) than in

general education classrooms (48%). This means that instruction was more frequently modified or adapted in terms of content, delivery, or methodology in special education classrooms.

While these data might be interpreted as supporting the increased use of SDI in self-contained special education classes, in reviewing observation notes this interpretation should be questioned. For instance, the "academic" curriculum content being taught in the special education classes was overly modified, far below grade level standards, and limited in relevance to any meaningful content. One example of this occurred in a middle school special education class in which the students were watching the Olympics via the Internet, with minimal engagement and no curriculum ties to the Olympics, as opposed modifications observed during a general education history class where the students were learning hieroglyphics (See Appendix C). This stark contrast in the use of SDI supports a more rigorous and appropriate use of modifications in the general education classes, where all modifications were related to grade level curriculum content and supported the students' demonstration of learning grade level standards.

Use of Curriculum and Engagement in Routines. During observations in special education classrooms, instruction based on the general education curriculum occurred during 0% of the one-minute observation intervals; therefore, none of the instruction observed was based on the general education standards. Conversely, during the general education classroom observations, students were engaged in instruction based on the general education curriculum 81% of the one-minute observation intervals. As mentioned above, academic curriculum content being taught in special education classrooms was unrelated to grade level standards (e.g., often far below grade level standards), however, instruction in the general education classrooms focused on general education grade level standards for the majority of the one-minute

observation intervals.

In special education classrooms, students were observed to follow classroom routines 75% of the one-minute observation intervals, and in general education classes the students were observed to be engaged in classroom routines 93% of the intervals. Therefore, during these observations, students were observed to be following a similar activity or routine as the rest of the class (e.g., getting into groups, class discussions, getting worksheets/ materials) more frequently when in general education classrooms.

Instructional Personnel and Instructional Factors. Instructional personnel refers to who was providing instruction to a student during the one-minute intervals that comprised an observation session. Instructional focus refers to the person on whom the student was focusing during that same data collection period.

In special education classrooms, special education teachers interacted with the targeted student(s) during 88% of the observation intervals. In addition, the students received support from instructional assistants during 51% of the observation intervals. During 0% of the observation intervals the students had interactions with peers, and during 8% of the observational intervals the students were focused on no one. During the observation intervals when the students were not focused on anyone, the teacher was not capturing the students' attention, was conversing with other adults in the room, or had walked away.

In general education classrooms, general education teachers interacted with the targeted student(s) during 73% of the observation intervals. In addition, the students received support from instructional assistants during 53% of the observation intervals. During 9% of the observation intervals the students had interactions with peers, and during 1% of the observation intervals the students were focused on no one. During the observation intervals when the

students were not focused on anyone, the students were engaged in independent work at their desks or preparing class materials (e.g., sharpening a pencil).

These observation data indicate differences between instructional personnel and focus in special and general education classrooms. During observation intervals, the students interacted with instructional assistants more frequently in special education classrooms; special education teachers and instructional assistants were interacting with students more frequently in special education classrooms. However, the students were focused on no one more frequently in special education classrooms and there were no opportunities for the students to interact with peers in the special education classrooms, therefore, peer interactions were only observed in the general education classroom. In addition, in general education classrooms there were interactions with teachers, peers, and instructional assistants, therefore, during the observations, there were more opportunities for students to interact with and focus on a variety of people.

Table 11. The TIES Center Classroom Snapshot Data

TIES Classroom Snapshot Tool	Observational Averages in General Education	Observational Averages in Special Education
AAC Accessible		
yes	16%	66%
no	6%	17%
n/a	78%	18%
Comm Supported		
yes	71%	80%
no	7%	10%
n/a	22%	10%
Instructional EBP		
yes	80%	75%
no	20%	25%
SDI		
yes	48%	75%
no	52%	25%
Engaged in Gen Ed		
yes	81%	0%
no	19%	100%
Engagement/Class routines		
yes	93%	75%
no	7%	25%
Interactions with whom		
special ed teacher	73%	88%
peer	9%	0%
IA	53%	51%
no one	1%	8%

Note. These percentages reflect interval recordings. During interval recording, students may have more than one opportunity to demonstrate an activity during the same interval, so these percentages do not equal 100%. For example, students may have interacted with a special education teacher, a peer, and an instructional assistant in the same one-minute interval.

CHAPTER V: DISCUSSION

Passage of the Education for All Handicapped Children (P.L. 94-142, 1975) granted students with significant cognitive disabilities (SCD) access to general education contexts. However, schools often deny students with SCD access to general education contexts, with the pervasive belief that a separate setting with modified instruction is better equipped to meet their needs (Agran et al., 2019). For nearly 50 years, research indicates that students with SCD benefit from inclusive education practices (Burton & Blatt, 1966; Gee et al., 2020; Kurth & Mastergeorge, 2012; Ryndak et al., 1999). Recent research, in a special issue of *Research and Practice for Persons with Severe Disabilities (RPSD)*, on the Institutes of Education Science Grant: *Factors Contributing to Academic, Social/Communication, and Behavioral Outcomes for Elementary Students with the Most Significant Cognitive Disabilities* demonstrates the lack of instruction in special education classrooms and separate schools, as well as a lack of genuine friendship for students in these settings (Jackson et al., in press; Jameson et al., in press; Zagona et al., 2022). When segregated, students with SCD are passing time at school, are often unengaged in learning activities, and are lacking social interactions (Gee et al., 2020). Conversely, in the special issue of *RPSD*, the research demonstrates an abundance of learning opportunities and friendships in general education classrooms.

The purpose of this qualitative case study was to investigate one district's multi-year experience with facilitating the development of inclusive education services for students with SCD. Specifically, this study addressed two research questions:

1. What did one school district do to address sustainable systemic change related to the inclusion of students with SCD in general education classes?
2. What was the impact of these efforts on students, their parents, instructional personnel,

and administrators?

This discussion section is a call to action, but also provides: (a) summary of findings, (b) discussion of findings, (c) implications for future research, policy, and practice, (d) limitations, (e) researcher positionality, and (f) conclusions.

Summary of Findings

The analysis of interviews with participants and district documents indicated major themes and 13 subthemes. Each of these themes and subthemes illustrate the changes efforts addressing sustainable systemic change related to the inclusion of students with SCD in general education classes during this case study, and the profound impact of these changes on multiple levels of the education system. The state, district, and school levels aligned their sustainable systemic change efforts towards inclusive education practices for students with SCD. Each theme assisted in understanding the change efforts at multiple levels of the education system, and their actions, words, and documentation to achieve sustainable systemic change for inclusive education.

First, in Theme One, participants and documentation illustrated that at varying degrees within the multiple levels of the education system, facilitation of sustainable systemic change for inclusive education practices was evidenced through initiating discussions about the need for change, implementing change, and evaluating the impact of change. Engagement in the facilitation of sustainable systemic change for inclusive education practices occurred at the state, district, school, and classroom levels. It was most frequently discussed at the school level.

Second, in Theme Two, the role, focus, and combination of external support and the existence of internal champions within the multiple levels of the education system acted as catalysts for implementing sustainable systemic change in two ways. First, because of the TIES

Center's role and focus on multi-level sustainable systemic change, there was pressure from each level of the education system to work toward sustainable systemic change. Second, the internal champions' focus and role in the multi-level systemic change efforts facilitated the process of sustainable systemic change. The combination of applied internal and external pressure led to changes within the multilevel education system.

Third, Theme Three was the most frequently discussed and documented theme in this case study. Facilitative processes were collaboratively identified, planned, and implemented at multiple levels of the education system to address the need for sustainable systemic change related to the inclusion of students with SCD in general education classes. The state, district, and schools established multiple collaborative teams related to curriculum, instruction, and other aspects of services. Facilitative processes were used to build commitment, vision, and shared understanding about inclusive education. The district reflected on their current practices and identified aspects of their services that would need to be addressed in the change process. The district used tools and action planning during the change process. For change to happen, professional development occurred at all levels of the education system. Allocating financial and practical resources at multiple levels of the education system assisted in facilitating the change efforts.

Fourth, in Theme Four, participants described a commitment to sustainability as embedded within the multi-level systemic change effort. Changes occurred at each level of the educational system, including the state department of education, the district, and the schools within the district.

Finally, in Theme Five, there was a significant impact on students, their parents, instructional personnel, and administrators due to the change efforts across multiple levels of the

education system. The participants and documentation reflect an impact of the change efforts on: (a) access to the general education curriculum content for students with SCD; (b) instructional practices; (c) placement of students in general education contexts; (d) student and system outcomes; and (e) values and climate reflected across settings. In addition to these areas of impact, observational data demonstrated the impact of the change efforts on general education curriculum content and access, instructional practices, and placement/setting.

Discussion of Findings

This case study highlights several foundational ways the district maximized sustainable systemic change for inclusive education. Specifically, the district change efforts: (a) occurred within the multilevel education system; (b) were tailored to the contexts within the multilevel system (e.g., state, district, and school); (c) engaged external critical friends; (d) moved through the implementation science stages; (e) traversed disciplinary boundaries; and (f) demonstrated sustainability and expansion.

Multilevel System Change Efforts

In this case study, changes occurred at multiple levels of the education system and were aligned, described, and documented at each level of the system. Theme One described the multilevel engagement in sustainable systemic change efforts. Understanding this multilevel effort is critical to understanding the success of this district's systemic change efforts for inclusive education. The crux of this change process happened because of the dedication and decision-making of the leadership teams at the state, district, and school levels. These teams were tasked with the reflection, planning, support, implementation, and evaluation of the change process for inclusive education in the district.

Leadership teams were developed at the state, district, and school levels that comprised

people who comprehensively knew the context of that environment. For example, the district leadership team had stakeholders from general and special education departments, the director of special education services, related service providers, equity coaches, the TIES Center personnel, and parents. These individuals knew their content areas and were familiar with how the district functioned. Often, these stakeholders knew the history of their education system, and what had (or had not) worked in the past. Leveraging these leadership teams to work within and across the education system helped create the multilevel impact that was seen throughout this case study. For example, there was multidirectional communication among all stakeholders and levels of the education system (e.g., leadership teams at the state department of education communicated with the leadership teams from the districts; the district leadership teams communicated with the school leadership teams; and each team had members from the state, district, and school levels). These multidirectional, multilevel communication structures were embedded within and across all levels of the education system to create sustainable systemic change for students with SCD.

The leadership teams built multilevel consensus about changes that needed to occur at and across each level of the education system, and the efforts needed to facilitate that change. This consensus led to an overall feeling of cohesiveness for this change effort, and that cohesiveness translated into practices being changed and enhanced to increase inclusive education learning opportunities for students with SCD. These efforts were based on the belief that when stakeholders embed changes into the multiple levels of the education system, it is difficult to reverse these changes and return to previous familiar practices. This belief is consistent with the literature that addressing change at all levels of the system is critical to the success of implementing sustainable systemic change (Ryndak et al., 2007)

Multilevel change is critical to the success of sustainable systemic change because

cohesiveness can be attained at each level of the educational system, thus creating change that is embedded throughout the system. With the state, districts, and schools working towards the same goal, it creates unity and minimizes divisiveness by sharing a common mission and vision. Addressing change across the multilevel system is necessary for sustainable systemic changes to occur, therefore, when attempting educational systemic change stakeholder groups at all levels of the system (i.e., the state, district, and school levels) leadership teams must engage in facilitating change across levels.

Contextually-based Processes

As discussed in Theme Two, the facilitative processes (e.g., establishing collaborative teams; building commitment, vision, and shared understanding about inclusive education; reflecting on current practices; using tools and action planning; providing relevant professional development; and allocating financial resources) that emerged from the interviews, documentation, and observations are consistent with the literature on determinant frameworks (e.g., understanding context, acknowledging climate and culture, teaming to facilitate changes, collecting data, defining the problem, aligning of change efforts with existing school improvement efforts, identifying supports needed, building system capacity) discussed in Chapter Two. In this study, facilitative processes were tailored to the context to create sustainable systemic change for students with SCD, these processes changed the infrastructure at multiple levels of the education system. The district's external critical friends (i.e., personnel from TIES Center) assisted the district in using a process to understand the various contexts in their system through reflection, action planning, and support at the state, district, and school levels.

In this case study, the dynamic interaction between contextually-based reflection, action

planning, and support for improved inclusive education practices was critical to the success of achieving sustainable systemic change. Without these three facilitative processes, it would have been unlikely for the district's change efforts to be successful. These facilitative processes interact with each other; that is, the reflection process informs the action planning, the action planning informs the supports needed, and implementing supports further informs future reflection. This process is iterative, periodically cycling back to reflection, planning, and support. These processes are influenced by each other as a system achieves sustainable systemic change.

This case study demonstrated that the TIES Center's process (i.e., reflection, action planning, implementing) had a positive impact on the district's change efforts for students with SCD, indicating a relationship between the contextually-based reflection process, contextually-based action planning, and contextualized supports to improve this district's change efforts. The interaction among reflection, planning, and support for improved services should be further investigated to examine if there is causality between these processes and sustainable systemic change. In this district, there are clear examples of how these facilitative processes assisted in creating sustainable systemic change for inclusive education.

Once the collaborative leadership teams were established at each level, they met to reflect on the extent to which their current practices matched evidence-based practices and identify aspects of their services that would need to be addressed in their change process. These teams used the ROXIE to reflect on their current practices, thus stakeholders considered the existing context during each phase of their change efforts. The education system tailored their change efforts to maximize the use of their contextual strengths and needs. This contextualization had a positive impact on their change efforts. For this context-based reflection process to work, the leadership teams had to have extensive knowledge of the context, climate, and history of the

infrastructures within their multilevel systems. As the teams reflected, they began defining areas of need to begin building their own capacity to implement inclusive education practices.

Reflection Process

In this case study, the reflection process occurred at every level of the education system (e.g., state, district, and school), coalescing into a deeper and wider change effort across the state. For example, the state invited district and school stakeholders to the state level ROXIE reflection process; the district invited state and school stakeholders to the district level ROXIE reflection process, and the schools invited stakeholders from the state and the district to the school level ROXIE reflection process. The multilayered reflection process allowed all the stakeholders in the multilevel teams to be engaged in the change process at all three levels. This created opportunities to build a shared understanding and commitment because all stakeholders felt their voices and opinions were valued. This opportunity created multiple outlets for honest, open, and difficult conversations. During the reflection process stakeholders were given opportunities to discuss concepts and issues in small groups, and then share their thoughts with all the stakeholders. This sharing provided broader opportunities for dialog across all the stakeholders. During these dialogs, the facilitators were able to ask probing questions about the shared thoughts, which allowed all the stakeholders to further reflect on the new knowledge shared by others and, eventually, reach consensus on the state of services their system was providing.

Because of this, they contextualized their change efforts to their own system, resulting in a shared understanding and commitment that naturally arose from the discussions. This is important because traditional professional development does not lead to sustainable systemic changes (Garbacz et al., 2015). Joyce and Showers (1982, 2002) describe that changes are 95% more likely to be sustained through coaching, rather than traditional professional development

approaches. To direct leadership teams through this contextually based reflection process, external critical friends coached the reflection process, allowing teams to make decisions based on their strengths and needs.

Action Planning

After completing the reflection process, the stakeholders came to a consensus about the actions (e.g., workshops, technical assistance with coaching, policy changes) that would best match their own system's needs and result in systemic change in their services. The stakeholders at each level of the system came to a consensus about the actions that would have the most extensive and lasting impact on the quality of their inclusive education practices and created action plans (see Theme Three in Chapter 4). The district directly derived these action plans from the discussions that occurred during the ROXIE reflection process. They were developed and revised throughout the system's multi-year change process. It is important to note that changes in their inclusive education practice had been occurring over three years within a process that was expected to last at least five years and took a significant amount of effort at all levels of the system. These action plans became the steps to creating systemic change at the state, district, and school levels.

It is not enough to just reflect on the alignment of current services and evidence-based practices; thus, goals must be set and lead to changes in supports for service providers. These contextually-based changes must lead to improved services, identify specific actions, and timelines. Individual stakeholders or leadership teams must take on the responsibility of embedding these supports and be assigned specific actionable tasks to demonstrate progress towards these goals.

Supports

To achieve improvement of inclusive education practices, supports were (a) embedded into the multilevel system, (b) used internal and external experts, (c) leveraged contextually based processes, and (d) identified a person responsible for accountability of the change efforts. Supports were embedded at the state, district, and school levels that allowed for each part of the educational system to meet their action planning needs. As previously mentioned, in this study, internal and external experts were critically important for change efforts to be successful. These experts knew the context of the educational system and could differentiate to meet the needs of specific stakeholders while implementing inclusive education practices; tailoring the content and processes to meet the stakeholder's needs. Finally, leadership teams identified a specific person with authority and responsibility for accountability that could complete the action steps required for changes to occur in the educational system. None of these supports were predetermined, in fact, all the ideas for support came from the stakeholders during their reflection and action planning processes.

When attempting educational systemic change, based on the findings from this case study, leadership teams are more likely to be successful when they engage in reflection, action planning, and support with stakeholders to develop a shared understanding of their educational contexts, what changes they want to achieve, and how they can implement those desired changes. Using this shared understanding, leadership teams are more likely to build stakeholder ownership of the systemic change process.

External Critical Friends

In this case study, the TIES Center personnel acted as external supports related to inclusive education and the implementation of sustainable systemic change processes across the

multiple levels of the education system. In essence, they were external critical friends for the stakeholders; that is, they were outside experts who built relationships with stakeholders at the state, district, and school levels. They established an environment of support and challenge to stakeholders across the educational system. As described in Theme Two, the role, focus, and combination of external support and internal champions within the multiple levels of the education system acted as catalysts for the implementation of sustainable systemic change.

Bambino (2001) described the role of critical friends (e.g., a group of colleagues used for collaboration and reflection) in being catalysts for educational change. She posits these colleagues give feedback, collaborate, assist in finding solutions, and assist in creating community. Generally, critical friends provide a unique mix of support and challenge needed for changes to occur in a school or school system. In this case study, members of the TIES Center (a) built rapport and trust with state, district, and school personnel; and (b) shared expertise related to inclusive education, evidence-based practices for students with significant cognitive disabilities, and systemic change.

For systemic change efforts to be effective, outside experts build rapport and trust with the stakeholders involved in the change process. In this case study, the state, district, and schools applied for support from the TIES Center, effectively opening the door for external support that could advance the changes sought by the educational system. Once this application was approved, the TIES Center had to build relationships with stakeholders across the multi-level education system. They assisted in building leadership teams as they carefully interacted with the stakeholders to develop an understanding of the historical context and current services provided by the educational system. Interactions focused on asking questions, listening, and responding in a manner that led stakeholders to a deeper understanding of practices related to inclusive

education, students with significant cognitive disabilities, and systemic change, as well as the extent to which their current services reflected those practices. This led to the ability to challenge the prevailing constructs that existed within the multiple levels of the educational system. To accomplish this, the TIES Center used the contextually based reflection tool (e.g., the ROXIE) to develop a shared understanding of evidence-based practices for students with significant cognitive disabilities and build consensus about the alignment of their current services with those practices across the educational system. As this process occurred, relationships among TIES Center personnel and the stakeholders were strengthened. The TIES Center did not come in with a proscribed list of tasks; rather, they used the ROXIE reflection process to facilitate the stakeholders reaching their own conclusions about what changes were needed and how to facilitate those changes across the educational system.

When attempting educational systemic change, leadership teams are more likely to be successful when they engage external critical friends throughout the sustainable systemic change process. External critical friends can be effective sources of expertise and insights gained from their specialized professional experience, and that are not available within the current system.

Implementation Science Stages

As the state, district, and schools moved through the stages of implementation science (e.g., exploration, installation, initial implementation, and full implementation) the TIES Center provided contextualized support, without proscribing a formulaic method for achieving change. Keeping implementation science concepts in mind, the TIES Center created a process that assisted stakeholders in reflecting, planning, and implementing change efforts at each level of the educational system. This process comprised five steps:

1. Leadership teams were formed at the state, district, and school levels.

2. The ROXIE reflection was completed at each level of the education system.
3. An action plan was created at each level involving stakeholders from the other levels.
4. The action plan was implemented.
5. The impact of the systemic change efforts on services across the educational system was evaluated.

Simultaneously, the TIES Center embedded sustainability into each step; that is, they maintained leadership teams at each level who continued to reflect on their practices every 3 years, updated their action plans every year, implemented those action plans with accountability from stakeholders, and evaluated the implementation of the action plans with stakeholders quarterly. The data and documentation provided by the educational system illustrated the impact these consistent actions had on the system overall, as well as on students with SCD.

Using Fixsen et al. (2005) as a metric for sustainable systemic change in the district, change efforts were evidenced through three specific implementation outcomes, including changes in: (a) behaviors, (b) structures, and (c) relationships. As the district conducted change efforts, there were behavioral, structural, and relational changes at all levels of the education system. Behavioral changes were indicated in the way participants facilitated processes for sustainable systemic change with the state, district, and school leadership teams. In addition, behavioral changes occurred with teacher behaviors in their attitudes towards inclusive education and students with SCD. Structural changes were evident in the district's processes used for reflection, action planning, decision-making, and implementation of change efforts. Relational changes were obvious in the way all stakeholders presumed competence for learners with SCD and built collaborative partnerships at and across each level of the education system.

Expertise in implementation science is critical to the long-term success of change efforts, as it emphasizes both the creation and sustaining of systemic change. Implementation science approaches assist leadership teams with a deep understanding of the overall context of an organization; that is, through the use of these approaches, leadership teams can identify problems in their organization and find solutions to mitigate these problems. Without specific knowledge of implementation science, change processes might lead to temporary changes, but rarely lead to sustainable systemic change. When attempting educational systemic change; therefore, leadership teams must ensure expertise in implementation science approaches is embedded throughout the change process.

Without specific knowledge of implementation science, change processes might lead to temporary changes, but rarely lead to sustainable systemic change. When attempting educational systemic change, therefore, leadership teams are more likely to be successful when they engage in activities that reflect implementation science practices.

Traversing Disciplinary Boundaries

This case study demonstrated the importance of internal and external pressure and support at all three levels of their system, resulting in full system involvement in efforts for sustainable systemic change, thus, their change efforts did not occur in educational silos. These efforts neither occurred in isolation at the state, district, or school levels, nor within a single department within each of those levels. This case study was unique in its documenting of a district's efforts to affect changes that traversed all departments in the education system. It was not a "special education" change effort; instead, it was an educational change effort for all students. The fact that this change effort crossed disciplinary boundaries allowed for changes to be embedded into strategic action planning at every level of the education system and across

disciplines.

As mentioned in Chapter Two, silos exist and are "well-entrenched" in the education system (McCart et al., p. 253), making it difficult for general and special education teachers to sustain inclusive practices. General education teachers need opportunities to learn how to instruct students with disabilities in their classes, and according to Crispel and Kaspersk (2019), there is a necessity for "system-wide" responsiveness that increases teachers' motivation to foster inclusive practices. Additionally, Crispel and Kaspersk suggest that these changes should occur within teacher preparation programs to preemptively avoid these education silos. As such, this district case study indicated that crossing disciplinary boundaries was a positive approach for affecting sustainable systemic change for students with SCD. Their change efforts illustrated the district's ability to engage all stakeholders in their education system, regardless of their perceived expertise. For example, one of the foremost leaders of change in this district was a general education science content specialist. With her leadership, a team of general and special education teachers created essential elements of the science curriculum for students with SCD. This cross-disciplinary effort is now being applied and sustained for all content areas in the district (e.g., math, social studies, English language arts).

When attempting educational systemic change, the change cannot be siloed in a single discipline or context (i.e., special education, science classes). It is more likely leadership teams will be successful when changes are embedded across educational disciplines and contexts.

Sustainability and Expansion

As demonstrated in Themes Four and Five, the district's efforts expanded to add schools and students, considerations had to be made for time, energy, and support for both schools already engaged and those just beginning the change process. The simultaneous efforts to sustain

and expand put a strain on the system's resources, so they needed careful consideration and planning to ensure the change effort was successful. As the district onboarded additional schools in their change efforts through the use of the ROXIE, they considered the needs of those additional schools, while continuing to support the schools already engaged in the process. For example, the additional schools needed more support in the initial change efforts as they began to make changes to services and instructional materials, while supporting teachers with these changes. In contrast, the schools that had been engaged in the change efforts already knew how to implement these initial inclusive education practices, but still required support to expand the number of students with SCD in general education classes and the teachers who supported those students through the use of those inclusive practices. Over time, therefore, as individual schools effectively implemented change efforts, their need for support diminished.

Change processes are not time-bound and take a significant amount of time, energy, and funding. When conducting change efforts, it is important to be mindful of the time and funding needed for change to occur. As mentioned in Theme 3, specifically in Subthemes 3.4 and 3.6, the funding provided by the state allowed for hiring equity coaches who helped facilitate sustainable inclusive education practices in each of the targeted schools. In this case, EMS took five years to implement and integrate changes into their daily practice and ensure those changes would continue in the oncoming academic years. While schools that are just beginning a change process want their services to change immediately, the reality is that sustainable systemic change usually takes years to achieve–years of difficult conversations, concerted efforts, planning, and evaluation of the impact of change efforts.

When attempting educational systemic change, sustainable change does not occur rapidly or easily. Leadership teams are more likely to be successful when these sustainable systemic

change efforts (a) happen across the multilevel system, (b) ensure ownership through contextually based processes, (c) involve external critical friends for an objective yet knowledgeable perspective, (d) reflect implementation science practices, and (e) embed changes that traverse disciplinary boundaries.

Implications for Future Research, Policy, and Practice

Participants described and documents contained evidence that there was a dynamic interaction between research, policy, and practice to increase opportunities for students with SCD to access general education content in general education contexts. Unfortunately, a limited amount of research exists regarding the transference of research into policy and practice for inclusive education of students with SCD. To leverage multilevel change efforts effectively, findings from this case study can inform practitioners about facilitating the development of inclusive education services for students with SCD.

Implications for Future Research

Due to the dearth of information on the implementation of sustainable systemic change for inclusive education, the findings from this study lead to three main implications for areas in which research is needed. These areas for future research include: (a) the relationship between contextually-based processes and the components of processes that are necessary to achieve sustainable systemic change; (b) pre-service and in-service personnel preparation related to inclusive education practices; (c) competencies needed by pre-service/in-service teachers to be leaders in educational change; and (d) leveraging implementation science concepts to create sustainable systemic change.

This case study illustrated that the combination of contextually based reflection, action planning, and supports demonstrated a positive effect on the district's achievement of sustainable

systemic change related to inclusive education for students with SCD. Additional research is needed, however, to determine if all three of these components are necessary for achieving sustainable systemic change, or if a specific component is more important than the others in achieving systemic change. This case study may be an isolated phenomenon in which these components were effective collectively, but it mirrors similar literature concerning the facilitation of systemic inclusive education change (Ryndak et al., 2007; McLeskey et al., 2014). Obtaining a better understanding of contextually based processes might inform future efforts for achieving sustainable systemic change. A better understanding of these processes could lead to a higher probability that they can be replicated and inform future practitioners and researchers about how to facilitate sustainable systemic change.

Despite promising research on the positive effects of coaching to improve the use of evidence-based practices with fidelity (Kretlow & Bartholomew, 2010), minimal research has been done about professional development and coaching related to the implementation of inclusive education practices, especially for students with SCD. In one comparison study about alertness for students with SCD in special education and general education classes, the effectiveness of coaching staff members was highly variable (Foreman et al., 2014). To extend the current study, a deeper look into the district's professional development practices and coaching structures is needed. The district's change efforts demonstrated how professional development with an on-site equity coach assisted in the facilitation of the use of inclusive education practices. The equity coach's role was described by participants as having a significant impact, but there is a need to operationally define this coaching role to make these efforts replicable in other schools and districts. Additionally, examining how coaching was embedded into professional development practices would broaden the literature base on the impact of

coaching teachers and instructional assistants for students with SCD in general education classes.

Frost (2012) states that pre-service and in-service teachers are natural leaders in educational change efforts. To be effective, however, teachers need to understand that for change efforts to be effective and long-lasting, change must occur at every level of a system; therefore, change efforts need to occur simultaneously at each level. If change efforts are not embedded in each level of the multilevel system, it is more likely that the teachers' change efforts will lead only to temporary changes in their immediate context, rather than sustainable permanent changes in the system. Contextually based reflection, actions, and support are also critical elements of successful systemic change. Teachers need to understand that making decisions based on context leads to more effective systemic efforts. In addition, teachers need to understand that when attempting educational change, external critical friends can assist them by gaining an outside perspective of the changes being attempted. Finally, teachers need to understand that change efforts take a significant amount of time. Though teachers can begin a change process within their own classroom, this case study demonstrated that their efforts would be more successful by engaging a multilevel team that makes decisions based on context at each level of the system. With this understanding, additional research is needed to further understand teachers as change leaders.

This study also indicated that the education system went through the stages of implementation science, which is minimally addressed in the literature, particularly for students with SCD. Without mentioning the implementation science terminology, the participants described change processes that are consistent with the implementation science literature. For example, there are eight determinant frameworks mentioned in the Chapter Two literature review, including understanding context (Dingfelder & Mandell, 2011); acknowledging climate

and culture (Johnson et al., 2018); teaming to facilitate changes (Lyon et al., 2018); collecting data (Bacon et al., 2011; Domitrovich et al., 2008); defining the problem (Bohanon et al., 2016; Cook & Odom, 2013); aligning of change efforts with existing school improvement efforts (Bohanon et al., 2016; Sailor 2015); identifying supports needed (Domitrovich et al., 2008; Sailor 2017); and building system capacity (Cook et al., 2013). The case study participants demonstrated an emerging understanding of determinant frameworks as they described their systemic change process. Perhaps future research could study the determinant frameworks found in the implementation science literature to determine whether any or all of them have an impact on inclusive education for students with SCD and, thus, inform future sustainable systemic change efforts. Additional research is needed about using the concepts from implementation science to create sustainable systemic inclusive education change more effectively across all levels of the education system.

Implications for Policy

Domitrovich et al. (2008) suggest that a clear alignment between the organization's mission and their policies is necessary for systemic change to occur within an organization. As education systems strive to change their services to reflect evidence-based inclusive education practices, they confront the fact that current federal educational policy does not ensure per se access to inclusive education practices for students with SCD. Specifically, this is evident in three aspects of federal policies, including: (a) requirements for districts to close the research-to-practice gap for inclusive education practices; (b) clarification that access to the general curriculum means that there is no alternate curriculum; and (c) proliferation of the "continuum of services" to justify a "continuum of placements," resulting in segregation.

ESSA (2015) acknowledges the existence of a research-to-practice gap for inclusive

education practices; however, no federal policy guidance exists for how states and districts can close that gap. Though there is a relatively small corpus of literature about facilitating sustainable systemic change, the extant literature suggests common determinant frameworks for educational change (e.g., understanding context, collecting data). Cognizance of the literature on closing the research to practice gap and facilitating educational change is imperative if school systems are to successfully address sustainable systemic change. Increasingly, researchers are relying on the literature from implementation science to address sustainable systemic change, but no federal policies have been written to address implementation. As information becomes more available, accessible, and disseminated, this literature has the potential to close some of the research to practice gaps that exist in special education (Greenwood & Abbott, 2001). As future grants are funded, it might be beneficial to provide funding for grants that demonstrate a better understanding of how to implement sustainable systemic changes that further inform policy decisions about the provision of inclusive education practices.

A second aspect of concern is federal policy related to curriculum. Federal law refers to access to the general education curriculum for all students and makes no mention of an alternate curriculum (Sabia & Thurlow, 2019). Kurth et al. (2021) argue that providing an alternate curriculum goes against the federal mandates of providing students with access to the general education curriculum content. According to the literature base, and demonstrated in this case study, students with SCD can access, understand, and progress in learning the general curriculum content (Gee et al., 2021; Ryndak et al., 2013). This case study demonstrated that when schools/districts provide access to general education curriculum content and provide supports and services (e.g., adapted materials), students with SCD learn general education curriculum content. One of the unintended consequences of an alternate curriculum advertised as

specifically developed for students with SCD is that it perpetuates the "need" for segregation (Jackson et al., submitted). For example, state departments of education justify the use of alternate curriculum content for students with SCD, which leads to their segregation in self-contained classes, citing that students with SCD require instruction from a special education teacher with specific skills in teaching that content to students with disabilities (Agran et al., 2019). Federal policies need to be clarified to ensure that access to the general curriculum means that there is no alternate curriculum.

A third aspect of concern related to federal policy is the IDEA mandate to provide a "continuum of services," which has been interpreted as a continuum of placements (i.e., LRE placements A, B, C, and D). The mandate needs to be reconsidered from an equity perspective. The continuum of services presumes that not all students can access the general education curriculum or context. Currently, this continuum of services is contingent upon where a student lives (White et al., 2019), and where a student lives should not determine the quality, availability, or equity of services for students with SCD. For instance, students with disabilities should not have to travel for hours to reach a regional program based on a disability label, rather, they should be in classes close to their homes. Prior to the district's change efforts, students with disabilities were placed in regional programs based on disability labels or perceived cognitive ability. When this district realized they were unintentionally justifying segregation of students with SCD by the availability of separate classrooms in schools, they began the arduous process of changing procedures, policy, and practice. The continuum of services mandate is antiquated and needs to be updated to convey the diversity seen in day-to-day life (e.g., natural proportions of people of color, disability, and gender).

Implications for Practice

There are three main implications for practice related to facilitating sustainable systemic change that arise from the findings of this case study, including the need to: (a) understand the contexts and identify systemic change processes that are embedded into contexts across all levels of the education system; (b) leverage changes within and across all levels of the education system; and (c) build strong collaborative teams across all levels of the education system. Stakeholders such as state, district, and school level administrators, general and special education teachers, related service providers, and families should be included in implications for practice.

In this case study, contextually based processes (e.g., reflection, action planning, and support) were used to identify changes to be made in the education system to support inclusive practices and to embed those changes across multiple levels of the system to ensure that changes would be sustained. Different states, districts, and schools have needs that are unique to their circumstances and change efforts must be tailored to those unique needs and individual contexts. If change efforts are unrelated to the context in which the changes are to occur, it is unlikely that change will occur and, if it occurs, it is unlikely it will be sustained over time. Using the participants' own words and reflections as a starting point for change efforts, assists in ownership of the changes made. When teams attempt changes in their practices, using such contextually based processes might increase the likelihood of their efforts being successful, sustained, and systemic.

A second implication for systemic change processes related to facilitating sustainable systemic change relates to leveraging change efforts within and across all levels of the education system. When leadership teams at each level are leveraging change efforts and are held accountable (e.g., implementation and evaluation of action plans), changes are more likely to

occur and be embedded in practice across each level of the education system. Change at one level of a system can require changes at the other levels, thus changes across levels must be aligned and change efforts might need to be reconsidered at each level as any change is made. For example, policy, procedure, or accountability changes at the state level, requires policy, procedure, or accountability changes to occur at the district level. Therefore, when changes are made at one level of the system, there is a direct impact on the other levels of the system.

Finally, a third implication of this case study for systemic change processes focuses on the need to build collaborative teams at each level of the system who are willing to: (a) have difficult conversations about current practices and how those services might need to be changed, (b) implement the needed change, and (c) support leaders who facilitate the needed change. As leadership teams in this case study engaged in their district's change efforts, they took a critical look at their current practices and the extent to which those practices aligned with current evidence-based practices. This activity led to difficult conversations at each level and, ultimately, attrition at the state, district, and school levels. When people left their positions or transitioned to a new role, several issues emerged, but several opportunities also were created for aligning the strengths of personnel with the expertise needed in specific roles for growth to occur. These difficult reflective conversations consistently were described as resulting in a common understanding of the need for change and, therefore, were the impetus for change efforts across the education system. Once stakeholders could come to an agreement about their current practices, leadership teams for the state, district, and schools could use their reflections to implement change. The educational system could use facilitative processes to embed change at all levels of the system. The backbone of these change efforts was the multiple collaborative leadership teams. Frequently mentioned by participants, members of these leadership teams were

"well-respected" and "in the trenches;" these quotes lend support to the idea that solid leadership teams are critical for the success of sustainable systemic change. Therefore, when implementing sustainable systemic change efforts, this case study suggests that there is an inextricable link between difficult conversations, implementing change efforts, and strong leadership.

Research Limitations

There are three main limitations to this case study. These include limitations caused by: (a) an inability to generalize to other districts because this case study is about one, and only one, school district; (b) a lack of family and student input; and (c) an absence of inter-rater reliability for the classroom observations.

Regardless of the variety of data collected, this study is about one school district's efforts to obtain sustainable systemic change. Because of this, findings and conclusions cannot be generalized to other school districts. Case studies using qualitative methodologies present unique challenges for obtaining dependability, credibility, confirmability, and transferability. Though each of these areas is addressed in this study, more studies on this topic are needed to determine whether the findings can be generalized to other districts or educational systems.

Another limitation of this case study was the PI's inability to access families and students during the study, aside from direct observations of students in classes, due to the COVID-19 pandemic. District, school, and classroom personnel were just beginning to reach a modicum of normalcy after the global pandemic; therefore, the PI was asked to not intrude on their time any more than necessary for this research. Support from district personnel was required, however, for the PI to contact families and students directly. While multiple attempts were made to interview families and students, all attempts were unsuccessful due to district personnel's limited available time. This firsthand perspective would have been valuable to understand these change efforts

from the perspectives of families and students. The impact of this limitation is minimized by participants discussing families and students, but it is not the same as a firsthand account from families and students about the change efforts that transpired.

To conduct the classroom observations, the PI traveled to the district at the convenience of the district and school personnel. Unfortunately, that meant the PI frequently was required to make last-minute plans to visit the district, and other trained researchers were not readily available to travel on short notice to assist with inter-rater reliability. Future studies would be strengthened with the collection of inter-rater reliability data during classroom observations.

Conclusion

There are three main conclusions that emerged from this study. All three of these conclusions are non-negotiables, meaning that they all need to be consistently evident across the multilevel system as it moves toward sustainable systemic change.

The first conclusion is that a system cannot wait for buy-in from 100% of the stakeholders and, therefore, must create contextually based processes that ensure change efforts are adapted for the stakeholders and contexts in which change is desired. Guskey (2002) posits that professional development leads to changes in teacher practices, then changes in student learning, thus creating changes in the teacher's mindset. Therefore, when implementing sustainable systemic change efforts, it is unnecessary to wait for 100% buy-in from all stakeholders. When teachers see positive and effective changes occur, their mindset shifts to believe their new practices have had a positive impact on student learning. As mentioned previously, the reflection, action planning, and implementation processes used by and with this district were deeply contextualized to the state, district, and school levels of the education system. As such, these changes were based on the strengths and needs at each level involved in

the change efforts.

The ability to contextualize support to address stakeholders' and contextual needs is learned expertise that takes both interpersonal skills and a deep understanding of sustainable systemic change (Latham, 2014). In this case study, the stakeholders came to a consensus about actions and supports that would best match their own system's needs. This is a stark contrast to traditional professional development opportunities that attempt to change systems by providing predetermined content to stakeholders, thus counteracting the traditional models of professional development by building ownership of change efforts using stakeholders' own ideas and reflection. The sustainable systemic change efforts resulted from the stakeholders' decision-making, their understanding of their own needs, and their individualized context. They decided for themselves what was important and relevant to their context. The facilitators did not give a proscribed, pre-packaged formula for change to occur; rather, they used the education system's contextually based reflection process to facilitate conversations, action planning, and support. Finally, contextualized change was implemented at each level of the education system, ensuring success by focusing on the collaboratively chosen actions at the state, district, and school levels.

The second conclusion is that it is necessary to interrupt the cycle of recurring feedback loops within the system and resist the temptation of homeostasis by ensuring immediate success. If the TIES Center had not facilitated the interruption of the district's current feedback loops (e.g., default placement of students with SCD in self-contained classrooms), the system might have maintained homeostasis instead of successfully implementing inclusive education practices (i.e., placing students in general education classrooms in their neighborhood schools and implementing evidence-based practices). Expertise shared by the TIES Center personnel was an invaluable resource, along with their ability to move the education system through the stages of

change described in the implementation science literature.

It is tempting to maintain homeostasis in the educational environment, therefore disrupting the current feedback loops is critical if change efforts are to occur. External critical friends, such as the TIES Center, have the capacity to interrupt the status quo at the state, district, and school levels by introducing a contextually based reflection tool. As the leadership teams at the state, district, and school levels reflected on their processes, the multilevel education system interrupted the way they were functioning by addressing contextually based problems within their infrastructure. Through this reflection process, the multilevel leadership teams had to abandon what was known, what was comfortable, and what was historically done at the state, district, and school levels. Instead, they had to embrace change, conduct action planning to facilitate change, and communicate within and across each level of the system. The education system's change efforts became cohesive through their ability to create leadership teams at each level, and have each level represented within each team. For example, district leaders attended the state and school leadership meetings to help facilitate a cohesive, aligned change effort.

The final conclusion is that it is critical to align change efforts across all levels of the education system if any change is to be sustained over time. The multilevel change efforts were aligned across the levels of the education system thus promoting sustainable systemic change towards inclusive practices for students with SCD. As one participant stated,

> Change can be a challenge, but you have to be willing to do it, because we are in the business of continual improvement. We know that as educators, we owe it to our kids to strive and find a better way. And for us and for others, just because you've done it one way for a while, doesn't mean it's the only way. But again, we experience all those normal challenges with change, but there's evidence and support behind [inclusive

education practices].

In summary, this district addressed and had an impact on sustainable systemic change related to the inclusion of students with SCD in general education classes. The TIES Center personnel and the district made these changes during a global pandemic and still demonstrated favorable outcomes for students with SCD to access and make progress in the general education curriculum. Students with SCD have the right to have opportunities to learn, grow, and change every day with their same-age peers, close to their homes. The rhetoric must change from the current discourse about students with SCD needing special teachers, in special schools, in special education classrooms, to a discourse on equity, inclusion, and systemic change to meet the needs of students with SCD. As reflected in interviews, observations, and documentation, this district's change efforts were cohesive, interrelated, and facilitated by the multilevel education system. This study provides evidence of the need for sustainable systemic change efforts to be contextually based, interrupt the status quo, and be aligned throughout the multilevel education system. When applied to inclusive education practices for students with SCD, systemic change can be realized and sustained, thereby improving outcomes for all students and stakeholders in the multilevel system.

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Zagona, A. L., Kurth, J. A., & MacFarland, S. Z. (2017). Teachers' views of their preparation for inclusive education and collaboration. *Teacher Education and Special Education*, *40*(3), 163-178. https://doi.org/10.1177/0888406417692969

APPENDIX A: SEMI-STRUCTURED INTERVIEW QUESTIONS

1. Explain why CCPS got engaged in the change efforts related to inclusive education for students with significant cognitive disabilities.

2. Describe how students with significant cognitive disabilities were being educated prior to 2017.
   a. Were these services consistent across your school/district/state?

3. Describe what happened between then and now that resulted in these changes. (who, when, what)
   a. Supports
   b. Processes
   c. Tools
   d. Teams
   e. Stakeholders
   f. Expand on their comments: what was that like, tell me more about, give an example, who/what/how
   g. Most helpful/effective

4. Describe any major issues that arose.
   a. Addressed?
   b. If yes, how so?
   c. If no, why not?

5. Describe any changes in services for students with significant cognitive disabilities.

6. Describe any changes in adults' mindset and/or practices

7. Describe any changes in policies, procedures.

8. Describe any other changes that have occurred.

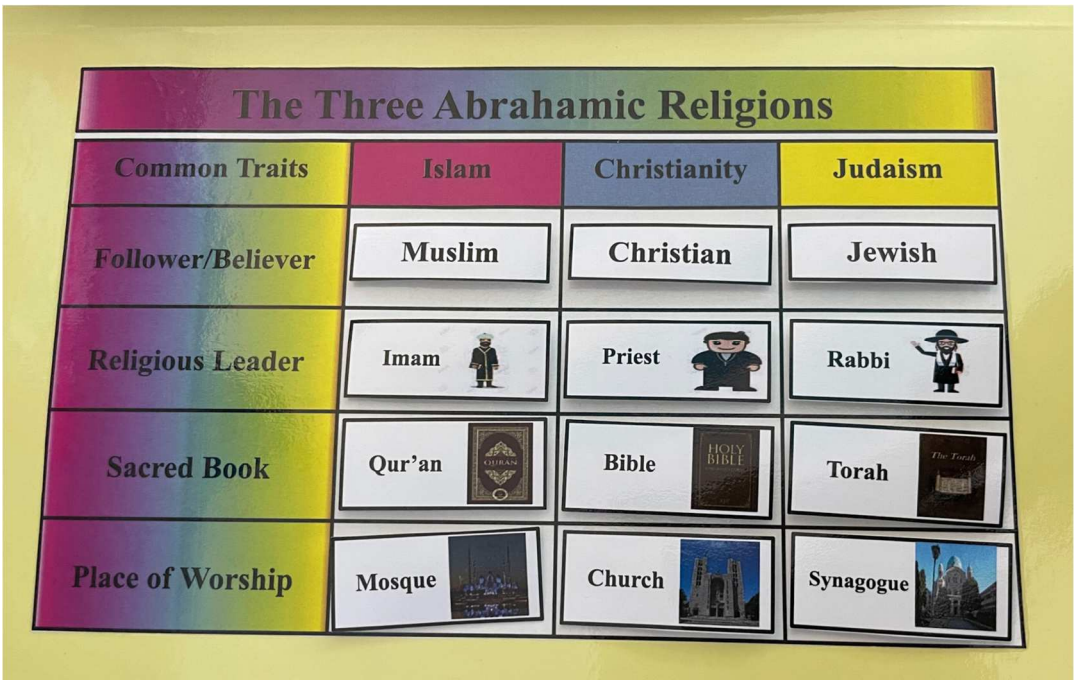
9. Describe the extent to which you see the changes as systemic and sustainable.

10. Anything else you would like to share about your experiences with the change process?

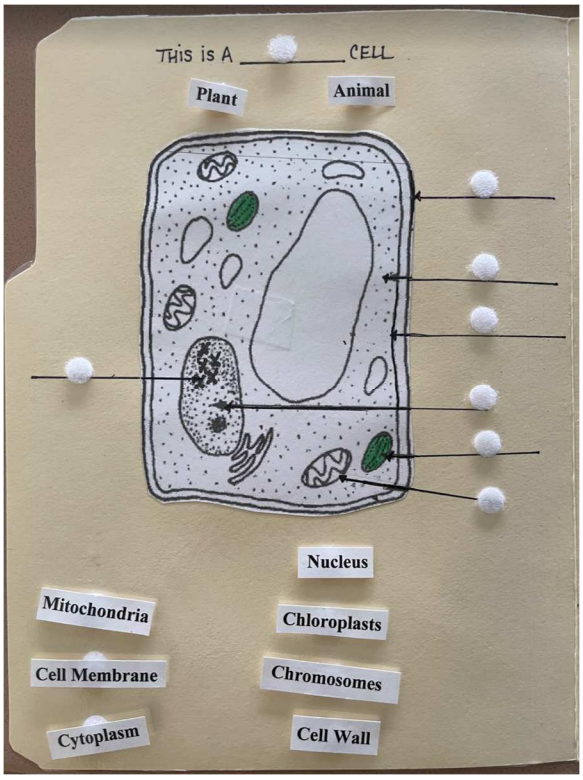
APPENDIX B: EACH EVIDENCE SOURCE CONTRIBUTES TO THE RESEARCH

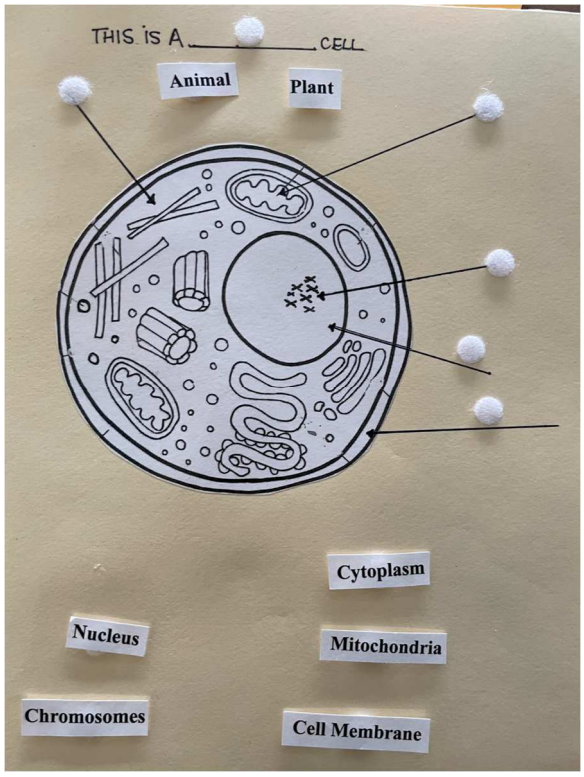
Research Question	Qual: Interview	Qual: Documents	Quantitative Data
What did one school district do to address the need for sustainable systemic change related to the inclusion of students with SCD in general education classes?	Actions taken ID need for action; action planning; implementation of action plan	meeting minutes Action plans Reports changes to systemic structures PD/PLOs/coaching offered Data on DIP progress (district improvement plan)	Surveys; Quantitative Data on DIP
What was the impact of these efforts on students, their parents, instructional personnel, and administrators?	Various perceptions of the impact on different stakeholders	ROXIE work sample collection Reports Presentations d Observation notes (coaches) Presentations / ppts Attendance records	LRE data demographic survey walk through data baseline vs. current

APPENDIX C: WORK SAMPLE COLLECTION

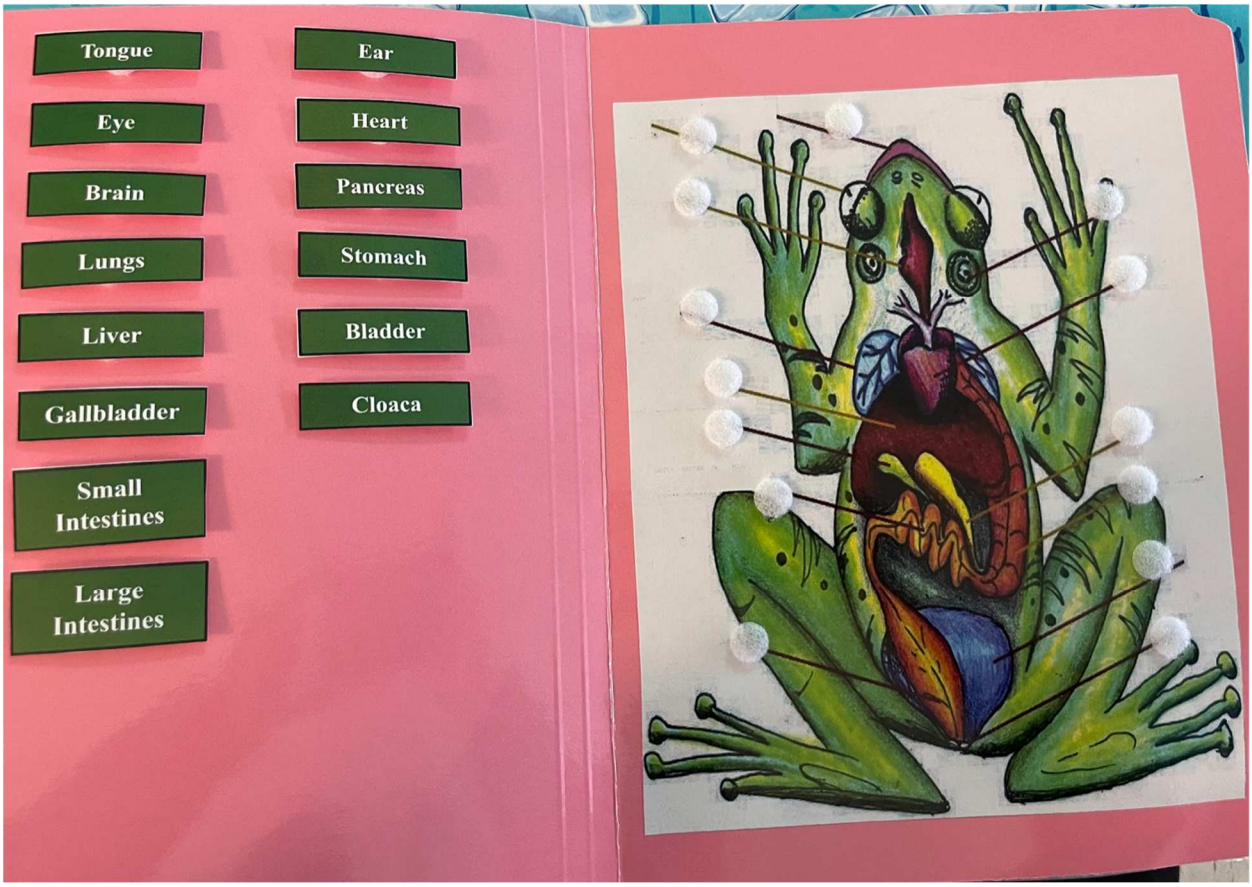


**Modified world history assignment; also a classroom-based assessment*





*Biology cells activity; plant vs. animal cells



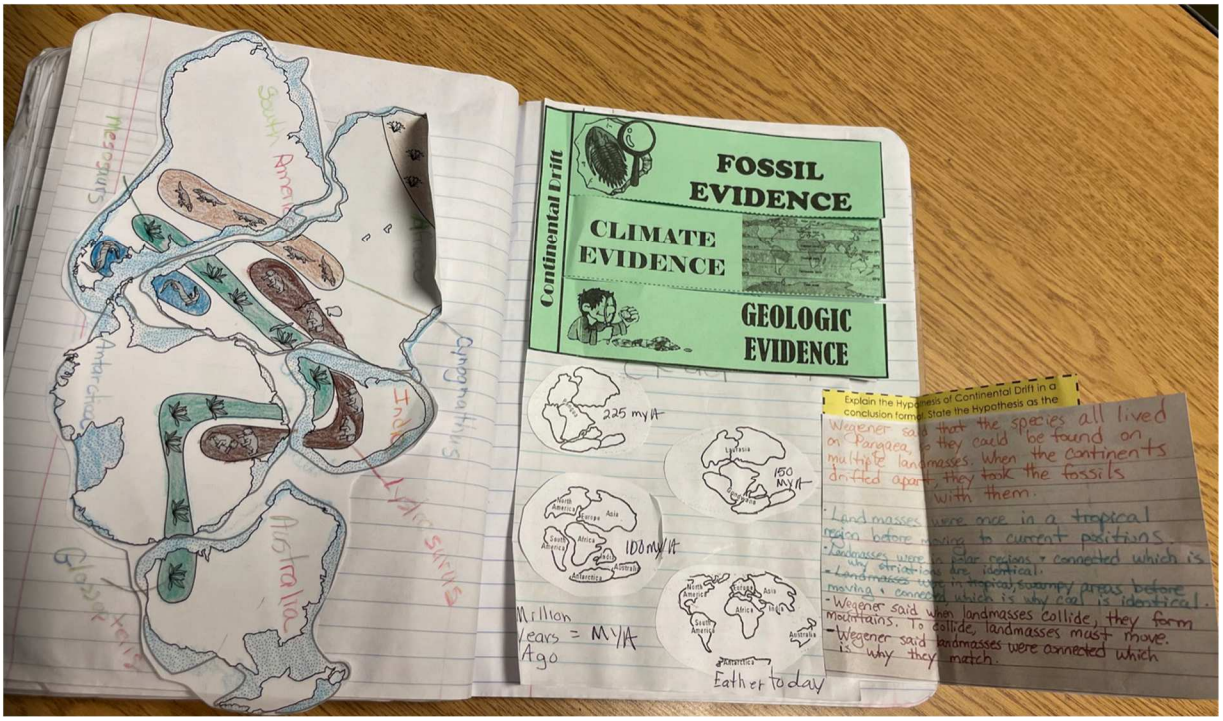
* The student matched the frog parts as he completed the frog dissection lab

Name _____ Period:_____

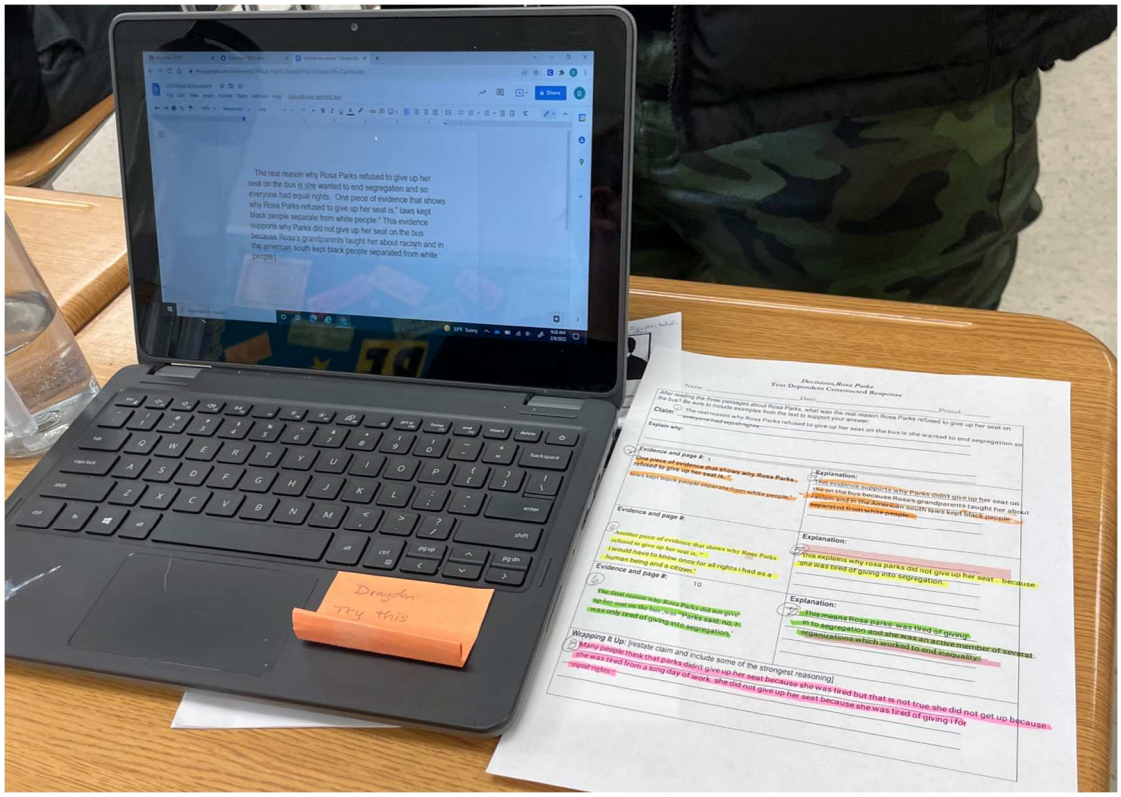
TDCR Rubric:

Claim: Key words, Answered prompt	_____/ 2
Support the Claim with evidence	_____/3
Connect the Claim with reasons	_____/3
Conclusion	_____/2
Uses transitional words & phrases	_____/3
Correct conventions, mechanics, etc.	_____/2
Organizer completed	_____/5
Total:	_____/20

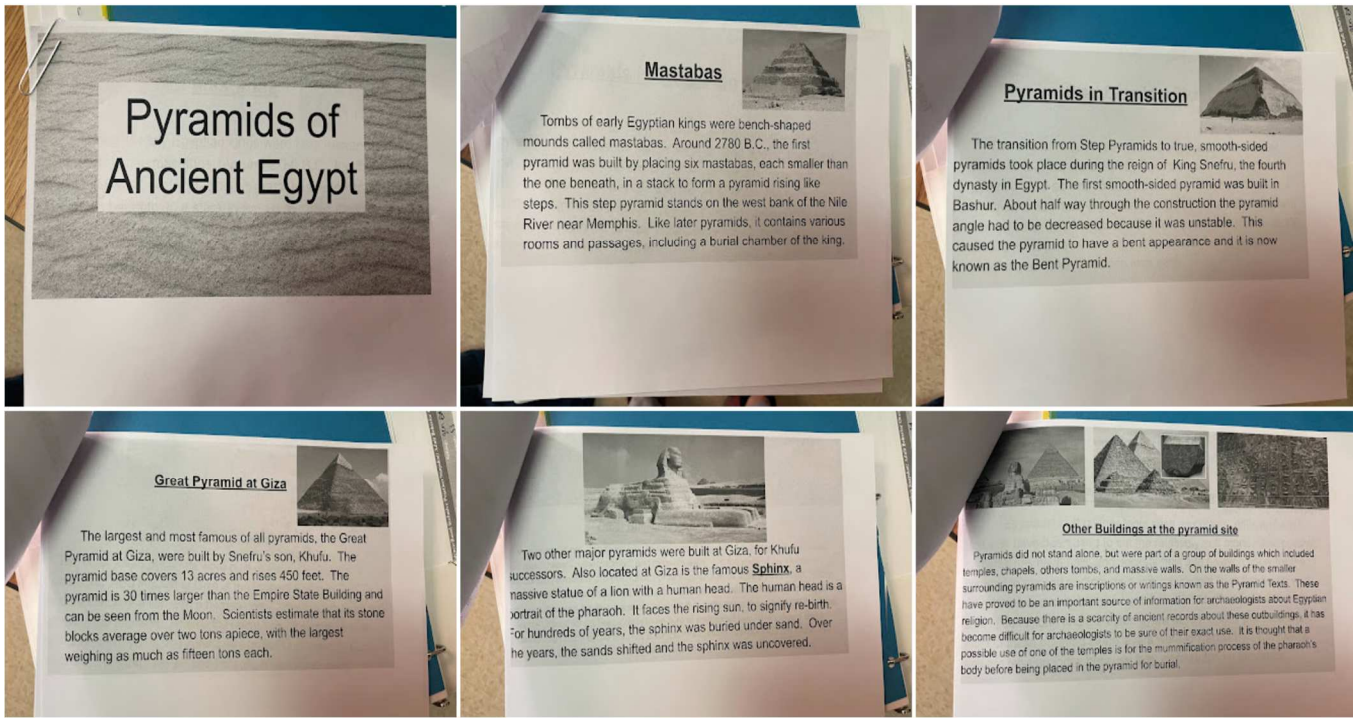
**For this assignment the student was required to complete half of the rubric*



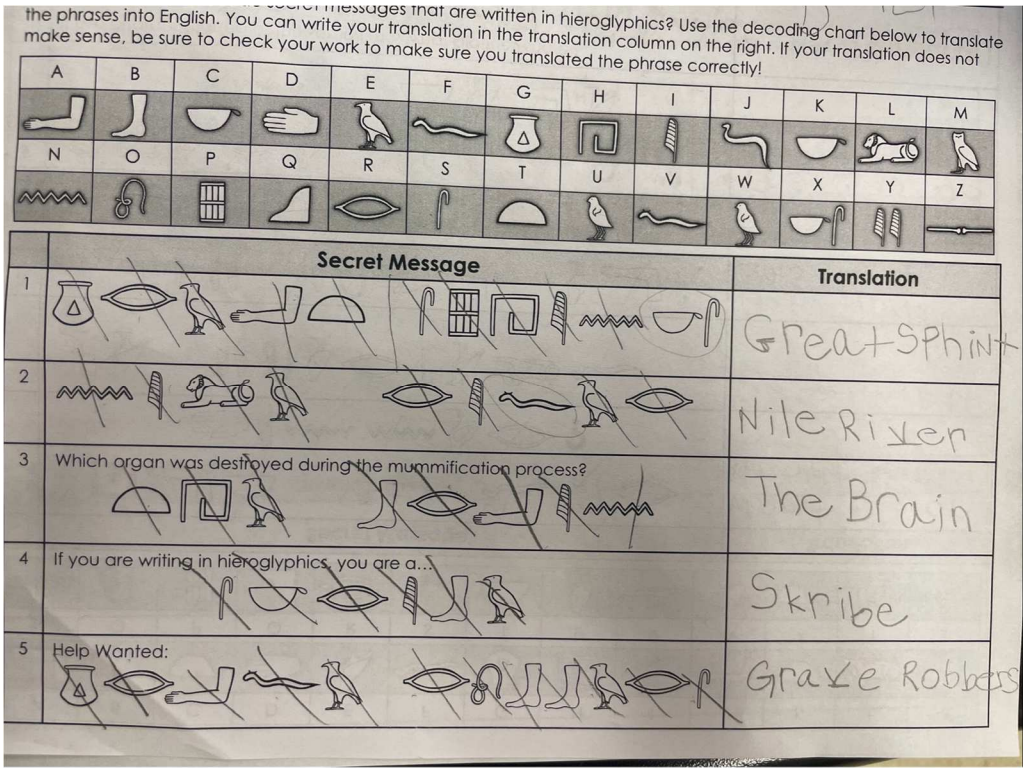
**In class note taking; notes fold into the notebook and are color-coded*



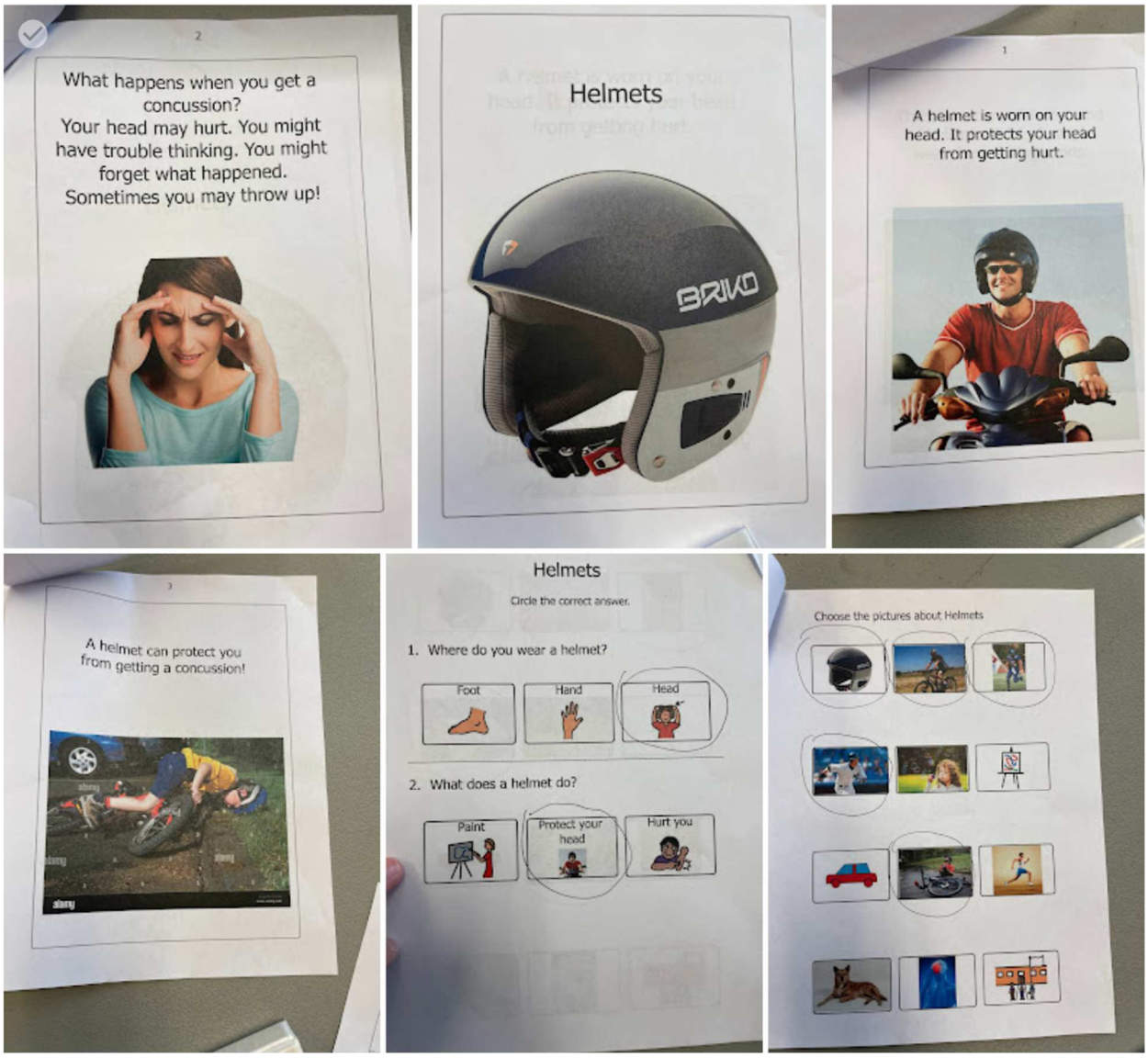
**Student typed a paragraph about Rosa Parks using a color-coded outline/rubric to help add details to the assignment*



**Modified text about Pyramids of Ancient Egypt, with photo supports, large print*



**Modified Hieroglyphics activity; tailored to the student's interests*



**Modified from the general education textbook, this is a reading assignment about concussions*

APPENDIX D: TIES CENTER CLASSROOM SNAPSHOT TOOL

Evidence-Based Inclusive Practices Snapshot: Adult Behavior Overall Observation			
Observer: **Teacher:**	**Student number:**	**Setting:** **Content:**	**Date:** **Time:**

Overall picture of what you saw

Practice	Notes and Evidence (Examples/Documentation may be attached)
Instructional EBP(s) observed	**Co-teaching Explicit instruction Flexible grouping Technology Positive/corrective feedback Scaffolding** **Time delay Extended wait time Prompt hierarchy Graphic organizers Other:_____**
Content is aligned with grade-level standard (e.g., work sample)	
Materials and lesson are grade appropriate (example)	
Adapted materials and lessons help student reach a specific learning goal (Specially Designed Instruction)	**Adapted: content methodology delivery**
Focus student grouped with grade-level classmates without disabilities	
Embedded IEP goals & essential skills are included (examples)	
Evidence of co/planning, co-teaching, co-assessing for this lesson	

Time sampling: Record observations at the end of each 45 second interval for the focus student who has significant cognitive disabilities. Circle or highlight all that apply for each interval

Y if evident **N if not evident** **NA if not applicable to the focus student.**

	1 min	2 min	3 min	4 min	5 min	6 min	7 min	8 min	9 min	10 min	11 min	12 min	13 min	14 min
AAC accessible	Y N NA	Y N NA	Y N NA	Y N NA	Y N NA	Y N NA	Y N NA	Y N NA	Y N NA	Y N NA	Y N NA	Y N NA	Y N NA	Y N NA
Communication supported	Y N NA	Y N NA	Y N NA	Y N NA	Y N NA	Y N NA	Y N NA	Y N NA	Y N NA	Y N NA	Y N NA	Y N NA	Y N NA	Y N NA
Instructional EBP	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N
SDI	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N
Engaged in gen. ed. curriculum	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N
Engagement/ Class routines	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N
Interactions with whom	T P IA	T P IA	T P IA	T P IA	T P IA	T P IA	T P IA	T P IA	T P IA	T P IA	T P IA	T P IA	T P IA	T P IA

T= Teacher P= Grade-level peer without disabilities IA= Instructional Assistant

Definitions for time sampling form on page 2

Evidence-Based Inclusive Practice	The focus student is experiencing practices such as co-teaching, explicit instruction, flexible grouping, technology, positive/corrective feedback, scaffolding, time delay, extended wait time, prompt hierarchy, graphic organizers etc.
AAC accessible	The focus student has a means of communication that is accessible to them. If they use a device or core board, for example, this means it is in close proximity to them and working at all times during the interval.
Communication supported	During instruction or social interactions, the focus student is supported to communicate. This could include communication partners using wait time, modeling or aided modeling of AAC, reading body language, or indicating for the focus student to use their AAC.
Instructional EBP	This includes the use of EBPs during the interval including, but not limited to the instructional practices listed: co-teaching, explicit instruction, flexible grouping, technology, positive/corrective feedback, scaffolding, time delay, extended wait time, task analysis, prompt hierarchy, and graphic organizers.
Specially Designed Instruction	It is evident that the focus student has access to specially designed instruction, such as adapted content, methodology or delivery of instruction. It may include additional, intensive instruction or opportunities for repeated practice that most other students do not receive.
Engagement in the general education curriculum	There is evidence that the focus student is engaged in the general education curriculum (e.g., completing independent work, watching or listening to a teacher or peer presentation)
Engagement/Class routines	There is evidence that the focus student is engaged in a similar activity or routine that the rest of the class is engaged in (e.g., making a lunch choice, class discussion, lining up)
Interactions with whom	The student has had an active interaction with another person in the class.