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Enhancing Support Staff Self-Efficacy in Supporting Neurodiverse Students' Classroom Engagement

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Enhancing Support Staff Self-Efficacy in Supporting Neurodiverse Students' Classroom
Engagement

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Executive Summary

Background: Neurodiverse students often face many challenges within their classroom environment due to a mismatch of the environmental demands and the student's unique processing. This mismatch is often not understood by school support staff which can lead to adverse student outcomes in academic achievement and graduation rates. Support staff are often undertrained and unsupported in meeting the complex needs of neurodiverse students and OTs are often underutilized in this deficit.

Purpose: The purpose of this capstone project was to measure the knowledge and self-efficacy gained by an evidence-based training module for school support staff that promoted increased classroom engagement and regulation of neurodivergent students. Objects for this project included increasing staff competence, self-awareness, and confidence in how to support the regulation of neurodivergent students.

Methods: A quasi-experimental cross-sectional quantitative survey design was utilized to assess the effectiveness of a one-hour training on supporting the regulation of neurodivergent students. The data results obtained were de-identified. The survey was created and data results were analyzed through Qualtrics Software.

Results: A total of 26 district-employed special education support staff completed the post-training survey. Most participants (81%) strongly agreed the training was helpful and none of the participants disagreed that the training was helpful. Many of the participants, (76.9%) strongly agreed the training increased their confidence in supporting neurodivergent students and reported many strategies they felt comfortable implementing including co-regulation and sensory-based strategies, and environmental supports. Paraprofessionals gained the most new knowledge and least reported gained confidence. The data showed there was not a direct correlation between increased experience and increased confidence gained. Overall, paraprofessionals were more willing to change their interactions with their neurodiverse students compared to teachers.

Theoretical Framework: This capstone project supports reducing the disparity students with disabilities face within their educational environments by addressing environmental barriers and changing attitudes and interactions of special education staff as described in the social model of disability within the PEOP model. Results of this study also indicated other variables impacting confidence levels beyond years of experience supporting the humanistic learning theory of how individuals have their own lived experiences, values, and attitudes that can shape their personal learning.

Conclusions: In conclusion, this capstone project supported the research gap and demonstrated the benefit of OTs supporting school-wide diversity training in promoting increased inclusion and optimum engagement of neurodivergent students.

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EASTERN KENTUCKY UNIVERSITY
COLLEGE OF HEALTH SCIENCES
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CERTIFICATION OF AUTHORSHIP

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Title of Submission: Enhancing Support Staff Self-Efficacy in Supporting Neurodiverse Students' Classroom Engagement

Certification of Authorship: I hereby certify that I am the author of this document and that any assistance I received in its preparation is fully acknowledged and disclosed in the document. I have also cited all sources from which I obtained data, ideas, or words that are copied directly or paraphrased in the document. Sources are properly credited according to accepted standards for professional publications. I also certify that this paper was prepared by me for this purpose.

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Section 1: Nature of the Project and Problem Identification

Introduction

The 2025 Occupational Therapy Vision Statement states "occupational therapy maximizes health, well-being, and quality of life for all people, populations, and communities through effective solutions that facilitate participation in everyday living (AOTA, 2017). This revised occupational therapy vision emphasizes the health and well-being of *all*, shifting from treating the individual to emphasizing supporting population health and well-being (Marczuk et al., 2014). This shifting change is also seen within the school-based occupational therapy practice. Under the new act, Every Student Succeed Act (ESSA, 2015, Pub. L. No 114-95) occupational therapists are included as specialized instructional support personnel (SISP) to support school-wide programs to address barriers to education, ensure positive learning conditions, support physical and mental wellness, and overall academic achievement (NASISP, 2019). As school-based occupational therapists supporting ESSA we "need to demonstrate our competency with confidence" (Cohn, 2019) to help support school-wide initiatives to support inclusion practices for students with disabilities (Arte-Morgante & Seruya, 2017).

Students with disabilities (SWD) are neurodivergent (Pellicano & den Houting, 2022) and have complex needs, such as behavioral rigidity and difficulties, impulsivity, sensory processing challenges, disorganization, social communication deficits, and academic deficits (Hannant, 2021). Despite these complex needs, teachers supporting intense emotional or behavioral classroom settings are generally less experienced, less likely to have their master's degree, or be fully credentialed (Anderson, 2021). SWD are more likely to receive exclusionary discipline, a statewide analysis determined that students who received special education services are 18% higher to receive exclusionary discipline compared to general education students

(Alnaim, 2018; Anderson, 2021; Hurwitz et al., 2021). Students with disabilities served under Individuals with Disabilities Education Act (IDEA, 2004, Pub. L. No 94-142) represented 13.2% of total student enrollment but received 20.5% of one or more in-school suspensions and 24.5% of one or more out-of-school suspensions and rose 7% compared to peers without educational services whose exclusionary discipline decreased by 18% 2015-16 to 2017-2018 (U.S. Department of Education, 2021). Creating a greater disparity in student outcomes in which under-trained teachers are supporting students with greater complex needs.

Teachers who are trained, supported by specialized staff, such as occupational therapists to address the specific neurodivergent needs of SWD, and who encourage inclusionary practices can play a critical role in their students' success (Martin et al., 2021). Evidence correlates increased teacher self-efficacy and attitudes to increased student outcomes in supporting students' neurodiverse needs including mental health needs, sensory processing challenges, and trauma-exposed approaches (Huang et al, 2021; Hui et al., 2016; Katz et al., 2020; Miller-Kuhaneck & Watling, 2018; Rodger, 2020). Indicating the benefits of teaching or coaching teachers and or parents to increase self-efficacy, positive attitudes in supporting their students with needs, and increased participation outcomes. Emphasizing the benefits and needs of teacher training to ensure positive outcomes for neurodivergent students.

Sensory processing challenges of neurodivergent students are an identified barrier for students and teachers creating increased anxiety, difficulty processing, and self-regulation within their educational environment (Grandisson et al., 2020; Howe & Stagg, 2016). Qualitative and quantitative studies recommend several different strategies to support neurodiverse student's engagement and participation within their classroom environment structured to three central themes: environmental modification, the role of the practitioner, and universal teacher

instruction/training (Bodison & Parham, 2017; Grandisson et al., 2020; Howe & Stagg, 2016; Hui et al., 2016; Katz et al., 2020; Kinnealey, 2012; Maciver et al., 2018; Rodger et. al., 2020). Thus, identifying key components needed to be considered when school staff is supporting neurodivergent students' regulation and engagement within their classroom environment.

Need for Capstone

Neurodivergent students benefit from school-wide environmental modifications, mental health programming, client-centered support, and a strengths-based approach (Howe & Stagg, 2016; Maciver et al., 2018). Without adequate training, teachers and support staff are not prepared to support students educationally or may unknowingly escalate or trigger students (Anderson, 2021). Despite occupational therapy's emerging role in supporting school-wide initiatives and the need for teachers from specialized trained staff continues (Martin, 2021). Occupational therapists are underutilized in school-wide staff training on how to support neurodivergent students' access to their education in an effective, inclusive, and least restrictive approach.

Evidence shows that students may benefit from school-wide teacher training that supports inclusion, mental health, environmental modification, and a strengths-based approach to increase staff's self-efficacy and student outcomes (Katz et al., 2020; Maciver et al., 2018; Menon & Lefteri, 2021). This evidence continues to drive the need for this capstone to develop a school-staff training to support the positive engagement and regulation of neurodivergent students within their educational environment.

Problem Statement

The problem of this capstone project was to address the gap between adequate teacher training to support students with neurodivergent needs and the under-utilized role of school-

based occupational therapists to aid school-wide initiatives and training that reinforce positive student classroom engagement and regulation.

Purpose

The purpose of this project was to measure the knowledge and self-efficacy gained by an evidence-based training module for special education staff to facilitate optimum classroom engagement and regulation of neurodivergent students. The literature reviewed demonstrates a need for teacher and educational support staff training to build self-efficacy to effectively support the complex needs of neurodivergent students and promote student inclusion and positive outcomes. However, despite the unique expertise of occupational therapists with an understanding of how to support the regulation, engagement, and participation of neurodivergent students, there is little research on the effectiveness of occupational therapists conducting school staff training to support student regulation and participation. This study aims to measure the effectiveness of evidenced-based training for school staff to gain knowledge and confidence on how to purposely support the positive engagement of neurodiverse students.

Project Objectives

The capstone objectives included:

1. School staff will demonstrate increased competence in understanding why and how students become dysregulated within their classroom setting.

2. School staff will demonstrate an increase in self-awareness of how they interact and respond to students.

3. School staff will report increased confidence in the ability to support neurodiverse students' regulation.

Theoretical Framework

This educational module and capstone project were developed based on the Person-Environment-Occupation-Performance Model 4th edition (PEOP). This model recognizes the transactional dynamic relationship between people's occupational behaviors and environment are fundamentally connected (Cole & Tufano, 2020) Furthermore the PEOP 4th edition expands to understanding the relations of occupational performance and environment within whole groups, organizations, and populations (Baum et al., 2015). A critical concept this capstone targeted was to increase school staff competency and confidence in supporting neurodivergent students as a whole. This dynamic relationship recognizes that as a person's context and environment change the behavior to execute a task changes. PEOP also builds on the foundations of the social model of disability, which defines barriers related to a disability are due to the "relationship between the person with a disability and the environment, rather than the disability itself" (Law et al., 1996; Chen & Patten, 2021; Quint et al., 2019). The social model of disability suggests too much emphasis is placed on individual intervention while "modifications to the environment are neglected and underutilized despite their greater potential of benefits" (Oliver 2004, p. 18; Kornblau & Robertson, 2021).

The concepts of the humanistic learning theory, cognitive learning theory, and social cognitive learning theory were utilized to support the foundational design and objectives of this education module. The overarching theoretical basis for the objectives of this capstone is that every school support staff has their own personal lived experiences, motivation, confidence, values, and abilities that can shape the interactions of supporting neurodiverse students. Both aspects of the humanistic and cognitive learning theories value the individuality of the learners. Humanistic learning theory is fundamentally based on the theory that each learner is unique and wants to grow, "the transfer of learning occurs through curiosity-, positive self-concept, and open

to situations in which people respect individuality and promote freedom of choice" (Braungart, 2020, p. 98). The cognitive learning theory approach emphasizes the unique internal beliefs, experiences, cognitive level, individuality, and diversity of the learner. The cognitive learning theory aims to facilitate the active and conscious process to adapt and reorganize information for new unique learning (Braungart et al., 2020). Social cognitive theory, according to Bandura (1986,) individuals who sustain the belief that they can accomplish a goal are more motivated and more likely to succeed as a result. Menon and Lefteri (2021), further explains self-efficacy beliefs are stronger than the actual abilities, competence of the individual, and the foundation that is necessary for the accomplishment of the goal of teaching students with complex needs. This educational module aims to measure both the learned knowledge, strategies, and perceived confidence of support staff in supporting the complex needs of neurodiverse students based on the discussed learning theories.

Significance

This evidenced-based capstone training module aims to represent occupational therapy's 2025 Pillars: leadership, collaboration, effectiveness, and accessibility (AOTA, 2018) through: advocating for inclusionary practices at a school-wide level while continuing to value the strengths of each of our students through the unique lens of occupational therapy, targeting the training gap of school staff by increasing their knowledge, empathy, and skills to reduce the educational disparities of neurodiverse students within their educational setting and highlighting occupational therapists' ability to facilitate a culture for special education staff of habitualizing the acts of inclusivity within the classroom environment for increased participation and active engagement of neurodiverse students within their educational environments (Epley et al., 2021). Emphasizing the growing leadership role of occupational therapists as Specialized Instructional

Support Personnel (NASSP, 2019) to support school-wide positive initiatives of Every Student

Succeed Act, Pub. L. No 114-95 (2015) through improving access and learning conditions of

disabled students who are at risk for reduced outcomes such as increased disciplinary actions and

absenteeism (Anderson, 2021; U.S. Department of Education, 2021).

Summary

Students by law being serviced under the Individuals with Disabilities Education Act

(IDEA, 2004, Pub. L. No 94-142) must have an individualized education plan implemented

within the least restrictive environment. Training needs for teachers and educational staff are

paramount in addressing the complex needs of neurodivergent students in order to ensure the

success of neurodiverse students within a minimally restrictive environment. Occupational

therapists possess the knowledge and skills to promote self-regulation, engagement, and

participation within these environments.   This capstone explored how a neurodiversity-based

training module impacted the knowledge of teachers and other staff members to better serve their

students with disabilities.

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Operational Definitions

The following definitions were used to guide this capstone project.

Pellicano & Houting (2022) definition:

Neurodiversity: The range of natural diversity that exists in human neurodevelopment.

Neurotypical: A person or people whose neurodevelopment falls within the range usually

considered to constitute 'typical' development.

Neurodivergent: A person or people whose neurodevelopment falls outside of (or

'diverges' from) the range usually considered to constitute 'typical' development (e.g. a

group of autistic people is a group of 'neurodivergent' people).

Neurodiverse: A collective term for groups including mixed neurodevelopment (e.g. a group of autistic and nonautistic people is a 'neurodiverse' group).

Exclusionary Discipline: U.S. Education Department (2021) defines exclusionary disciplinary actions as: expulsion, in-school suspension, out-of-school suspension, and school-related arrests.

California Educational Code for Student Discipline: defines "students who display inappropriate behavior may be subject to suspension as outlined in the California State Education Code 48900 and 48915. A student may be suspended or expelled for acts that are related to school activity or attendance while on the school grounds, while going to or coming from school, during the lunch period whether on or off campus, and during or while going to or coming from a school-sponsored activity." Specific acts per Education Code Section 48900: include but not limited to: Caused, attempted to cause or threatened to cause physical injury to another person. (a)(2) Willfully used force or violence upon the person of another, except in self-defense, Caused or attempted to cause damage to school property or private property. Disrupted school activities or otherwise willfully defied the valid authority of supervisors, teachers, administrators, school officials, or other school personnel engaged in the performance of their duties, unlawfully offered, arranged to sell, negotiated to sell, or sold the prescription drug Soma, engaged in, or attempted to engage in, hazing as defined in Section 32050, engaged in an act of bullying, including, but not limited to, bullying Committed by means of an electronic act, as defined in subdivisions (f) and (g) of Section 32261 and directed specifically toward a pupil or school personnel.

Section II: Literature Review

Introduction

　　Background information was gathered through an internet search of current journal articles relating to the following keywords" neurodiversity and barriers to learning, teacher training and self-efficacy, inclusion practices for neurodiverse students, school-wide multi-tier evidenced-based systems to support students with disabilities, occupational therapy, and school-wide programs, teacher training, strategies to support regulation, environmental support, co-regulation, students with disabilities and exclusionary practices. Academic searches were completed through Eastern Kentucky University (EKU) library research guide Occupational Therapy and Occupational Science recommended databases: CINAL Complete, Psychological and Behavioral Sciences Collections, ERIC, OT Seeker, Cochran Library, MEDLINE, and PsychINFO. Also, journals were retrieved from American Occupational Therapy Association's research database as well as a hand search was conducted when searching for specific articles.

Inclusion

　　Under IDEA students with disabilities have the right to access an individualized education plan within the least restrictive environment (2004, Pub. L. No 94-142), despite mainstreaming opportunities for students with disabilities to have exposure or access to their peers and general education curriculum students also require inclusion practices executed by the teacher and or educational staff to promote full engagement of the students within their least restrictive environment. Maciver et al., 2018, defined inclusion practice as more than just a placement it reflects "acceptance, participation, equality, and social relationships". The Universal Design for Learning (UDL) positively influences inclusion efforts by recognizing individual learning differences and creating flexible learning environments to accommodate these differences by providing students with multiple means of engagement, representation,

action, and expression (Oliver-Karrigaan et al., 2021). Inclusion requires active practices to engage the student but also requires changes in staff behaviors, environment routines, and structures as well (Maciver et al., 2018). Research shows teachers benefit from training in evidence-based practice, collaboration with specialized staff, and administrative support to implement inclusion strategies (Ballen, 2022; Holmes & Butcher, 2020; Maciver et al., 2018; Mahoney, 2020;). Without training, teachers feel ill-equipped and unprepared with a lack of strategies, lack of paraprofessional support, and sensory support to support students with disabilities such as autism (Graham, 2021).

In addition to teacher training on evidenced-based practices, students with disabilities benefit from multi-tiered support systems (MTSS) to improve educational outcomes. Research supports the use of universal interventions, to support mental-health, students exposed to trauma and developmental disabilities (Berger & Martin 2020; Katz et al., 2020; Mahoney, 2020; Nelen et al., 2020; Weist et al., 2018; Wu et al., 2019). Multi-tiered and school-wide interventions produced positive mental health and learning outcomes for students, and it is argued that Positive Behavior Systems /MTSS and trauma-informed frameworks should be integrated into schools directly to contribute to the reduction of referrals and suspensions, and indirectly to an improved classroom learning climate to decrease in segregation of students, and improvement of academic outcomes (Berger & Martin, 2020). Research also supports MTSS is effective for promoting the resilience of students with developmental delays. (Katz et al., 2020). School-wide behavior intervention systems are aimed at reducing problem behavior, improving school climate, and providing teachers with tools to improve practice (Nelen et al., 2020; Weist et al., 2018).

Neurodiversity

The concepts of neurodiversity emerged from the autism advocacy movement (Gillespie-Lynch et al., 2020; Kapp et al., 2013; Pellicano & den Houting, 2022; Sewell & Park, 2021). The

neurodiversity framework acknowledges all variations of humans in thinking, learning, perceiving, and processing information is natural because all brains differ paralleling the diverse nature of humans in contexts of race, ethnicity, gender, gender identity, and sexual orientation. (Kornbluagh & Robertson, 2021). Forms of neurodivergence can include autism, attention deficit hyperactivity disorder, obsessive-compulsive disorder, intellectual disability (ID), and mental health conditions such as generalized anxiety and depression (Gillespie-Lynch et al., 2020; Kornbluagh & Robertson, 2021). Also included are children and adolescents exposed to trauma due to the neurological physiological changes from experienced stress (Berger & Martin, 2020).

The disability experienced by a neurodivergent individual is not viewed as a pathology but as society's inability to support the individual's differences (Chen & Patten, 2021; Kapp, 2013; Maciver et al., 2018). This framework challenges the traditional psycho-bio-medical model-based assumptions of neurodevelopmental disabilities or remediating skills that are not "average" compared to neurotypical individuals but emphasizes a strengths-based approach in which individuals should be understood in terms of their unique differences, skills, and talents, as well as any difficulties they face (Sewell & Park, 2011).

Barriers to Learning

Special education laws such as Individual Disability Education Action, IDEA (2004, Pub. L. No 94-142) and Every Student Succeeds Act, ESSA (2015, Pub. L. No 114-95) are federal laws in place to support school-wide improvements of school conditions for student learning (ESSA) more specifically, IDEA (2004) which protects students with disabilities to ensure access to equitable education as compared to their general education peers within the least restrictive environment (Hurwitz et al., 2021; Trader et al., 2017). Despite federal laws in place that mandate inclusion and improved learning conditions for students with disabilities there continues to be many complex barriers to learning for students with disabilities. Students with

disabilities are neurodivergent in thinking, learning, perceiving, and processing information (Kornbluagh & Robertson, 2021). Research-based on educator feedback reports many barriers to learning of neurodivergent students including aggression, compulsions, tantrums, eloping (leaving a designated area without permission), self-injury, impulsivity, fidgeting, difficulty learning in large groups, poor concentration skills, poor organizational skills, difficulty with abstract concepts, limited communication, anxiety, social and communication skills, executive functioning, rigidity, restricted interests, sensory processing challenges and poor problem-solving skills (Berger & Martin 2020; Embse et al., 2011; Grandisson et al., 2020; Hurwitz et al., 2021; Silveira-Zaldivara & Curtis 2019; Young et al., 2017). Teachers report a mismatch of the student's environment and activities with the neurodivergent student's unique processing that does not align (Grandisson, et al., 2020) which can lead to trauma and stress (Clairy et al, 2021). While external behaviors such as aggression, self-injury, and impulsivity are often more quickly identified for additional supportive services, students with internalizing behaviors (requesting to leave an event, participating less in activities, poor completion of work, frequent trips to the school nurse, social withdrawal and limited interaction, and/or school refusal) caused by anxiety, depression, and/or experiences of trauma often go unnoticed. Roughly one in five children and youth in schools experience mental health challenges, including both internalizing and externalizing behaviors that can prevent academic or social success (Weist et al., 2018). These barriers also lead to more restrictive learning environments particularly paired with undertrained and unwilling educators (Oliver-Kerrigan et al., 2021).

Qualitative studies of neurodivergent students report their own experiences to barriers in learning within their classroom setting specifically related to their sensory processing challenges, their ability to modulate the sensory input within their educational environment and maintain

engagement. Students report the inability to concentrate or an over-preoccupation with sensory stimuli due to hypersensitivity that has a negative impact on the student's ability to learn within their classroom setting (Howe & Stagg, 2016). Sensory sensitivity to hearing, touch, vision, and smell all reportedly distract from the focus of learning within the classroom (Howe & Stagg, 2016). Research shows that hypersensitivity to light and auditory input is most impactful on neurodivergent students' attention and learning (Kinnealey, 2012). Autistic students are often sensitive to light, and some lighting may be painful, especially bright and flickering lights. Schools with noisy classrooms, crowded hallways, and changing schedules can lead to anxiety for students, specifically students with these sensory modulation challenges (Goodall, 2020). In addition to sensory processing challenges, neurodivergent individuals have impaired interoceptive abilities specifically autistic individuals and individuals exposed to trauma impacting their ability to self-regulate appropriately within their environment (Lynch & Mahler, 2021; Mahler, 2017).

 Autistic students and students with anxiety are more likely to demonstrate externalizing behavior such as yelling, throwing things, or stomping, which lead to higher rates of physical aggression and a higher incidence of out-of-school suspension (Graham, 2021). Statistically, autistic students have a higher incidence of out-of-school suspension as well as students exposed to trauma with co-occurring anxiety, depression, and conduct disorders (Berger & Martin 2020; Graham, 2021). Disruptive behavior in school (perceived or actual) often results in an increase in office referrals and suspensions, associated with adverse student outcomes in academic achievement, graduation rates, and adverse life outcomes (Silveira-Zaldivara & Curtis, 2019).

 Several factors may contribute to the likelihood that seclusionary practices are utilized for students within the educational setting (a) significant emotional and behavioral needs in general

education settings, (b) lack of specialized support for students in these settings (c) limited training provided to teachers and school staff to address intensive behavior support needs (Trader et al., 2017). Research demonstrates that effective practices designed to meet complex student needs do exist however, there is a lack of understanding from school staff about autism or disabilities and a lack of support for skill-building, replacement behaviors, and building compensatory strategies. These strategies are more helpful and equitable with neurodiverse students than zero-tolerance punitive-type policies (Holmes & Butcher, 2020). Unfortunately, the push for less restrictive environments for students with special needs has not been equated with the use of less restrictive practices (Trader et al., 2017).

Research indicates that teachers' implementation of evidenced-based techniques to support inclusion practices is impacted by teacher training, knowledge, attitudes, and perceptions (Holmes & Butcher, 2020; Oliver-Kerrigan et al.,2021; Silveira-Zaldivara & Curtis 2019) and serve as a barrier to learning and outcomes for neurodivergent students. General education teachers perceive autistic students to be difficult to teach with challenging or disruptive behaviors (Oliver-Kerrigan et al., 2021). Teachers are reported feeling unprepared, ill-equipped, and having a lack of understanding of disabilities to adequately support students with autism "socially, academically and behaviorally" (Holmes & Butcher, 2020; Graham, 2021; Silveira-Zaldivara & Curtis 2019). General education teachers need more specialized supports strategies to adapt their classroom to meet the unique needs of neurodivergent students and strategies how to implement evidence-based practices (Oliver-Kerrigan et al., 2021; Mahoney, 2020) but also for teachers to see themselves as capable of supporting these complex needs (Graham, 2021).

Teacher Self-Efficacy

Teacher self-efficacy plays a complex role in neurodivergent student outcomes. Bandura (1986) and further examined this relation to teachers in, Menon and Lefteri (2021) research,

which defines self-efficacy as the perception regarding their capacity to perform actions that will result in specific performance attainments. Within the educational setting, teacher confidence and self-efficacy is developed through experience (Young et al., 2017). Teachers' self-efficacy is also strengthened through professional development programs and administrators who encourage inclusion practices and professional development for classroom teachers (Holmes & Butcher, 2020; Menon & Lefteri, 2021).

Research shows that teachers with experience implementing inclusion practices and working with special needs students have more positive attitudes toward students with special needs and higher levels of self-efficacy (Anglim et al., 2018; Maciver, 2019). Teacher self-efficacy beliefs are linked to educational effectiveness and initiatives for promoting change and reform (Menon & Lefteri, 2021). In addition, to increase self-efficacy Little and Maunder, (2021) discuss the neurological benefits of the students with teacher or caregiver training of students focusing on responsive environments which contributes to cognitive-affective neural structures. High levels of self-efficacy are associated with a lower incidence of classroom conflict and teacher burnout (Menon & Lefteri, 2021). Teachers report increased self-efficacy when they feel supported and expressed frustrations in accessing resources, support, and services (Anglim et al., 2018), citing the importance of administrative support in building self-efficacy among teaching staff.

Strategies to Support Engagement and Participation

Research suggests several strategies and approaches to support neurodivergent students' participation within their educational settings. The first recurring theme within the literature in promoting engagement is creating sensory- safe physical environments to reduce the stress of the sensory processing challenges of neurodivergent students (AOTA, 2015; Holmes & Butcher, 2020; Kinnealy 2012; Maciver et al., 2018; Oliver-Karrigaan et al., 2021; Sarrett, 2018; Silver &

Tyszka, 2017). Creating sensory-safe education environments includes reducing sensory distractions, flexible seating (armchairs, ball chairs, beanbags, and comfortable floor seating or flexible positioning in class based on distractions), low lighting, low noise, access to noise reduction headphones, availability of sensory fidgets, located in a designated corner or separate room, and spaced that physically promote organization such as labeling boxes and drawers (AOTA, 2015; Kinnealy, 2012; Maciver, et al, 2018; Sarrett, 2018). Even small environmental modifications could reduce distress and improve the quality of engagement of students (Sarrett, 2018). Implementing breaks, movement, and exercise in addition to sensory-safe environments aids in maintaining regulation and increased on-task attention (AOTA, 2015; Kinnealy, 2012; Steinbrenner et al., 2020; Zeitlin & Skuller, 2022). Creating routine and structure through the use of clear schedules with the implementation of visuals (pictural schedules, clear expectations, checklists and timers, lesson and homework planners, frameworks for completing specific pieces of work (such as essay writing templates), and handouts with information preprinted on them increases understanding of content and reduces anxiety (AOTA, 2015; Holmes & Butcher, 2020; Maciver et al., 2018; Steinbrenner et al., 2020; Warren et al., 2020). Qualitative and quantitative research recommends strategies to improve the motivation of the learner as well as to increase participation of the learner such as increasing the learner's ability to choose tasks or activities, assign tasks or jobs to complete in the classroom, and allowing natural consequences to occur to learn being accountable as members of the school community (Graham, 2021; Maciver et al., 2018). Modifying the educator's own behaviors plays a significant role in the learner's regulation and engagement, teachers report adapting how they communicate utilizing a slower rate or speed clear steps, slowing down the rate of speech, repeating key information, and identifying challenges with also modeling instructions (Maciver et al., 2018; Sadin & Levy, 2019;

Steinbrenner et al., 2020). Teachers report the importance of reflecting on underlying causes of behaviors, and developing an understanding of how barriers to learning might influence behavior, alternative explanations for learners' actions, and being willing to adopt a nonjudgmental attitude were important aspects of this set of attitudes. (Maciver et al., 2018). Modeling the state of regulation desired for children's socioemotional self-regulation is associated with caregiver responsiveness (Lobo & Lunkenheimer, 2020), emphasizing the need for teachers to be modeling a positive regulated state with their students. Modeling and teaching self-regulation strategies will help students to learn and choose positive self-regulation strategies (Sadin & Levy, 2019). Students with severe disabilities and intellectual disabilities best practices advocates targeting behaviors and skills that are most relevant and meaningful, functional, and age-appropriate in students' daily lives, such as self-care, time management, and money handling to increase functional independence and naturally reinforcing with everyday environments (Mu & Royeen, 2004).

Occupational Therapist Role

The Occupational Therapy Practice Framework-4 (OTPF-4), (AOTA, 2020) refers to the World Health Organization (WHO) 2008 definition of "Participation"—"which occurs naturally when clients are actively involved in carrying out occupations or daily life activities, they find purposeful and meaningful" (AOTA, 2020). The school-based occupational therapy domain of practice emphasizes "activities needed for learning and participating in the educational environment" (AOTA, 2020). Despite school-based occupational therapists' specialization in identifying and understanding limitations of students' ability to participate within their educational environments and the role occupational therapists play in ESSA (2015, Pub. L. No 114-95) to support positive school-wide initiatives, there is limited research on occupational therapists' role in teacher training to support student engagement and participation (Miller-

Kuhaneck & Watling, 2018). Thus, a void exists in the literature on the effectiveness of school-based occupational therapists providing teacher training to support student outcomes.

Summary

In examining the background literature that supports the needs and the benefits of teacher training to build teacher self-efficacy skills and inclusion practices to support the engagement and regulation of neurodivergent students, it is evident of the increased need for the specialized role that occupational therapists can make in inclusionary classroom practices. Research states teachers feel underprepared, under-supported, and undertrained in assisting the complex needs resulting in neurodivergent students. Also, research supports the importance of building the teacher's self-efficacy in working with neurodivergent students which has a positive impact on student inclusion practices and outcomes. Occupational therapists are the specialized staff that can aid in building the bridge between the reported lack of teacher confidence, skills, and support to inclusionary classroom practices for neurodivergent students to promote engagement and regulation.

Section III: Methodology

Project Design

This research was executed in a quasi-experimental cross-sectional quantitative survey design (Cox, 2020; Creswell & Creswell, 2018) in order to assess the information learned and the perceptions of special education staff after participating in a one-hour training. Prior to conducting the research, the study was approved by the Institutional Review Board at Eastern Kentucky University (see Appendix A). The participants were naturally grouped due to their particular school location or a non-equivalent group design (Cox, 2020, p. 60). Participants were de-identified via Qualtrics software.

Setting

The special education staff training occurred at two different comprehensive high school sites within a school district located in Southern California. The school district is unique as the district encompasses one middle school, four high schools, and one adult transition program. The rationale for choosing the sites was due to approval indicated by the Special Education Director. Each high school site included mild, moderate, and severe special education classrooms and collaborative models. Each training was conducted within a classroom or a training room. The training was conducted during the designated planning and collaboration weekly time to ensure no instructional time with the students was impacted.

Inclusion/Exclusion Criteria

Inclusion criteria for the participants included district-employed special education school staff including teachers, paraprofessionals, educationally related mental health service providers, program specialists, and school psychologists. Participants' ages ranged from 18-65, English speaking, both male and female, with experience levels ranging from less than one year to several years more than 15 years. A total of 26 participants completed the voluntary post-training survey. Exclusion criteria included general education teachers due to logistical reasons per the special education director, contracted employees, and non-English speaking support staff. The recruitment procedure included an email from a special education special education coordinator inviting the special education staff to participate in staff training. After the training, the staff were asked to voluntarily participate in the brief research survey.

Project Methods

Data collection was implemented immediately post-training via a Qualtrics QR code at the training. A follow-up email with the survey link later the same day was provided to all participants. The questionnaires were web-based and administered via Qualtrics. Survey

questions included multiple-choice, open-ended questions, and Likert scale-type questions. Data analysis through Qualtrics software were used to describe and relate the data collected. Examples of descriptive results indicated the percentage of participants who found the training beneficial, reported willingness to change in behavior, reported increased confidence to support neurodivergent students and rating of how beneficial the training was in supporting neurodivergent students. Relationships between years of working experience, profession, confidence, and new information gained were also analyzed. Themes of open-ended responses from participants were gathered and reported. A follow-up survey was emailed after the training 8-10 weeks after the one-hour training to the participants, however, none of the participants completed the survey. An IRB- Revision was completed and approved by the Eastern Kentucky University Institutional Review Board see Appendix B.

Instrumentation

A survey was designed based on the literature and content expertise of the researcher. The survey was reviewed for content validity by experts in the field of occupational therapy. The survey was pilot-tested and modified prior to use. A copy of the instrument is located in Appendix C. Teaching modules were constructed based on the literature (see Appendix D). Content included defining neurodiversity and the neurodiversity frame of reference, internal and external causes of dysregulation, sensory processing and modulation challenges within the eight sensory systems, changes that occur due to trauma, trauma, and students with disabilities, lived perspectives of dysregulation of neurodivergent adolescent, signs of dysregulation, environmental modifications/strategies, co-regulation and sensory-based strategies to promote regulation, building skills of self-advocacy and self-regulation awareness and IEP accommodations to support student regulation.

Procedures

Each group of participants/ special education staff participated in a 60-minute training to understand why barriers to learning occur with neurodivergent students and evidenced-based strategies to increase learning and participation within the classroom setting. Immediately following the training each participant who voluntarily agreed to participate completed an unidentifiable survey. Prior to completing the surveys, the participants were asked to complete a consent form. Survey data was stored in a secure, password protected via Qualtrics software. Eastern Kentucky University's assigned chair member will securely store the data for seven years.

Outcome Measures

Establishing the validity of the scores in surveys helps researchers to identify whether an instrument is applicable (Creswell & Creswell, 2018). A variety of reliability measures were used. Survey questions were reviewed by an outside party to ensure clarity of questions asked on the questionnaire. Survey questions were developed based on literature and reviewed by content experts. A pilot study was conducted to ensure clarity of the questions. Participants completed a web-based questionnaire which the program will collect and analyze eliminating the possibility of human error in data collection and processing and validity of data. Formative evaluation of the training occurred to ensure the data gathered answered the research questions, furthermore, the survey questions were designed to answer the research objectives of this project (Bravemen et al., 2017, pp. 416-417).

Ethical Consideration

Ethical considerations occurred throughout the research process to ensure the protection of and development of the trust of participants, promote the integrity of research, and guard against misconduct (Creswell & Creswell, 2018, p. 88). Prior to conducting the research, Eastern

Kentucky University (EKU) Institution Review Board (IRB) consented to this study as well as the school district site approval from where the training and research were conducted. All participants received the training, however, to limit bias, participants were informed of the purpose of the study, allowed to voluntarily participate in the post-training surveys, and informed consent was completed by each participant. Data collection retrieved from the survey was de-identified, stored through a digitally secure web-based program via Qualtrics for seven years, and shared with the assigned EKU committee chair. In reporting findings, multiple perspectives positive and negative findings were reported. Authorship of research was defined to all advisors who contributed to the research (Creswell & Creswell, 2018, p. 88-90).

Table 1: Timeline of Project Procedures

Project Procedure	Date Completion
Finalized Capstone Project Topic/Needs Assessment Completed	**October 2022**
Explanation Email and Consent Forms Drafted	**November 2022**
Survey Content Completed	**November 2022**
Submitted IRB Application	**November 2022**
Received IRB Approval	**January 2023**
Pilot Survey Administered	**February 2023**
Training Completed and Survey Administered	**February-March 2023**
Capstone Paper Completed	**November 2023**
Capstone Project Presentation Completed	**November 2023**

Section IV: Results and Discussion

Introduction

The data results collected illustrated the benefits of ongoing training of special education staff specifically in increasing their understanding, confidence, and willingness to change to support better outcomes for their neurodivergent students. Of the two special education trainings conducted 42 staff members consented to participate in the survey. Of the 42 consented, 26 participants (n=26) completed the survey with one participant completing the majority of questions. The 26 participant surveys were included in the usable results.

General Demographics

The Qualtrics software generated the analysis of the information. Of the 26 participants completing the survey, 7.69% (n=2) had one year of less years of experience; 19.23% (n=5) of participants had 1-3 years of experience; four or 15.38% had 4-6 years of experience; 7.69% (n=2) had 7-9 years of experience; and 50% (n=13) of the participants had reported 10 or more years of experience. Overall, 73% (n=19) of the participants had at least 4 years of professional experience (See Figure 1).

Figure 1: Years of Experience
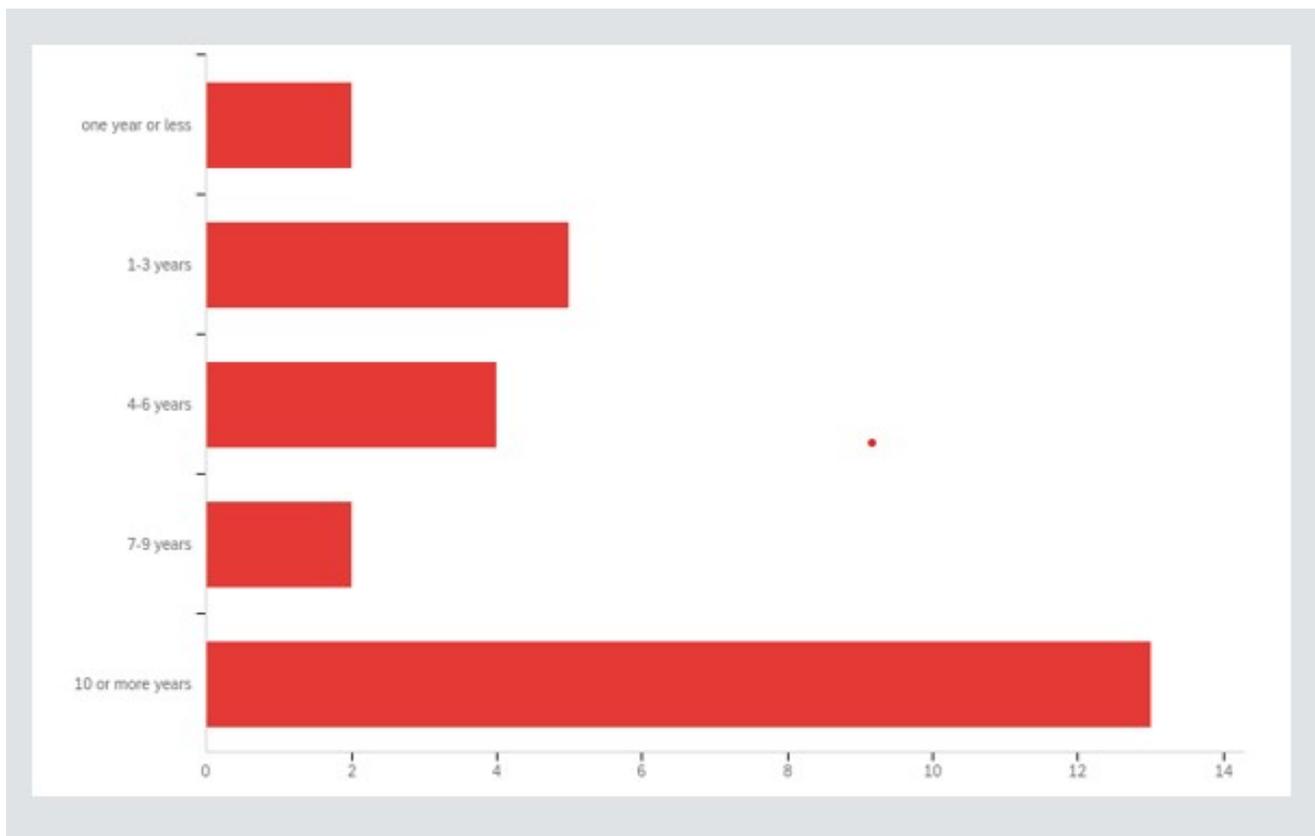
Half of the total participants were teachers (n=13) and 23% (n=6) were paraeducators, and 26.9% (n=7) were other special education professionals including school psychologists, educationally related mental health services (ERMHS) therapist, district administrator, and program specialists (See Figure 2 and Table 2). A majority of participants, 84% (n=21) supported Mild Level of Disabilities while four participants (16%) reported supporting Moderate/Severe Functional Skills Classrooms.

Figure 2: Roles of Participants
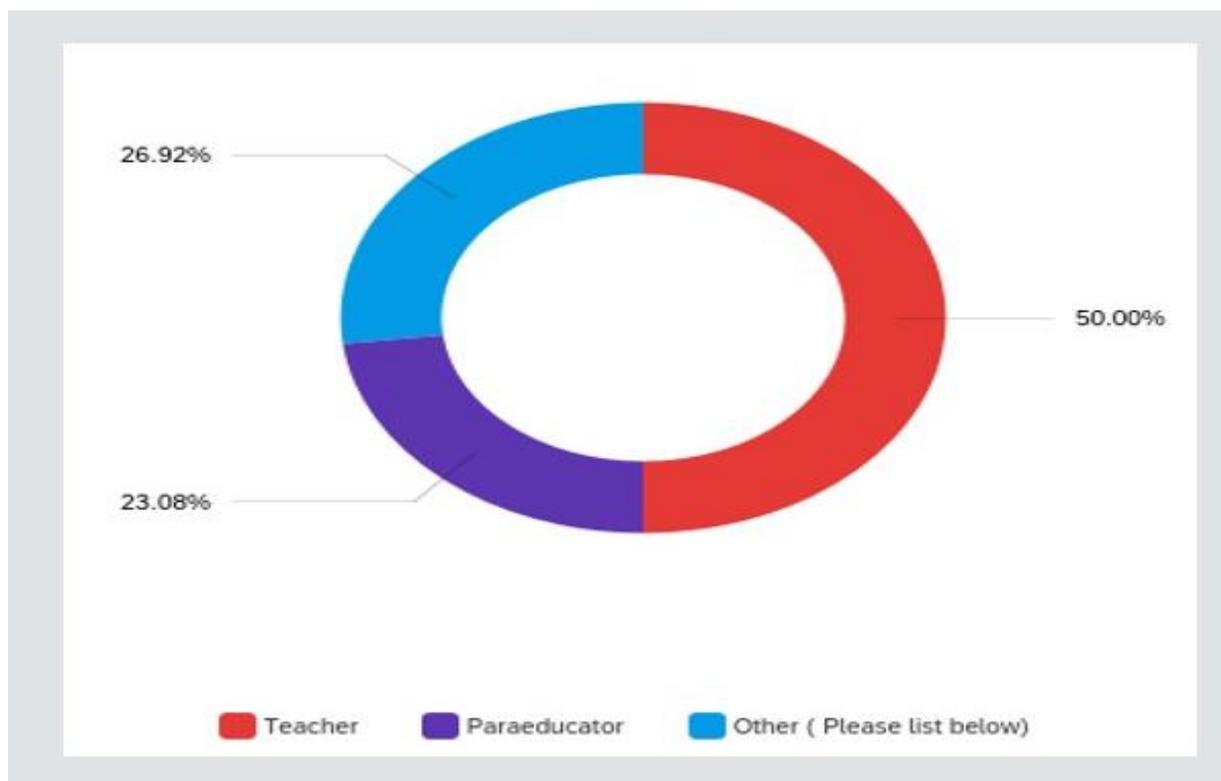
Table 2: Other Reported Roles of Participants

Other (Please list below)
School Psychologists (n=2)
ERMHS (n=1)
Program Specialist (n=1)
District administrator (n=1)
Administrator (n=1)
Did not specify (n=1)

Understanding

After the one-hour training exploring why neurodivergent students become dysregulated and how to further support regulation within the classroom setting, the participants were asked five questions to measure their basic understanding of the content. Three questions were true/false questions resulting in 100% of the participants correctly answering. The final question, multiple-choice type question, 72% (n=18) answered the question correctly. Overall, 93% (n=103) of the total responses for all four questions were accurate. For the first Likert-type formatted question, 81% (n=21) of participants reported they Strongly Agreed the training was helping in increasing their understanding of why dysregulation occurs; with 15% (n=4) reported they Somewhat Agreed; and 3.85%, one participant, Neither Agreed or Disagreed the training was helpful (See Figure 3). Thus, participants overall reported that the training was beneficial.

Figure 3 Benefits of the Training to Increase Understanding
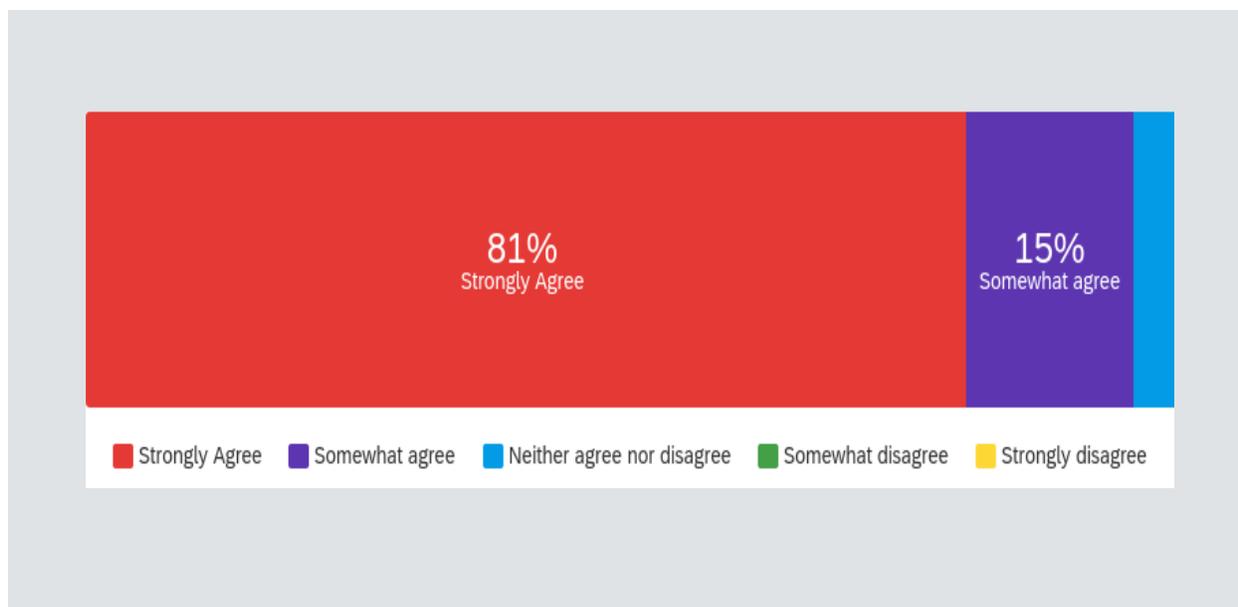
Confidence

     After the training, participants were asked if increased confidence was experienced in understanding how to support neurodivergent students. Of the 26 participants, 76.9% (n=20) reported they Strongly Agreed with reporting increased confidence; 11.54% (n=3) reported they Somewhat Agreed and Neither Agreed nor Disagreed with training increased their confidence in supporting neurodivergent students (See Figure 4).

Figure 4 Increased Confidence in Supporting Neurodivergent Students
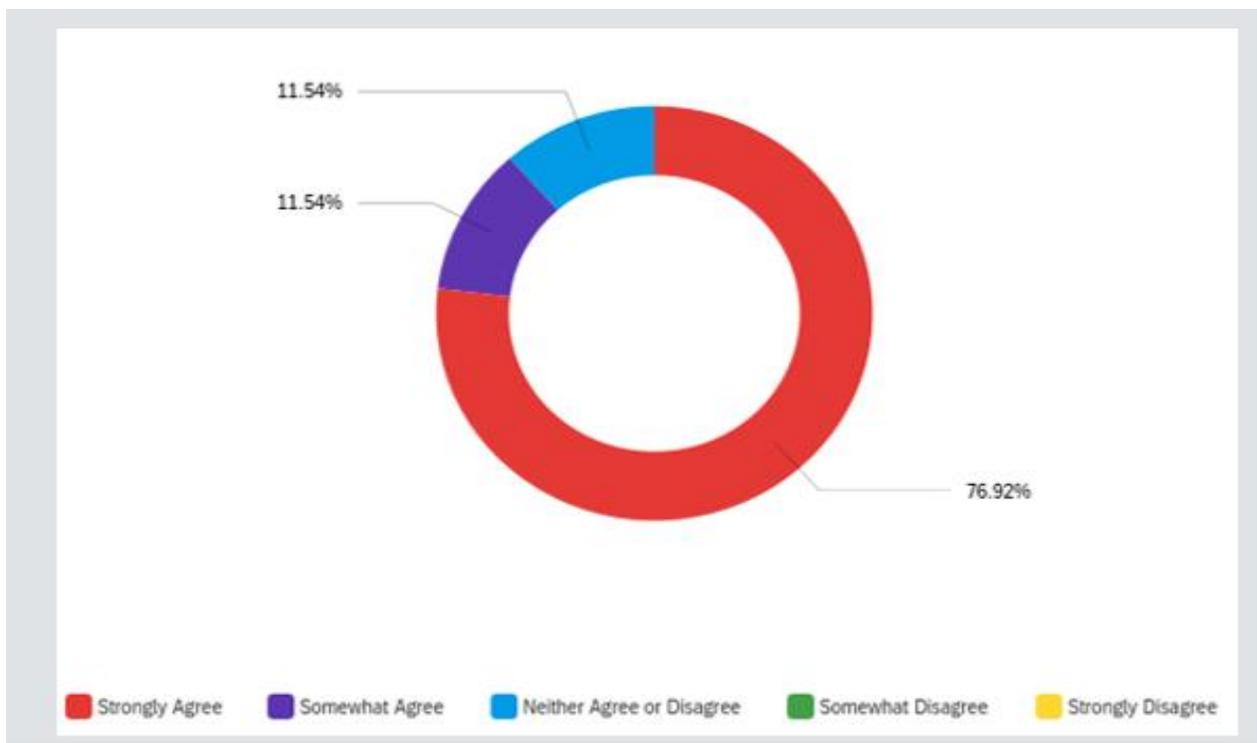
Participants were asked an open-ended question to list which strategies they would feel comfortable implementing to support their student's regulation. Reported themes of the participant responses included co-regulation, sensory, staff interaction approach, and environmental supports by 24 of 26 participants. Four participants reported they would feel comfortable implementing all of the strategies discussed within the training (see Table 3).

Table 3 Strategies the Participants Would Feel Comfortable Implementing

Themes	Responses
Co-Regulation	Modeling (n=5) All of the Co-regulation strategies presented (n=1) Calm voice (n=1)
Sensory Based Strategies	Being aware of overstimulation signs (n=1), oral supports and proprioceptive input (squeezes), helping students identify meltdowns (n=1), oral supports (cold water and straw (n=1)
Interaction	Low tone and speech (n=1), Calm voice (=1) positive feedback (n=1), being aware of overstimulation signs (n=1), reduce verbal instruction (n=1)
Environmental Supports	Breaks (n=4), change of environment (n=1), visual supports: posted schedules and routes, visual cues (n=2), accommodations (n=1)
Other	All strategies discussed (n=4) Regulation strategies that fall in line with inclusivity (n=1)

Change

After the participants learned of the benefits of co-regulation and personal interactional approaches to support regulation, the survey included questions about if the participants would change how they interact with their students to promote regulation. The majority (80.7%) of the participants (n=21) reported they would change their interactions with their students and 19.3% of the participants (n=5) reported, they would not change how they interact with their students.

A Chi-square cross-tabulation with a statistical significance set at .05 through Qualtrics software was completed to determine if a relationship existed between the participant's years of experience and four different output variables: new knowledge gained from the training, willingness to change their interactions to promote regulation of their neurodivergent students, increased confidence on how to support neurodivergent students, and reported helpfulness in

gaining increase understanding of why dysregulation occurs. No statistical significance was reported between the variables.

A Chi-square cross-tabulation was also calculated between the school staff's professional roles and the four same output variables: new knowledge gained, willingness to change interaction, increased confidence, and reported helpfulness of training. Of the four cross-tabulations calculated through Qualtrics, one statistical correlation was reported, a probability value of .04 or >.05 between the school staff's professional role and willingness to change their interaction to promote regulation (see Table 4). All of the paraeducators (n=6) and other special education staff (n=7 including administrators, mental health service providers, and psychologists) reported willingness to change their interactions to promote a more positive interaction with their students while comparatively only 61.5% of special educational teachers reported willingness to change their interactions.

Table 4 Relationship Between Strategy Use After Training and Role

			Q14: What is your role? - Selected Choice		
		Total	Teacher	Paraeducator	Other (Please list below)
			A	B	C
	Total Count (Answering)	26.0	13.0	6.0	7.0
	Missing Count	0.0	0.0	0.0	0.0
	Yes	21.0	8.0	6.0	7.0
		80.8%	61.5%	100.0%	100.0%
	No	5.0	5.0	0.0	0.0
		19.2%	38.5%	0.0%	0.0%
Q8: After today's training are there any ways you may change how you interact with your students to promote regulation?					
	Total Count (All)	26.0	13.0	6.0	7.0
	Yes	21.0	8.0	6.0	7.0
		80.8%	61.5%	100.0%	100.0%
	No	5.0	5.0	0.0	0.0
		19.2%	38.5%	0.0%	0.0%
	Overall Stat Test of Percentages	0.04526423397858692			

Discussion of Findings

The purpose of this capstone project was to measure the effectiveness of an evidenced-based training targeted at increasing special education staff knowledge, confidence, and willingness to change their interaction to better support the complex regulation needs of neurodivergent students. Majority of the participants reported they *Strongly Agreed* the training was helpful in increasing their understanding of why dysregulation occurs with neurodivergent students. The participants were able to accurately answer questions demonstrating an understanding of the foundational knowledge of why dysregulation occurs and how to support regulation, indicating the effectiveness of the training. This is supported by Menon and Lefteri (2020), who discussed the benefits of professional development programs in building self-efficacy and confidence of teachers to enhance the learning outcomes of their students. The data of this capstone research revealed that the paraprofessionals reported gaining the most new information compared to participants with other professional roles, thus validating the theory that paraeducators receive minimal training who without proper and adequate training may act as a hindrance in the classroom as discussed by Silveira-Zaldivara and Curtis (2019). This further demonstrates paraprofessionals should not be overlooked when school-based occupational therapists are consulting or collaborating on engagement and participation techniques of neurodiverse students, as often paraprofessionals have the most knowledge to gain and play a pivotal role in classroom management of students.

Confidence

Menon and Lefteri, (2020) discussed the importance of building self-confidence to further build self-efficacy skills of teachers in executing inclusionary practices of neurodiverse students. Data in this capstone project shows this training aided in building the confidence of all

the special education support staff. Unexpected findings of the capstone project included that despite some of the participants reporting not learning new information from the training most of the participants (80%) reported increased confidence in their ability to support neurodivergent students. The majority of the staff members who reported no new learning were special education teachers who would have previous education to earn their teaching credential, whereas paraeducators are not required to obtain that level of education. Additionally, the least trained and educated professionals, the paraeducators, reported the highest level of learning new information and the lowest level of gained confidence, inferring the need for continued practice, coaching, training, and experiences. This finding reinforces previous literature of Menon and Lefteri (2020) and Young et al., 2017, emphasizing the value for continued and recurring continuing education and trainings to further build the self-efficacy and confidence through a variety of learning experiences to effectively learn and execute strategies to support dysregulation of students.

Change and Experience

The majority of participants reported they would be willing to change their interactions to better support the regulation of their students. Participants reported a variety of strategies they were willing to implement in the classroom including co-regulation strategies, environmental strategies, visuals, and sensory-based strategies while some participants reported feeling comfortable implementing all strategies discussed in the training. This capstone project indicated that paraeducators were more willing to change how they interact with students to promote regulation compared to teachers. The lack of teachers' willingness to change may be attributed to different factors. Credentialed special education teachers may have previous education in supporting neurodivergent students finding their teaching approaches already effective in facilitating regulation. However, the literature also suggests lack of support, resources, or

attitudes can attribute to the apprehension or willingness to change or modify their practice (Anglim et al., 2018; Maciver et al., 2018; Silveira-Zaldivara & Curtis 2019). Thus, this capstone project demonstrates the need for continued research or follow-up interviews to better understand the underlying causes why the teachers were more hesitant to change to help guide administrators or specialized district staff on how to better support their teaching staff.

Literature discusses the correlation between the greater level of experience with teachers with greater levels of self-efficacy and confidence in comparison to novice teachers (Anglim et al., 2018; Maciver et al., 2018; Menon & Lefteri, 2020; Silveira-Zaldivara & Curtis, 2019). Analyzing data from this capstone project, these findings differ from the previous literature discussed. In this study, participants' years of progressive experience did not positively correlate with progressively increased confidence, learning new information, or willingness to change interactions with their students. Thus, indicating other variables impacting self-efficacy, such as different lived experiences, additional exposure to training and attitudes towards supporting students may be contributing to the variables. For example, *both* groups of participants reporting less than one year's experience and 4-6 years of experience reported learning new information and *all* the participants with one year or less experience and 7-9 years of experience reported willingness to change their interactions to further promote regulation. While half the participants with 7-9 years of experience reported increased confidence, 100% of participants with 4-6 years reported increased confidence and more than three-quarters of the staff with ten or more years reported increased confidence. School-based occupational therapists should not assume only novice special education staff would benefit from training and consulting. This capstone project research shows all staff of all levels of experience benefitted from training to build their confidence in supporting neurodivergent students. Despite the literature gap in demonstrating the

effectiveness in occupational therapist training teachers (Miller-Kuhaneck & Watling, 2018) this data reinforces the role of occupational therapists in developing and implementing school-wide evidenced-based training targeting all experience levels of special education staff.

However, regardless of an overall reported increased knowledge from staff, one observation noted, that the most experienced staff (10 or more years) generally reported the least benefit of the training in regard to learning new information. This relationship may be attributed to the specific nature of their profession and exposure to previous professional development education on evidence-based strategies to support students with disabilities (Holmes & Butcher, 2020). More in-depth content and feedback from the most experienced teachers on reported needed areas of growth may be beneficial in the development of school-wide training to specifically target the advanced needs of the most experienced special education staff.

This capstone project supports reducing the disparity students with disabilities face within their educational environments by addressing environmental barriers, changing attitudes and interactions of special education staff as described in the social model of disability within the PEOP model. With gained knowledge and understanding, staff were motivated to change their interactions and implement strategies to further support their students' regulation and participation in the school context. By, reinforcing the dynamic *interdependent* components of PEOP: Occupation, Occupational Performance, Person Factors, and Environmental Factors that influence the performance and participation of students with disabilities (Cole & Tufano, 2020), occupational therapists can support the positive outcomes of students with disabilities by increasing the understanding and skills of support staff to reduce the barriers that neurodivergent student face within their educational environments.

Limitations

       There are several limitations to this study. First, the small sample size of this study with a total 26 participants completing the survey impacted the reliability of the statistical analysis. Another limitation is that the primary researcher is an employee at the same school district the participants are also employed creating a level of bias towards this researcher in which the participants may have skewed their responses due to this researcher's direct relationship to the school district. Temporal limitations impacted the data collection and ability to respond during the training period for staff members. The participants excused themselves to greet their students in the classroom to prevent the students from being unsupervised, limiting extra time to complete the survey. Despite a follow-up email with the survey link provided to the staff, the majority of the participants who completed the survey were in-person at the training indicating limited time outside of scheduled training to complete the survey. Also, additional stress and work demands were placed on the participants due to a state-wide audit of special education services in California which also impacted the ability to conduct the training at each site due to the additional training that was required for the data collection of the mandated audit. Lastly, the survey did not include any questions inquiring about the participant's history of exposure to previous training, coursework, or experience working with neurodiverse students which may impact the survey results.

Strengths

    Despite a low sample size this research project presents some evident strengths. The project serves to fill a void in research demonstrating the effectiveness of occupational therapists supporting staff training and school-wide initiatives. Participants represented a wide variety of school staff reflective of a comprehensive school district of different professions and years of experience. Lastly, this researcher, being a district employee with established relationships with

the school staff aided to establish a level of trust and "buy-in" with the information and strategies presented.

Implications

Based on the findings of this capstone project, occupational therapists can play a positive role in building a foundation for creating a school-wide environment of inclusion and increased participation for neurodiverse students through increased training. However, this study shows that although the special education staff gained knowledge and confidence to support the diverse needs of students with disabilities through a pedagogy approach it is imperative a variety of active learning approaches are incorporated for enhanced self-efficacy and habit development, particularly for less experienced staff. Occupational therapists need to advocate for increased involvement in school-wide initiatives through ESSA (2015, Pub. L. No 114-95) in promoting student participation and inclusion practices. School-based occupational therapists should also consider and advocate for the social model of disability perspective in supporting students with disabilities to facilitate greater success within their least restrictive environments. Occupational therapists have the specialized knowledge of occupation, environmental factors, and habit training in supporting staff and students at a macro level (Epley et al., 2021), however school-based occupational therapists are more commonly utilized only as a member of a student's Individualized Educational Plan (IEP) opposed to implementing district-level initiatives. As the roles of occupational therapy continues to expand based upon current federal legislation in developing system-wide training and education to promote occupation, engagement, and equity, it is important for school- based occupational therapists to initiate leadership at the district-level in showcasing the unique prospectives occupational therapists can bring to school-wide student initiatives.

Future Research

Layden et al. (2023) discusses special education administrator's role is often to create and oversee professional development for special education staff despite administrators reporting limited knowledge and expertise in evidenced based practices. Future research needs to continue to explore the effectiveness of school-based occupational therapists in creating professional development for special educational staff in promoting neurodivergent student outcomes at micro and macro levels as occupational therapists have the clinical expertise and knowledge to disseminate evidenced based practices that administrators may be lacking. Also exploring qualitative feedback from special education staff to understand their personal barriers and successes in supporting neurodivergent students to aid in developing future special education staff training at a district level. The results of this capstone project demonstrated a need for larger-scale research expanded over a wider geographic area to incorporate a wider range of perspectives of staff to gain a greater depth of insight into special education staff's lived experiences.

Summary

This capstone project aimed to increase the self-efficacy of special education staff in supporting the regulation of neurodivergent students through a one-hour training. Although not statistically significant, the findings indicated the training was effective in building knowledge, confidence, and willingness to change their personal interaction to enhance the regulation of neurodiverse students. The staff's level of experience did not directly impact the level of information gained from the training. School-based occupational therapists should not assume more experienced staff would not benefit from ongoing consultations or training in supporting

the complex needs of neurodivergent students. School-based occupational therapists need to continue to advocate for students with disabilities as well as contribute to district-level initiatives in supporting inclusionary practices and reducing disparities within their educational environment.

References

Alnaim, M. (2018). The impact of zero tolerance policy on children with disabilities. *World Journal of Education*, *8*(1), 1. https://doi.org/10.5430/wje.v8n1p1

American Occupational Therapy Association (2018). Vision 2025. *OT Practice Magazine.* https://www.aota.org/Publications-News/otp/Archive/2018/Vision-2025.aspx. Accessed 21 Aug. 2021.

American Occupational Therapy Association. (2020). Occupational therapy practice framework: Domain and process (4th ed.). *American Journal of Occupational Therapy, 74*(Suppl. 2), https://doi.org/10.5014/ajot.2020.74S2001

American Occupational Therapy Association. (2015). Occupational therapy for children and youth using sensory integration theory and methods in school-based practice. *The American Journal of Occupational Therapy*, *69*(Suppl. 3), https://doi.org/10.5014/ajot.2015.696S04

Anderson, K. P. (2021). The relationship between inclusion, absenteeism, and disciplinary outcomes for students with disabilities. *Educational Evaluation and Policy Analysis*, *43*(1), 32–59. https://doi.org/10.3102/0162373720968558

Anglim, J., Prendeville, P., & Kinsella, W. (2018). The self-efficacy of primary teachers in supporting the inclusion of children with autism spectrum disorder. *Educational Psychology in Practice*, *34*(1), 73–88. https://doi.org/10.1080/02667363.2017.1391750

Artale-Morgante, M., & Seruya, F. M. (2017). Developing inclusive school communities: An expanded role for school-based occupational therapy. *The American Journal of Occupational Therapy*, *71*(4 Suppl. 1). https://doi.org/10.5014/ajot.2017.71S1-PO3091

Ballin, A. E. (2022). Connecting trauma-sensitive schooling and social–emotional learning to

  promote educational equity: One school's intentional design. *Children & Schools*, *44*(2),

  107–115. https://doi.org/10.1093/cs/cdab032

Bandura, A. (1986). The explanatory and predictive scope of self-efficacy theory. *Journal of*

  Social and Clinical Psychology, 4(3), 359-373.

Baum, C. M., Christiansen, C.H., & Bass, J. D. (2015). The person-environment-occupation-

  performance model. In C.H. Christiansen, C. M. Baum & J.D. Bass (Eds.), *Occupational*

  therapy: Performance, participation and well-being (4th ed., pp. 49-56). SLACK

  Incorporated.

Berger, E., & Martin, K. (2021). Embedding trauma-informed practice within the education

  sector. *Journal of Community & Applied Social Psychology*, *31*(2), 223–227.

  https://doi.org/10.1002/casp.2494

Bodison, S. C., & Parham, L. D. (2017). Specific sensory techniques and sensory environmental

  modifications for children and youth with sensory integration difficulties: A systematic

  review. *The American Journal of Occupational Therapy*, *72*(1),

  https://doi.org/10.5014/ajot.2018.029413

Braungart, M. M., Braungart, R.G., & Gramet, P.R. (2020) Applying learning theories to

  healthcare practice (pp.75-). *Psychological Learning Theories*. Jones & Bartlett Learning,

  LLC.

Braveman, B., Suarez-Balcazar, Y., Kielhofner, G., & Taylor, R. (2017). Program evaluation

  research. In R. Taylor (Ed.), *Kielhofner's research in occupational therapy:*

  Methods of inquiry for enhancing practice (2nd ed). pp.416-417.

Chen, Y.L., & Patten, K. (2021). Shifting focus from impairment to inclusion: Expanding

   occupational therapy for neurodivergent students to address school environments. *The*

   American Journal of Occupational Therapy, *75*(3), https://doi.org/10.5014/ajot.2020.040618

Chen, Y. L., Murthi, K., Patten, K., Martin, W., Vidiksis, R., & Riccio, A. (2021). Making on

   and off the spectrum: An inclusive program to support executive function, social

   engagement, and STEM interests in students on the spectrum. *The American Journal of*

   Occupational Therapy, *75*(Suppl. 2), https://doi.org/10.5014/ajot.2021.75S2-RP339

Clairy, M., Ochsenbein, M., & Speilmann, V. (2021). Trauma in neurodivergent populations. In

   A. Lych, R. Ashcraft, L. Tekell (Eds.), *Trauma, occupational, and participation:*

   Foundations and population considerations in occupational therapy. (pp. 345-366).

   American Occupational Therapy Association., Inc.

Cole, M.B. & Tufano, R. (2020). Current trends: Occupational therapy's visions for the future.

   In M. B. Cole & R. Tufano (Eds.), *Applied Theories in Occupational Therapy: A Practice*

   Approach (2ⁿᵈ ed., pp. 127-136). SLACK Inc.

Cox, K. (2020). Quantitative research designs. In G. Burkholder, K. Cox, L. Crawford, & J. H.

   Hitchcock (Eds.), *Research design methods: An applied guide for the scholar-practitioner*

   (2ⁿᵈ ed., pp. 244-271)*. SAGE Publications, Inc.

Creswell, J., & Creswell, J. (2018). Writing strategies and ethical considerations.

   Research design: Qualitative, quantitative, and mixed methods approaches. (5ᵗʰ ed., pp. 75-

   98). SAGE Publications, Inc.

Embse, N., Brown, A., & Fortain, J. (2011). Facilitating inclusion by reducing behaviors with

   ASD. *Intervention in School and Clinic*. *47*(1), 22-30.

   https://doi.org/10.1177/1053451211406545

Epley, E., Wolshe, J., Lee, J., Mirza, M., MSHSOR, & Fisher, G. (2021). Habits and health
promotion in occupational therapy: A scoping review. *Annals of International Occupational Therapy*. 2021;4(4), 269-277. https://doi: 10.3928/24761222-20210921-04

Every Student Succeeds Act 2015, Pub. L. No 114-95 (2015).
https://www.congress.gov/bill/114th-congress/senate-bill/1177
DOI:10.1177/1053451211406545

Goodall, C. (2020). Inclusion is a feeling, not a place: A qualitative study exploring autistic
young people's conceptualisations of inclusion. *International Journal of Inclusive Education*, *24*(12), 1285–1310. https://doi.org/10.1080/13603116.2018.1523475

Graham, L. J. (2021). Inclusive education challenges for students with autism spectrum disorder.
BU Journal of Graduate Studies in Education, *13*(3), 21–25. https://www-brandonu-ca.libproxy.eku.edu/master-education/journal/

Gillespie-Lynch, K., Dwyer, P., Constantino, C., Kapp, S. K., Hotez, E., Riccio, A., DeNigris,
D., Kofner, B., & Endlich, E. (2020). Can we broaden the neurodiversity movement without weakening it? Participatory approaches as a framework for cross-disability alliance building. *Disability Alliances and Allies*, (12), 189–223. https://doi.org/10.1108/S1479-354720200000012013

Grandisson, M., Rajotte, E., Godin, J., Chrétien-Vincent, M., & Milot, E. (2020). Building
school capacity to facilitate participation of students with autism spectrum disorder (ASD): A multitier approach. *The American Journal of Occupational Therapy*, *74*(4 Suppl. 1), https://doi.org/10.5014/ajot.2020.74S1-PO6125

Hannant, P., (2021) Neurodiversity: Ineffective pathways and the price of conjecture. *Support for
Learning*, *36*(3), 356–379. https://doi.org/10.1111/1467-9604.12368

Holmes, S. C., & Butcher, J. (2020). Educational leaders can lead the way for increased academic achievement for students on the autism spectrum. *Autism Spectrum Resources for Marriage & Family, 15*(1) 22. https://scholarworks.sfasu.edu/slr/vol15/iss1/20

Howe, F., & Stagg, S. (2016). How sensory experiences affect adolescents with an autistic spectrum condition within the classroom. *Journal of Autism & Developmental Disorders*, *46*(5), 1656–1668. https://doi.org/10.1007/s10803-015-2693-1

Huang, Y., Ling, P., Lin, Y., Wong, R., Lee, M., & Wong, M. (2021). Teachers' attitude and feelings of self-efficacy toward student mental health needs. *The American Journal of Occupational Therapy*, 75(Suppl. 2), https://doi.org/10.5014/ajot.2021.75S2-RP253

Hui, C., Snider, L., & Couture, M. (2016). Self-regulation workshop and occupational performance coaching with teachers: A pilot study: Étude pilote sur un atelier d'autogestion et des séances d'encadrement du rendement occupationnel à l'intention des enseignants. *The Canadian Journal of Occupational Therapy*, *83*(2), 115–125. http://dx.doi.org/10.1177/0008417415627665

Hurwitz, S., Cohen, E. D., & Perry, B. L. (2021). Special education is associated with reduced odds of school discipline among students with disabilities. *Educational Researcher*, *50*(2), 86–96. https://doi.org/10.3102/0013189X20982589

Individuals With Disabilities Education Act of 2004. U.S.C. § 300.530. (2004) https://sites.ed.gov/idea/statutechapter-33

Katz, J., Knight, V., Mercer, S. H., & Skinner, S. Y. (2020). Effects of a universal school-based mental health program on the self-concept, coping skills, and perceptions of social support of students with developmental disabilities. *Journal of Autism and Developmental Disorders*, *50*(11), 4069–4084. http://dx.doi.org/10.1007/s10803-020-04472-w

Kapp, S. K., Gillespie-Lynch, K., Sherman, L. E., & Hutman, T. (2013). Deficit, difference, or both? Autism and neurodiversity. *Developmental Psychology*, *49*(1), 59–71. https://doi.org/10.1037/a0028353

Kornblau, B. L., & Robertson, S. M. (2021). Special issue on occupational therapy with neurodivergent people. *American Journal of Occupational Therapy*, *75*(3), 1–6. https://doi.org/10.5014/ajot.2021.753001

Kinnealey, M., Pfeiffer, B., Miller, J., Roan, C., Shoener, R., & Ellner, M. L. (2012). Effect of classroom modification on attention and engagement of students with autism or dyspraxia. *American Journal of Occupational Therapy*, *66*(5), 511–519. https://doi.org/10.5014/ajot.2012.004010

Law, M., Cooper, B., Strong, S., Stewart, D., Rigby, P., & Letts, L. (1996). The person-environment-occupation model: A transactive approach to occupational performance. *The Canadian Journal of Occupational Therapy*, *63*(1), 9–23. https://doi.org/10.1177/000841749606300103

Layden, S. J., Coleman, H., Horn, A. L., Lorio-Barsten, D., & Scott, L. A. (2023). "Not as systematic as maybe I'd like it to be": Special education administrators' professional development planning for teachers of students with ASD. *Journal of Special Education Leadership*, *36*(2), 104–117.

Little, S., & Maunder, R. E. (2021). Why we should train teachers on the impact of childhood trauma on classroom behaviour. *Educational & Child Psychology*, *38*(1), 54–61. https://doi.org/10.53841/bpsecp.2021.38.1.54

Lobo, F. M., & Lunkenheimer, E. (2020). Understanding the parent-child coregulation patterns

    shaping child self-regulation. *Developmental Psychology*, *56*(6), 1121–1134.

    https://psycnet.apa.org/doi/10.1037/dev0000926

Lynch, A., & Mahler, K. (2021). Trauma effects on neurobiological, social, emotional, and

    motor function: Considerations in occupational. In A. Lynch, R. Ashcraft & L. Tekell,

    (Eds.), *Trauma, occupational, and participation: Foundations and population*

    considerations in occupational therapy (pp.19-35)*.* American Occupational Therapy

    Association Inc.

Maciver, D., Hunter, C., Adamson, A., Grayson, Z., Forsyth, K., & McLeod, I. (2018).

    Supporting successful inclusive practices for learners with disabilities in high schools: A

    multisite, mixed method collective case study. *Disability and Rehabilitation*, *40*(14), 1708–

    1717. https://doi.org/10.1080/09638288.2017.1306586

Mahler, K. (2017). *Interoception: The eighth sensory system*. AAPC Publishing

Mahoney, M. (2020). Implementing evidence-based practices within multi-tiered systems of

    support to promote inclusive secondary classrooms settings. *The Journal of Special*

    Education Apprenticeship. 9(1) 1-10. https://files-eric-ed-

    gov.libproxy.eku.edu/fulltext/EJ1241841.pdf

Martin, T., Dixon, R., Verenikina, I. & Costley, D. (2021). Transitioning primary school students

    with autism spectrum disorder from a special education classroom to a mainstream

    classroom: successes and difficulties. *International Journal of Inclusion Education*. (25)5,

    640-655. https://doi.org/10.1080/13603116.2019.1568597

Marczuk, O., Taff, S. D., & Berg, C. (2014). Occupational justice, school connectedness, and high school dropout: The role of occupational therapy in meeting the needs of an underserved population. *Journal of Occupational Therapy, Schools, & Early Intervention*, *7*(3–4), 235–245. https://doi.org/10.1080/19411243.2014.966018

Menon, M. E., & Lefteri, A. (2021). The link between transformational leadership and teacher self-efficacy. *Education*, *142(1)*, 42–52. https://libproxy.eku.edu/login?url=https://search.ebscohost.com/login.aspx?direct=true&AutHType=ip&db=pbh&AN=152550177&site=ehost-live&scope=site

Miller-Kuhaneck, H., & Watling, R. (2018). Parental or teacher education and coaching to support function and participation of children and youth with sensory processing and sensory integration challenges: A systematic review. *The American Journal of Occupational Therapy*, *72*(1), https://doi.org/10.5014/ajot.2018.029017

Mu, K., & Royeen, C. (2004). Facilitating participation of students with severe disabilities: Aligning school-based occupational therapy practice with best practices in severe disabilities. *Physical & Occupational Therapy in Pediatrics*, *24*(3), 5–21. https://doi.org/10.1300/J006v24n03_02

National Alliance of Specialized Support Personnel (2019). National Alliance of Specialized Support Personnel: Implementing the Every Student Succeed Act. [Powerpoint]. http://nasisp.org/issues-advocacy/esea/

Nelen, M., Blonk, A., Scholte, R., & Denessen, E. (2020) School wide positive behavior interventions and supports: Fidelity of tier 1 implementation in 117 dutch schools. *Journal of Positive Behavior Interventions,* 22(3), 156-166. https://doi.org/10.1177/1098300719879621

Pellicano, E., & den Houting, J. (2022). Annual research review: Shifting from 'normal science' to neurodiversity in autism science. *Journal of Child Psychology and Psychiatry*, *63*(4), 381–396. https://doi.org/10.1111/jcpp.13534

Oliver, M. (2004). The social model in action: If I had a hammer. In C. B. Barnes & G. Mercer (Eds.), *Implementing the social model of disability: Theory and research* (pp. 18–31). Disability Press. https://disability-studies.leeds.ac.uk/wp-content/uploads/sites/40/library/Barnes-implementing-the-social-model-chapter-2.pdf

Oliver-Kerrigan, K. A., Christy, D., & Stahmer, A. C. (2021). Practices and experiences of general education teachers educating students with autism. *Education and Training in Autism & Developmental Disabilities*, *56*(2), 158–172. https://research-ebsco-com.libproxy.eku.edu/linkprocessor/plink?id=8be24f59-1dda-3785-aa0a-5d97784f12d9

Quint, N., McKenna, C., Messingschlager, A., Bien, A., & Smith, E. (2019). Exploring the lived experience of adults with sensory processing disorder (SPD): A phenomenological study. *The American Journal of Occupational Therapy*, *73*(4 Suppl.1), https://doi.org/10.5014/ajot.2019.73S1-PO4010

Rodger, S., Bird, R., Hibbert, K., Johnson, A. M., Specht, J., & Wathen, C. N. (2020). Initial teacher education and trauma and violence informed care in the classroom: Preliminary results from an online teacher education course. *Psychology in the Schools*, *57*(12), 1798–1814. https://doi.org/10.1002/pits.22373

Sadin, M. & Levy, N. (2019). *Teacher's guide to trauma*. Nathan Levy Books LLC Publication

Sarrett, J. C. (2018). Autism and accommodations in higher education: Insights from the autism community. *Journal of Autism & Developmental Disorders*, *48*(3), 679–693. https://doi.org/10.1007/s10803-017-3353-4

Sewell, A., & Park, J. (2021). Neurodiversity: A three factors model of education practice

    considerations for teaching neurodiverse learners for strengths-based perspective. *Support for*

    Learning. 36(4), 678-694. https://doi.org/10.1111/1467-9604.12387

Silveira-Zaldivar, T., & Curtis, H. (2019). "I'm Not Trained for This!" and other barriers to

    evidence-based social skills interventions for elementary students with high functioning

    autism in inclusion. *International Electronic Journal of Elementary Education*, *12*(1), 53–66.

    DOI:10.26822/iejee.2019155337

Silverman, F., & Tyszka, A. C. (2017). Supporting participation for children with sensory

    processing needs and their families: Community-based action research. *The American*

    Journal of Occupational Therapy, *71*(4), 1-9. https://doi.org/10.5014/ajot.2017.025544

Strand, L. R. (2017). Charting relations between intersectionality theory and the neurodiversity

    paradigm. *Disability Studies Quarterly*, 37(2). https://doi.org/10.18061/dsq.v37i2.5374

Steinbrenner, J. R., Hume, K., Odom, S. L., Morin, K. L., Nowell, S. W., Tomaszewski, B.,

    Szendrey, S., McIntyre, N. S., Yücesoy-Özkan, Ş., & Savage, M. N. (2020). EPB 2020

    children, youth, and young adults with autism. *National Clearinghouse on Autism Evidence*

    and Practice. 1-143. DOI: 10.26822/iejee.2019155337

Ting, V. & Weiss, J. (2017). Emotion regulation and parent co-regulation in children with autism

    spectrum disorder. *Journal of Autism & Developmental Disorders*, *47*(3), 680–689.

    https://doi.org/10.1007/s10803-016-3009-9

Trader, B., Stonemeier, J., Berg, T., Knowles, C., Massar, M., Monzalve, M., Pinkelman, S.,

    Nese, R., Ruppert, T., & Horner, R. (2017). Promoting inclusion through evidence-based

    alternatives to restraint and seclusion. *Research and Practice for Persons with Severe*

    Disabilities, *42*(2), 75–88. https://doi.org/10.1177/1540796917698830

U.S. Education Department (2021). Civil rights data collection, 2017-18 state and national

 estimations. https://ocrdata.ed.gov/estimations/2017-2018

Watling, R., & Hauer, S. (2015). Effectiveness of Ayres Sensory Integration® and sensory-based

 interventions for people with autism spectrum disorder: A systematic review. *The American*

 Journal of Occupational Therapy, *69*(5), https://doi.org/10.5014/ajot.2015.018051

World Health Organization. (2008). *International classification of functioning, disability, and*

 health: ICF. WHO Press. https://www.who.int/standards/classifications/international-

 classification-of-functioning-disability-and-health

Wu, Y. C., Chen, P.Y., Tsai, S. P., Tsai, S.-F., Chou, Y. C., & Chiu, C.Y. (2019). The effects of

 the class-wide function-related intervention teams on behaviors of an elementary student

 with autism spectrum disorder in an inclusive classroom in Taiwan. *International Journal of*

 Developmental Disabilities, *65*(5), 368–377.

 https://doi.org/10.1080/20473869.2019.1647031

Weist, M. D., Eber, L., Horner, R., Splett, J., Putnam, R., Barrett, S., Perales, K., Fairchild, A. J.,

 & Hoover, S. (2018). Improving multitiered approach with students with internalizing

 behaviors. *Journal of Positive Behavior Interventions. 20*(3), 172-184.

 https://doi.org/10.1177/1098300717753832

Young, K., Mannix McNamara, P., & Coughlan, B. (2017). Post-primary school teachers'

 knowledge and understanding of autism spectrum disorders. *Irish Educational Studies*, *36*(3),

 399–422. https://doi.org/10.1080/03323315.2017.1350594

Zeitlin, D., & Skuller, J. (2022). Using universal strategies to support self-regulation in a virtual

 school setting. *SIS Quarterly Practice Connections, 7*(1), 5–7.

 https://www.aota.org/publications/sis-quarterly/sensory-integration-processing-sis/sipsis-2-22

Appendices

Appendix A

Letter of IRB Approval Dated, January 12, 2023.

Hello Jennifer Molina,
Congratulations! Using a limited review process, the Institutional Review Board at Eastern Kentucky University (FWA00003332) has approved your request for an exemption determination for your study entitled, "Enhancing Support Staff Self-Efficacy in Supporting Neurodiverse Students' Classroom Engagement" This status is effective immediately and is valid for a period of three years as long as no changes are made to the study as outlined in your limited review application. If your study will continue beyond three years, you are required to reapply for exemption and receive approval from the IRB prior to continuing the study.
As the principal investigator for this study, it is your responsibility to ensure that all investigators and staff associated with this study meet the training requirements for conducting research involving human subjects and comply with applicable University policies and state and federal regulations. Please read through the remainder of this notification for specific details on these requirements.
Adverse Events: Any adverse or unexpected events that occur in conjunction with this study should reported to the IRB immediately and must be reported within ten calendar days of the occurrence.
Changes to Approved Research Protocol: If changes to the approved research protocol become necessary, a Protocol Revision Request must be submitted for IRB review, and approval must be granted prior to the implementation of changes. If the proposed changes result in a change in your project's exempt status, you will be required to submit an application for expedited or full review and receive approval from the IRB prior to implementing changes to the study. Changes include, but are not limited to, those involving study personnel, subjects, recruitment materials and procedures, and data collection instruments and procedures.
Registration at ClinicalTrials.gov: If your study is classified as a clinical trial, you may be required by the terms of an externally-sponsored award to register it at ClinicalTrials.gov. In addition, some medical journals require registration as a condition for publication. In the case of journals with membership in the International Committee of Medical Journal Editors, clinical trials must be registered prior to enrolling subjects. It is important that investigators understand the requirements for specific journals in which they intend to publish. In the case of sponsored project awards, timeline requirements will vary for awards that require registration. Approved consent forms must be uploaded in the system for all Federally-funded clinical trials after subject enrollment has closed, but earlier registration is not required for all agencies. If you have questions about whether a sponsored project award requires registration and on what timeline, please send an email to tiffany.hamblin@eku.edu before beginning recruitment so that the specific terms of the award can be reviewed. If you have a need to register your study and do not have an account in the system, please send an email to lisa.royalty@eku.edu and request to have a user account created.
If you have questions about this approval or reporting requirements, contact the IRB administrator at lisa.royalty@eku.edu or 859-622-3636.

For your reference, comments that were submitted during the review process are included below. Any comments that do not accompany an "I approve" response have been provided to you previously and were addressed prior to the review process being completed.

Appendix B

Letter of IRB-R Approval Dated September 6, 2023.

Hello Jennifer Molina,

The Institutional Review Board at Eastern Kentucky University has approved your Protocol Revision Request for Research Protocol #5058, "Enhancing Support Staff Self-Efficacy in Supporting Neurodiverse Students' Classroom Engagement"}. The following changes were approved through the revision process:

- Revision(s) to research procedures as outlined in your submission

Please take a few minutes to review the requirements below outlined in your original approval for this study.

Principal Investigator Responsibilities: It is the responsibility of the principal investigator to ensure that all investigators and staff associated with this study meet the training requirements for conducting research involving human subjects, follow the approved protocol, use only the approved forms, keep appropriate research records, and comply with applicable University policies and state and federal regulations.

Consent Forms: All subjects must receive a copy of the consent form as approved with the EKU IRB approval stamp. Copies of the signed consent forms must be kept on file unless a waiver has been granted by the IRB.

Adverse Events: Any adverse or unexpected events that occur in conjunction with this study must be reported to the IRB within ten calendar days of the occurrence.

Research Records: Accurate and detailed research records must be maintained for a minimum of three years following the completion of the research and are subject to audit.

Changes to Approved Research Protocol: If changes to the approved research protocol become necessary, a description of those changes must be submitted for IRB review and approval prior to implementation. Some changes may be approved by expedited review while others may require full IRB review. Changes include, but are not limited to, those involving study personnel, consent forms, subjects, and procedures.

Annual IRB Continuing Review: This approval is valid through the expiration date noted above and is subject to continuing IRB review on an annual basis for as long as the study is active. It is the responsibility of the principal investigator to submit the annual continuing review request and receive approval prior to the anniversary date of the approval. Continuing reviews may be used to continue a project for up to three years from the original approval date, after which time a new application must be filed for IRB review and approval.

Final Report: Within 30 days from the expiration of the project, a final report must be filed with the IRB. A copy of the research results or an abstract from a resulting publication or presentation must be attached. If copies of significant new findings are provided to the research subjects, a copy must be also be provided to the IRB with the final report.

Appendix C

Training Module Content Outline and References

Post Training Survey Questions
1. When neurodivergent students become dysregulated in the classroom a mismatch occurs between the individual processing and environmental and contextual demands T/F
2. Causes of dysregulation of a neurodivergent student that can impact learning can include sensory sensitivity, changes in the routine, anxiety, impulsivity, limited sleep, hunger, or limited interoception skills. T/F
3. Students' regulation can be improved by teacher/staff modeling or co-regulation practices. T/F
4. Students benefit from staff utilizing the following techniques to increase self-regulation except, low speech tone, calm voice, reduced verbal instruction, wearing strong scented perfumes or cologne, and modeling slow breathing and a regulated state.
5. Did this training increase your confidence in how to support neurodiverse students' participation within the classroom? (1-5 rating)
6. What strategies would you feel comfortable implementing within your classroom that you feel would support your students?
7. Support staff's interaction with a neurodivergent student can be just an important to maintaining regulation as environmental supports and accommodations? T/F

8. After today's training is there any ways you may interact with your students differently to promote regulation? Y/N/List
9. Did you learn any new information on why dysregulation occurs with neurodivergent students Y/N/List
10. Was this training helpful in increasing your understanding on why dysregulation occurs and strategies to support regulation and engagement of neurodivergent students within the classroom setting? (1-5 rating)
11. How many years of experience as a teacher or para-educator do you have? (multiple choice)
12. Are you a teacher or paraeducator? (Choice)
13. What severity level classroom do you support? (Choice)

I.   Defining neurodiversity

  a. Neurodiversity frame of reference (Lynch, et al., 2021; Kornblau & Robertson, 2021; Nerenberg, 2021).

II.   Internal and external causes of dysregulation (Lych et al., 2021)

III.   Sensory processing and modulation challenges (Howe & Stagg, 2016)

  a. Eight sensory systems (Bundy & Lane, 2020; Mahler, 2017)

IV.   Trauma and trauma and students with disabilities (Lynch et al., 2021)

V.   Lived perspectives of dysregulation of neurodivergent adolescents (YouTube Video)

VI.   Signs of dysregulation (Discussion)

VII.   Environmental strategies (Becoming Autism, 2016; Kinnealey et. al., 2012; Sadin. &
        Levy, 2019).

VIII.   Co-regulation strategies (Cole & Tufano, 2020; Launch & Mahler, 2021; Sadin &
        Levy, 2019)

IX.   Sensory-based strategies to promote regulation (Bundy & Lane, 2020; Gibbs, 2018;
        Sadin. & Levy, 2019).

X.   Building skills of self-advocacy and self-regulation awareness (Cole & Tufano, 2020;
        Launch & Mahler, 2021; Sadin & Levy, 2019).

XI.   IEP Accommodations/Aids to support regulation

<div align="center">**<u>References for Training Module</u>**</div>

Becoming Autism. (2016, November 23). *Autism-Sensory overload and meltdowns*. [Video].

YouTube. https://youtu.be/LA3BS9DKgQw

Bundy, A. C. & Lane, S. J. (2020). Sensory integration: Theory and practice. (3rd ed). F.A. Davis
    Company

Cole M. B. & Tufano, R. (2020). Applied theories in occupational therapy: A practical approach.
    In M. B. Cole & R. Tufano (Eds.), *The new paradigm of occupation*. (2nd edition, pp. 55-
    81). SLACK Inc.

Gibbs, V. (2018). *Neuroscience and self-regulation: Self-regulation techniques for kids with
    Autism, ADHD and sensory disorde*rs. [PowerPoint slides]. PESI, Inc.

Howe, F., & Stagg, S. (2016). How sensory experiences affect adolescents with an autistic
    spectrum condition within the classroom. *Journal of Autism & Developmental Disorders,
    46*(5), 1656–1668.

Kinnealey, M., Pfeiffer, B., Miller, J., Roan, C., Shoener, R., & Ellner, M. L. (2012). Effect of

    classroom modification on attention and engagement of students with autism or dyspraxia.

    American Journal of Occupational Therapy, *66*(5), 511–519.

    https://doi.org/10.5014/ajot.2012.004010

Lynch, A., & Mahler, K. (2021). Trauma effects on neurobiological, social, emotional, and

    motor function: Considerations in occupational. In A. Lynch, R. Ashcraft & L. Tekell,

    (Eds.), *Trauma, occupational, and participation: Foundations and population*

    considerations in occupational therapy (pp.19-35). American Occupational Therapy

    Association Inc.

Miller, L. J. & Lane, S. J. (2000). Toward a consensus in terminology in sensory integration

    theory and practice: Part 1: Taxonomy of neurophysiological processes. *Sensory Integration*

    Special Interest Section Quarterly, 23(1), 1–4.

Mahler, K. (2017). *Interoception: The eighth sensory system*. AAPC Publishing

Marnell, L., (@kidsmasterskills). (n.d.) Home [Instragram].Kidsmasterskills.

    https://www.instagram.com/kidsmasterskills/?hl=en

Nerenberg, J., (2021). *Divergent mind: Thriving in a world that wasn't designed for you.*

    HarperCollins Publishers

Sadin, M. & Levy, N. (2019). *Teacher's guide to trauma*. Nathan Levy Books LLC Publication