ABSTRACT

Title of the Capstone: IMPROVED SOCIAL-EMOTIONAL OUTCOMES FOR HIGH SCHOOL STUDENTS WITH ASD THROUGH NEURODIVERSITY-INFORMED INCLUSIVE SUPPORT AND INTERVENTIONS

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in Special Education Leadership, 2025

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High school students with autism spectrum disorder (ASD) experience significant social-emotional challenges in inclusive educational settings, often due to insufficient support and a lack of neurodiverse-affirming practices. This doctoral capstone investigates factors contributing to these challenges, including social anxiety, stigmatization, communication barriers, and misconceptions about autism. It further examines the effectiveness of existing Social-Emotional Learning (SEL) interventions and the role of teachers, peers, and students with ASD in creating inclusive school environments. A comprehensive literature review synthesizes research in three key areas: (1) the impact of social-emotional challenges on social competence, emotional well-being, academic engagement, and sense of belonging; (2) the effectiveness of existing SEL interventions and their alignment with the individualized needs of students with ASD; and (3) the

influence of teachers', peers', and students' with ASD perspectives on shaping inclusive and neurodiverse-affirming learning environments. Findings indicate that while SEL programs have the potential to support students with ASD, inconsistent implementation and limited educator training reduce their effectiveness. Additionally, a lack of peer and teacher awareness contributes to social isolation and barriers to meaningful engagement. The results emphasize the need for SEL interventions aligned with neurodiversity principles and professional development to equip educators with the skills necessary to support students with ASD. Future research should refine intervention strategies, improve teacher and peer training, and integrate neurodiverse-affirming practices to create truly inclusive learning environments.

Keywords: autism spectrum disorder, social-emotional learning, neurodiversity, inclusion, intervention, social competence, high school education.

IMPROVED SOCIAL-EMOTIONAL OUTCOMES FOR HIGH SCHOOL STUDENTS WITH ASD THROUGH NEURODIVERSITY-INFORMED INCLUSIVE SUPPORT AND INTERVENTIONS

by

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Capstone submitted to the Faculty of the Graduate School of the
University of Maryland, College Park, in partial fulfillment of
the requirements for the degree of Doctor of Education
in Special Education Leadership
2025

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Acknowledgements

This journey would not have been possible without the incredible support, encouragement, and patience of so many wonderful people.

First and foremost, I dedicate this work to my son, Leonardo. Though he is still too young to fully understand the world of higher education, his love, resilience, and understanding gave me the strength to persevere. Leonardo, you offered me precious gifts of time and grace, time to write, to study, to recover, and to dream. Your small but mighty encouragement, your hugs at just the right moments, and your willingness to share your play time with my studies made all the difference. This accomplishment is as much yours as it is mine.

I am deeply grateful to my advisor, Dr. Gulnoza Yakubova, for her invaluable mentorship, steady guidance, and encouragement throughout this process. Her belief in my work and her insightful feedback helped me bring this project to life. To my esteemed professors and to my colleagues in the cohort: your encouragement, shared laughter, and friendship were a constant source of strength and motivation throughout this challenging and rewarding experience. Knowing that we were walking this path together made every step a little lighter.

I would also like to recognize my co-teachers and colleagues at school, who patiently supported me during long days and late deadlines, who cheered me on, and who often made me laugh when I needed it most. Your kindness and understanding are woven into the fabric of this accomplishment. To each person mentioned, and to the countless others who offered a kind word, a listening ear, or a reminder to keep going, I am forever grateful. Thank you for believing in me, for giving me room to grow, and for helping me reach this moment.

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List of Abbreviations

ASD	Autism Spectrum Disorder
CSESA	Center on Secondary Education for Students with Autism
ESSA	Every Student Succeeds Act of 2015
FAPE	Free Appropriate Public Education
IDEA	Individuals with Disabilities Education Act
IEP	Individualized Education Program
LRE	Least Restrictive Environment
PEERS	Program for the Education and Enrichment of Relational Skills
PMI	Peer-Mediated Intervention
SEL	Social-Emotional Learning

Section 1: Introduction

Including students with autism spectrum disorder (ASD) in general education settings is a fundamental aspect of special education practices, supported by legal mandates such as the Individuals with Disabilities Education Act (IDEA) Reauthorization of 1997, a principle further reinforced and expanded through amendments in 2004. These amendments reinforced the mandate to provide access to the general education curriculum in accordance with the Least Restrictive Environment (LRE) requirement under IDEA (20 U.S.C. § 1412(a)(5)), ensuring appropriate placements, resources, and curriculum adaptations for students with ASD (Individuals with Disabilities Improvement Education Act [IDEIA], 2004).

Despite the intent of legal mandates, the unique needs of students with ASD—such as challenges in social-emotional and executive functioning skills, combined with complex academic demands—make effective inclusion difficult (Milton, 2012; Villa, 2016; Bolourian et al., 2019). The unpredictable nature of social interactions along with sensory overload in noisy or crowded areas, such as hallways and cafeterias, can intensify anxiety and emotional distress for these students (Hay & Winn, 2005; Hebron & Humphrey, 2014; Humphrey & Lewis, 2008; Saggers et al., 2011). Many students with ASD hesitate to disclose their diagnosis or seek help due to fears of stigma or differential treatment from teachers and peers (Humphrey & Symes, 2010; McLaughlin & Rafferty, 2014; Tobias, 2009). Additionally, forming and maintaining friendships is often one of the most significant challenges students with ASD face, leading to feelings of isolation and a desire for meaningful social connections (Calder et al., 2013; Carrington & Graham, 2001; Humphrey & Lewis, 2008; Saggers et al., 2011).

Efforts for inclusion have historically prioritized physical placement in mainstream classrooms over meaningful social inclusion, full participation and connection with peers (Carter et al. 2015). However, even when students with ASD are placed in inclusive classrooms, these settings often fail to address the deeper need for authentic social integration (Kapp, 2020). Social interactions with neurotypical peers are frequently perceived as superficial and exhausting, contributing to a diminished sense of belonging (Botha & Gillespie-Lynch, 2022; Humphrey & Lewis, 2008). This limited focus on proximity rather than genuine integration fails to create an environment where students with ASD feel truly included. Autistic-led initiatives, such as Autism Network International (ANI), emphasize the importance of amplifying autistic voices in the development of advocacy efforts and inclusion programs to ensure that these efforts reflect the lived experiences of the individuals they aim to support (Sinclair, 2010).

To move beyond physical placement, inclusion efforts must reject practices of assimilation and instead embrace the principles of neurodiversity (Kapp, 2020; Cohen et al., 2022). Inclusive programs often prioritize assimilation by expecting students with ASD to conform to neurotypical norms, which perpetuates feelings of disconnection and undervalues their unique strengths (Gillespie-Lynch et al., 2017). The concept of neurodiversity, introduced by Judy Singer in the late 1990s, challenges the medical model of disability that frames conditions like autism as deficits requiring treatment. Instead, it highlights the value of neurological differences as natural variations in human cognition, drawing parallels with biodiversity to emphasize their importance for societal stability (Dwyer, 2022). Neurodiversity-informed inclusive practices can shift toward valuing the strengths and contributions of neurodivergent individuals while recognizing the complexities of conditions like ASD

(Constantino, 2018; Gillespie-Lynch et al., 2017a; Hotez et al., 2018; Nicolaidis et al., 2019; Trichon & Tetnowski, 2011).

ASD is a complex neurodevelopmental condition characterized by persistent social communication difficulties, restricted and repetitive behaviors, and unique patterns of interests as defined in the *Diagnostic and Statistical Manual of Mental Disorders* (5th ed., text rev.; American Psychiatric Association [APA], 2013). These challenges can manifest in areas such as social-emotional reciprocity, nonverbal communication, and relationship building (Muller et al., 2023). Without effective support, students with ASD may experience isolation, anxiety, and a lack of peer connections, which can compound over time (Jackson et al., 2018).

Furthermore, data from the Centers for Disease Control and Prevention's Autism and Developmental Disabilities Monitoring (ADDM) Network (CDC, 2024) indicated that autism prevalence had risen to 1 in 36 children in the U.S. The most recent CDC report (2025), drawing on 2022 surveillance data, now estimates prevalence at 1 in 31 eight-year-old children, reflecting a continuing rise in identified cases (Centers for Disease Control and Prevention [CDC], 2025). According to the 45th Annual Report to Congress on the Implementation of the IDEA, published in 2023, the number of students ages 3–21 receiving special education services under IDEA increased from 6.4 million in the 2012–13 school year to 7.5 million in 2022–23, representing an increase from 13% to 15% of all public school students (*COE - Students With Disabilities*, n.d.). Specifically focusing on students with ASD, data from the Office of Special Education Programs (OSEP) indicates a significant rise. In the 2022–23 school year, 12.81% of students with disabilities were identified with autism, with state reports ranging from 5.76% to 17.28% (*OSEP Releases an Updated Fast Fact on Children Identified with Autism | Office of Special Education*

and Rehabilitative Services Blog, n.d.). Over the past 15 years, the percentage of students identified with autism under IDEA Part B, notably grew, from 4.97% in SY 2008-09 to 12.81% in SY 2022-23 (updated_2024_autism) (2022_sa_ed_enviro). The growing prevalence emphasizes the importance of maintaining effective policies, resources, and supports to ensure compliance with IDEA's mandate for a Free Appropriate Public Education (FAPE) in the LRE and the need for specialized services and targeted supports within school systems (Individuals with Disabilities Education Act., n.d.). OSEP's comprehensive datasets offer insight into placement trends, identification rates, and other critical areas impacting students with disabilities. Specifically, the data reveals that in the school year (SY) 2022-23, students with disabilities identified with ASD were less frequently served inside the general education classroom for 80% or more of the day compared to their peers with other disabilities. This disparity highlights ongoing challenges in providing genuinely inclusive experiences for students with ASD.

These educational challenges are compounded by broader mental health concerns, particularly when considering co-occurring conditions such as attention deficit hyperactivity disorder (ADHD). The combined effects of ASD and ADHD significantly amplify the risk of anxiety and depression beyond what is observed with either condition alone, creating a heightened mental health burden. Zablotsky et al. (2020) reported an anxiety prevalence of 42% among youth with co-occurring ASD and ADHD. More recent findings by Accardo et al. (2024) suggest this rate has increased dramatically. Even among adolescents with ASD but without co-occurring ADHD, anxiety remains notably high, affecting 62% of females and 37% of males, compared to just 12% of female students without ASD and without ADHD disabilities (Accardo et al., 2024). The authors noted that bullying victimization was associated with significantly

greater anxiety among female youth compared to males across diagnostic groups, aligning with prior research showing that girls are more likely to experience relational or social forms of bullying, behaviors strongly linked to anxiety, depression, and suicidal ideation. These findings suggest that females with ASD and ADHD may be particularly vulnerable to internalizing mental health challenges following social exclusion or bullying, highlighting the intersectional impact of gender, neurodiversity, and mental health. As Accardo and colleagues noted, such elevated anxiety levels impact emotional regulation, social interactions, academic engagement, and overall well-being, directly influencing the efficacy of SEL interventions and supports (Accardo et al., 2024). Given these findings, it becomes clear that barriers to inclusion affect not only academic outcomes but also the broader mental health challenges faced by students with ASD.

Adolescents with disabilities, including those with ASD, experience higher rates of anxiety and depression (CDC, 2022). As schools grapple with a growing mental health crisis, understanding these challenges is more urgent than ever (Accardo et al., 2024). The National Survey of Children's Health (2016–2019) and the CDC identify anxiety and depression as major concerns for this population (CDC, 2022).

To address social-emotional competences for all students, schools across the United States started incorporating SEL competencies across areas like social-communication, learning skills, emotional self-regulation, and independence (Lawson et al., 2019). Research emphasizes that classroom success is more achievable when state policies create an environment conducive to high-quality, systemic SEL in all schools. Currently, 27 states have adopted K-12 SEL competencies, and all 50 states have established Early Childhood/pre-K SEL competencies

(Collaborative for Academic, Social, and Emotional Learning [CASEL], 2022). SEL can be broadly defined as the "process through which all young people and adults acquire and apply the knowledge, skills, and attitudes to develop healthy identities, manage emotions and achieve personal and collective goals, feel and show empathy for others, establish and maintain supportive relationships, and make responsible and caring decisions" (CASEL, 2022; Niemi, 2020). SEL programs typically involve a structured curriculum with developmentally sequenced units and learning activities. Despite the growing focus on SEL, addressing the social-emotional needs of adolescents with ASD in high school settings remains a significant challenge. Existing social-emotional programs for students with ASD have demonstrated mixed effectiveness, and their availability in inclusive high school environments is limited (Dean et al., 2020). Moreover, current SEL practices frequently lack a neurodiversity-affirmed perspective, often emphasizing conformity to neurotypical social norms rather than validating diverse ways of social interaction and emotional expression (Cherewick & Matergia, 2023). There is also a notable absence of empirical evidence supporting effective, neurodiversity-affirmed social-emotional programs tailored specifically to high school students with ASD (Jgm_Admin, 2023). Although some interventions aim to meet these unique needs, they are rarely implemented consistently or effectively at the secondary level (Kurth & Mastergeorge, 2010). Additionally, high schools seldom offer targeted, neurodiversity-informed social skills programs, leaving students with ASD inadequately prepared to navigate the complex social dynamics characteristic of adolescence (Carter et al., 2015).

Although there is a lack of widespread, effective programs, several organizations have developed resources to improve social-emotional programming for students with ASD.

Examples include the Organization for Autism Research (OAR), Autism Speaks, and the Center on Secondary Education for Students with Autism (CSESA). These organizations offer resources such as peer-mediated interventions, social skills groups, and professional development materials for educators (Carter et al., 2015). However, these resources are frequently underutilized in high schools due to barriers such as limited awareness, insufficient training, and time constraints among educators (Hume et al., 2022).

To better address these gaps, more recent research identifies the need for including neurodiversity perspectives in the development of SEL programs, emphasizing that conditions such as autism should be viewed as natural variations in human functioning rather than deficits requiring correction (Botha & Gillespie-Lynch, 2022; Singer, 2017). Neurodiversity, a term first introduced by Judy Singer in the late 1990s and later popularized by journalist Harvey Blume, refers to the concept that neurological differences such as autism, ADHD, and dyslexia are natural variations of the human brain rather than deficits or disorders (Blume, 1998; Singer, 1999). Early autistic advocates like Jim Sinclair (1993) laid the groundwork for this perspective by rejecting the idea that autism is a tragedy instead affirming autistic identity and pride. Neurodiversity principles rest on the idea that these differences contribute to the richness of human diversity and should be recognized and valued. As Dwyer (2022) explains, this perspective bridges the limitations of both the medical model, which tends to frame autism primarily as an impairment requiring remediation, and the social model, which can overlook the genuine support needs of individuals with ASD. A neurodiversity framework instead recognizes autism as a difference that involves both strengths and challenges, emphasizing the creation of environments where people with autism can thrive without being pressured to conform to

neurotypical norms. This includes valuing alternative communication styles, sensory preferences, and social interaction patterns while also ensuring access to supports that enable meaningful participation. Therefore, the neurodiversity framework views neurological differences such as autism as natural variations in human diversity, emphasizing strengths, identity affirmation, and systemic support over remediation or normalization (Kapp et al., 2013; Dwyer, 2022; Walker, 2021).

Neurodiversity affirmed perspectives highlight the uniqueness of all brains and advocates for an intersectional approach to understanding neurological differences (Singer, 2017). When SEL programs align with neurodiversity principles, they can better support the holistic development and well-being of students with ASD. Effective SEL programs should emphasize authentic self-expression and understanding of autistic modes of interaction while also educating peers and educators to promote acceptance and reduce stigma (Nicolaidis et al., 2019). For example, SEL interventions can be tailored to emphasize emotional regulation and communication skills in ways that respect the varied ways students with ASD process social and emotional information, promoting authentic peer connections and reducing stigma (Botha & Frost, 2020; Nicolaidis et al., 2019).

While IDEA does not explicitly require the inclusion of social-emotional goals in every Individualized Education Program (IEP), it emphasizes that IEPs must be customized to address the specific educational needs of each student. For students with ASD, who often face challenges in social interaction and emotional regulation, incorporating social-emotional objectives into their IEPs is considered best practice to support their overall development. Thus, IEPs for students with ASD must include social-emotional goals to enhance engagement, peer interaction,

and learning to improve educational outcomes (Beamish & Saggers, 2024; Murza & Buckley, 2023). Even though the development of IEP goals for social-emotional skills is considered best practice for supporting students with ASD, these goals are not always fully realized due to factors such as inconsistent implementation, lack of resources, and varying levels of educator training in SEL strategies (Beamish & Saggers, 2024). As a result, students with ASD continue to struggle with social isolation, anxiety, and limited peer interactions, ultimately impacting their educational outcomes and social development (Gardner et al., 2014).

Identification of the problem of practice

The identification of the problem of practice is rooted in extensive professional experience as a special educator and the observed gaps in addressing the social-emotional needs of high school students with ASD in inclusive environments. These observed gaps align with findings in the literature, further emphasizing the need for investigation of targeted interventions and support in this area. Years of working directly with students with ASD have revealed consistent patterns, including the detrimental impact of social anxiety compounded by a lack of targeted interventions to build social competence. Challenges faced by adolescents with ASD in high school, difficulties with maintaining relationships, emotional processing, and peer dynamics significantly shape their mental health and social outcomes (Cridland et al., 2014) and impede the development of meaningful peer relationships, active participation in the curriculum, and overall academic and social success (Gifford-Smith & Brownell, 2003; Parsons et al., 2019).

Adolescence is a developmental stage characterized by significant physical and emotional growth alongside the maturation of cognitive and social skills (Luna et al., 2004; Nelson et al., 2005). Social development during this period is particularly important, as the ability to form

meaningful relationships and demonstrate empathy in adolescence strongly predicts successful relationships in adulthood (Allemand et al., 2015). However, for individuals with ASD, adolescence is a particularly vulnerable time, with approximately one-third experiencing a decline in cognitive and social skills during this stage (Picci & Scherf, 2015).

Most existing interventions have been designed for younger children or those in segregated educational environments, leaving older students with limited access to the targeted support they need (Rotheram-Fuller et al., 2010). Adolescence is marked by greater social and emotional challenges, yet fewer programs are available to support their unique needs (Rotheram-Fuller et al., 2010). Recent research emphasizes that most SEL interventions focus predominantly on younger students, resulting in fewer available programs specifically designed to address the complex social and emotional needs of adolescents (Wallace Foundation, 2023; Wigelsworth et al., 2024). The widespread reliance on clinic-based models and the limited integration of social-emotional interventions within general education settings point to a significant gap in meeting the social-emotional needs of adolescents with ASD (Dean et al., 2020).

A significant gap exists in the availability of school-based social-emotional programs tailored explicitly to adolescents with ASD in inclusive high school settings (Riccio et al., 2020; Bigby et al., 2014). Tailored social-emotional interventions, such as teaching coping strategies for sensory overload or providing safe spaces like quiet rooms, are effective in reducing anxiety and improving participation in school activities; however, SEL interventions are not consistently available across schools (Hay & Winn, 2005; Hebron & Humphrey, 2014; Humphrey & Lewis, 2008, National Council for Special Education [NCSE], 2021). Despite the growing recognition

of the importance of social-emotional skills during high school, many programs remain disconnected from the inclusive environments where these students spend most of their time (Botha & Gillespie-Lynch, 2022; Crane et al., 2020). This misalignment between the current interventions and the everyday experiences of students with ASD reduces the effectiveness of existing supports, leaves the social-emotional needs of these students unaddressed, further contributing to emotional distress and feelings of inadequacy (Humphrey & Lewis, 2008).

Inadequate support often exacerbates social anxiety, leading to poor social emotional and academic outcomes. As such, through this capstone project, I will investigate the extent to which supports are adequate/inadequate for social-emotional needs of high school students with ASD in inclusive settings using a comprehensive literature review method. Additionally, the capstone project seeks to explore and advocate for scalable, inclusive programs that address the unique social-emotional challenges faced by adolescents with ASD in high school settings.

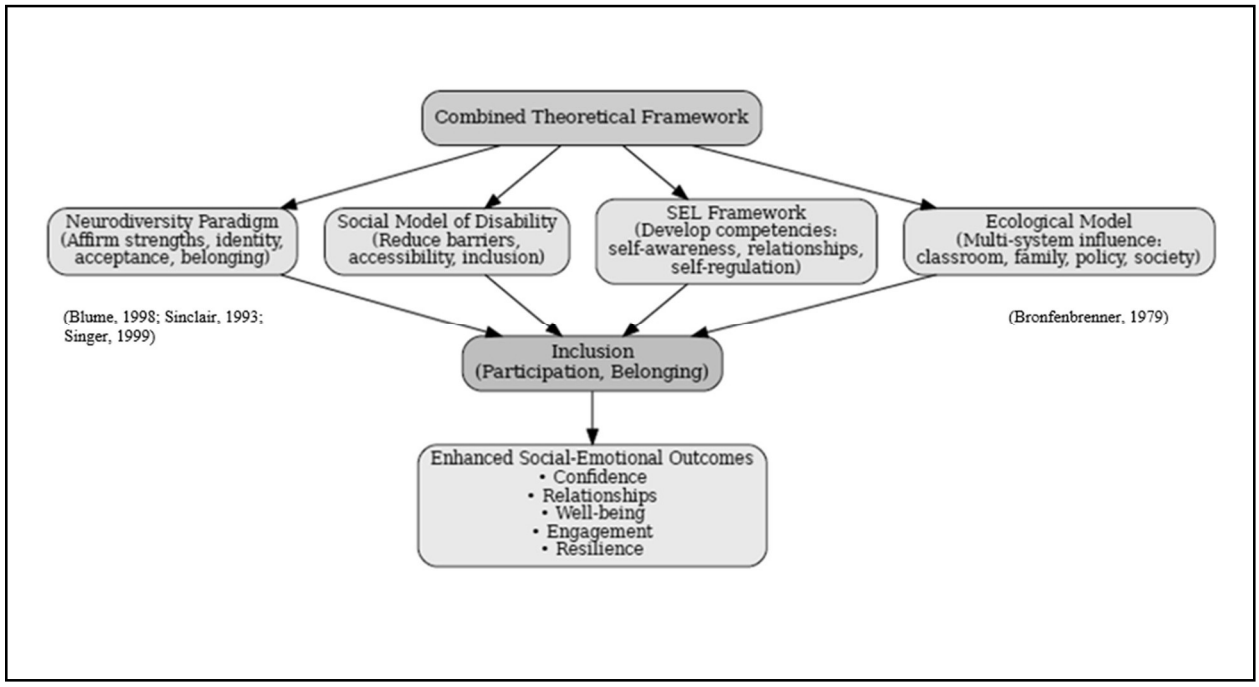
To investigate this problem of practice, it is essential to establish a theoretical framework that provides a conceptual lens for understanding the social-emotional experiences of high school students with ASD in inclusive environments. A clear framework not only situates the study within existing scholarly traditions but also informs the interpretation of findings and the development of recommendations.

Theoretical Framework

Theories on autism, disability, and social-emotional learning have evolved from deficit-based models to approaches that emphasize strengths, accessibility, and systemic change. This doctoral capstone project applies a combined theoretical framework incorporating the *Neurodiversity Paradigm*, the *Social Model of Disability*, the *SEL Framework*, and the

Ecological Model (Figure 1). Rooted in early advocacy that reframed autism as an aspect of human diversity (Sinclair, 1993; Singer, 1999; Blume, 1998), the neurodiversity paradigm values individual differences and challenges systems that pathologize them (Walker, 2021). This integration moves beyond a deficit-based perspective to one that affirms neurodiversity (Kapp et al., 2013; Silberman, 2015) while addressing the systemic barriers that limit students' opportunities to thrive in inclusive schools (Botha & Frost, 2020; Milton, 2012; Shakespeare, 2013).

Figure 1- Combined Theoretical Framework



Note. The framework integrates the neurodiversity paradigm, social model of disability, SEL framework, and ecological model to guide inclusive practices that support enhanced social-emotional outcomes (confidence, relationships, well-being, engagement, resilience).

The rationale for using this combined framework lies in the need to recognize individual strengths, respond to social-emotional challenges, and design educational environments that promote acceptance, accessibility, and skill development (Armstrong, 2012; Elias & Weissberg, 2020). Grounded in these perspectives, the capstone project analyzes how neurodiversity-informed inclusive practices can cultivate learning environments that strengthen students' self-confidence, social skills, and emotional well-being (CASEL, 2022; Garcia & Weiss, 2019).

Dwyer (2022) provides an important distinction among the three dominant models of disability: the medical, the social, and the neurodiversity paradigms. Adapted from Dwyer (2022), the table below highlights distinctions among the three dominant models of disability, illustrating how perspectives on autism shift from deficit-oriented approaches to frameworks that emphasize accessibility, identity, and neurodiversity-affirming practices.

Table 1: Comparison of Disability Models: Medical, Social, and Neurodiversity

Model	View of Autism	Focus	Criticism / Limitation
Medical Model	Autism as a disorder/deficit requiring remediation or cure.	Symptom reduction, treatment, normalization.	Deficit-oriented, stigmatizing, overlooks strengths and lived experiences.
Social Model	Autism as a disability is created largely by social, environmental, and attitudinal barriers.	Removing barriers, improving accessibility, fostering inclusion.	May underplay the reality of individual challenges and support needs.
Neurodiversity Paradigm	Autism is a natural variation in human neurology, encompassing both strengths and challenges.	Affirming identity, valuing strengths, providing support while promoting acceptance and empowerment.	Still emerging; it requires systemic adoption and cultural change to be fully effective.

The medical model frames autism as a disorder characterized by deficits requiring remediation or cure, often focusing on symptom reduction. The social model shifts the focus outward, emphasizing that disability arises not from the individual but from environmental and attitudinal barriers that restrict participation (Oliver, 1990; Shakespeare, 2013). While this represents an important advancement, the social model may not fully capture the identity, strengths, and lived experiences of individuals with ASD. The neurodiversity paradigm builds on and extends this perspective by viewing autism as a natural and valuable variation in human neurology that includes both challenges and strengths. This paradigm affirms autistic identity while recognizing the need for support and accommodations, moving beyond remediation to acceptance, empowerment, and authentic inclusion (Dwyer, 2022; Kapp et al., 2013). Taken together, these models illustrate the evolution of thinking about autism and justify the use of a multi-layered framework for this capstone.

Defining the Neurodiversity Framework

For the purposes of this capstone, the neurodiversity framework refers to a perspective that recognizes neurological differences, such as autism, ADHD, or dyslexia, as part of natural human diversity rather than pathologies to be corrected (Walker, 2021). Rooted in the neurodiversity paradigm, this framework emphasizes three central principles: (a) recognition of the intrinsic value of neurological variation, (b) affirmation of identity and lived experience as essential to intervention design, and (c) prioritization of supports and systemic changes that enable full participation and authentic belonging (Dwyer, 2022; Kapp et al., 2013). In practical terms, applying a neurodiversity framework in schools means creating educational approaches

that focus on strengths, adapt environments to reduce barriers, and validate diverse forms of social interaction and emotional expression, rather than requiring conformity to neurotypical norms (Botha & Frost, 2020).

The Neurodiversity Paradigm informs the development of interventions that affirm students' unique strengths and identities while addressing challenges related to social interaction and emotional regulation (Kapp et al., 2020; Silberman, 2015; Walker, 2021). The Social Model of Disability provides guidance on reducing environmental and attitudinal barriers, ensuring that school structures, instructional methods, and peer interactions are inclusive and supportive (Milton, 2012; Oliver, 1990; Shakespeare, 2013). Additionally, the SEL Framework offers a practical roadmap for the development of social-emotional competencies, equipping students with ASD with the tools they need to build relationships, regulate emotions, and engage meaningfully in school communities (Bauminger et al., 2010; CASEL, 2022; Wang et al., 2016).

Finally, Bronfenbrenner's ecological model provides a holistic framework for understanding the multiple environmental systems that influence the development of students with ASD (Bronfenbrenner, 1979, 2005). This model considers the interactions between individuals and their surrounding systems, including the microsystem (classroom and peer relationships), mesosystem (connections between school and family), exosystem (school policies, administration support, allocation of resources), macrosystem (societal attitudes toward neurodiversity), and chronosystem (sustainability of programs over time) (Bronfenbrenner & Morris, 2006). Drawing on this model highlights the impact of social and environmental elements in shaping the social-emotional well-being of students with ASD (Shogren et al., 2018). The capstone emphasizes the importance of creating supportive and interconnected systems that

address students' social-emotional needs, aligning with the principles of both the Social Model of Disability and the Neurodiversity Paradigm (Kapp et al., 2013; Milton, 2012).

For example, collaboration between teachers, families, and peers can create a cohesive support network that promotes academic and social–emotional success (Botha & Frost, 2020; Wang et al., 2016). Within the microsystem, co-teaching partnerships and peer-mediated interventions can foster daily opportunities for authentic social interaction and shared learning. At the mesosystem level, consistent communication between teachers and families ensures that strategies for emotional regulation and self-advocacy are reinforced across home and school environments. The exosystem involves school leadership and policy decisions, such as providing professional development on neurodiversity-affirming practices and allocating resources for sensory-friendly spaces, that indirectly but powerfully influence students' experiences. On a broader scale, the macrosystem reflects how cultural narratives about disability and inclusion shape the acceptance and belonging of autistic students within their communities. Finally, the chronosystem highlights the importance of sustaining SEL initiatives over time through ongoing evaluation, staff training, and institutional commitment. Together, these interconnected systems demonstrate that fostering belonging and well-being for students with ASD require more than classroom interventions, it depends on a coordinated, multi-layered effort across the entire educational ecosystem.

Together, these theories and frameworks provide a structured yet flexible approach to improving social-emotional outcomes in a strengths-based, inclusive, and systemic way. The goal of this combined framework is to enhance social-emotional outcomes through a holistic, strengths-based, and inclusive strategy. Rather than focusing solely on the individual, this

approach recognizes the role of the broader school environment and the need for systemic changes that promote belonging and engagement for students with ASD (Botha & Frost, 2020; Milton, 2012). Integrating neurodiversity-affirming practices, reducing structural barriers, and embedding SEL principles into inclusive instruction allows educators to create supportive spaces where students can develop self-awareness, build meaningful relationships, and participate more fully in the social and academic aspects of high school life (CASEL, 2022; Elias & Weissberg, 2020). The combined framework bridges multiple theories to support social-emotional well-being and sustain long-term growth in resilience and self-advocacy, empowering students with ASD to succeed beyond the classroom (Armstrong, 2012; Dwyer, 2022; Garcia & Weiss, 2019), establishing the theoretical foundation for examining how inclusion, social-emotional development, and neurodiversity intersect in schools.

To connect theory with practice, the literature review will explore current research on the challenges, interventions, and perspectives that shape the experiences of high school students with ASD in inclusive settings. This capstone project will examine how current research highlights the key issues and factors contributing to the problem. The literature review will synthesize research across three primary areas: the social and emotional challenges faced by high school students with ASD in inclusive settings and their impact on SEL outcomes, the effectiveness of existing targeted SEL interventions, and the role of teacher and peer awareness in creating supportive inclusive environments while considering neurodiverse-affirming practices. Additionally, the literature review will examine how students with ASD perceive their own SEL experiences and social integration in high school, providing findings on the adequacy of current supports and the barriers they encounter. This comprehensive approach aims to

identify challenges that impact SEL outcomes and propose solutions to enhance support for the social-emotional needs of high school students with ASD in inclusive settings.

First, the comprehensive literature review will explore how current research outlines the key challenges high school students with ASD face and the factors contributing to these difficulties. Social anxiety, difficulty with peer interactions, and struggles with emotional regulation due to challenges in social communication (Botha & Frost, 2020; Milton, 2012), compounded by a lack of understanding and accommodation for neurodiverse perspectives and practices, often result in a mismatch between the support provided and the unique needs of these students (Kapp et al., 2013). This misalignment may stem from limited teacher awareness and insufficient training in addressing the needs of neurodiverse students (Gillespie-Lynch et al., 2015; Hollin & Pearce, 2019). Additionally, the lack of neurodiverse-affirming practices contributes to an environment that can inadvertently marginalize students with ASD. For example, rigid expectations for social behavior and traditional disciplinary practices often fail to account for sensory sensitivities, alternative communication styles, or differences in emotional expression that are characteristic of autism (Kapp, 2020; Nicolaidis et al., 2019). This can lead to social isolation, reduced engagement, and can negatively impact their academic progress (Sasson et al., 2017; Sinclair, 2010). To ensure that students with ASD can fully participate in and benefit from their educational experience, social-emotional challenges must be addressed through interventions and practices that embrace neurodiverse strengths and foster understanding and inclusivity among peers and educators alike (Botha & Frost, 2020; Sinclair, 1993).

Second, the comprehensive literature review will synthesize research on targeted interventions for SEL as they play an important role in reducing social anxiety and enhancing

social competence among students with ASD. Effective SEL interventions can develop skills in areas such as emotional regulation, social communication, and peer engagement through structured programming and individualized strategies (Nicolaidis et al., 2019; Milton, 2012). Preliminary research indicates that the implementation of these interventions varies widely across schools, and many inclusive environments lack sufficient resources and training to deliver these supports consistently and effectively (Botha & Frost, 2020; Kapp et al., 2013).

Third, the comprehensive literature review aims to investigate research findings on teacher and peer awareness of the unique needs and challenges faced by students with ASD. Educators' and peers' lack of a deep understanding of ASD-related behaviors can lead to misinterpretation, stigmatization, and missed opportunities for inclusive interactions (Sasson et al., 2017; Gillespie-Lynch et al., 2015). Consequently, the findings may generate key evidence to shape targeted professional development for teachers while identifying effective approaches to improving peer interactions and support. This evidence could inform the development of programs designed to establish a supportive and inclusive school culture, ultimately reducing social barriers and mitigating the stigma faced by students with ASD (Hollin & Pearce, 2019; Sinclair, 1993).

The comprehensive literature review seeks to explore neurodiversity-informed approaches that promote a school culture in which all students, including those with ASD, can thrive socially, emotionally, and academically. These approaches align SEL interventions with the experiences and insights of individuals with ASD, to promote inclusivity and empowerment. The neurodiversity perspective encourages educators and professionals to acknowledge and

value the unique experiences, strengths, and challenges of individuals with ASD, shifting away from a deficit-based lens (Kapp et al., 2013; Sinclair, 2010).

Embracing neurodiverse approaches involves creating educational environments that celebrate diversity, prioritize self-advocacy, and incorporate the voices of students with ASD in designing interventions (Hughes, 2016; Nicolaidis et al., 2019). The paradigm shift challenges stigmatization, reframes differences as strengths, encourages mutual understanding, and promotes acceptance by emphasizing collaboration among students, teachers, and peers (Milton, 2012). Through a thorough analysis and synthesis of existing research across these areas, social and emotional challenges, targeted SEL interventions, neurodiversity perspectives, and teacher and peer awareness, this doctoral capstone project seeks to identify solutions that promote meaningful social-emotional growth and academic success for high school students with ASD in inclusive environments.

Rationale

Previous research documented the significant social-emotional challenges faced by high school students with ASD in inclusive educational settings. While inclusion aims to provide equal learning opportunities, students with ASD frequently experience inadequate support, which exacerbates social anxiety, fails to incorporate neurodiversity-informed approaches, and neglects targeted SEL interventions. The increasing prevalence of ASD diagnoses has intensified the need for effective SEL programs tailored to the unique needs of these students. However, a persistent gap in research and practice remains, as many SEL interventions are not designed for neurodivergent learners. Additionally, a lack of teacher and peer awareness, coupled with deficit-

based perspectives on autism, perpetuates stigma, social isolation, and exclusion, ultimately undermining the goals of inclusion.

Despite growing awareness of these issues, current research has not adequately addressed the extent to which high school students with ASD receive the necessary social-emotional support within inclusive environments. Furthermore, limited studies have synthesized research across three critical areas: (1) the social and emotional challenges and their impact on high school students with ASD, (2) the effectiveness of existing targeted SEL interventions, and (3) the influence of teachers', peers', and students with ASD perceptions on shaping inclusive and neurodiverse-affirming environments. Identifying and addressing these gaps is key to refining educational approaches, informing educational policies, instructional practices, and intervention strategies.

Purpose Statement

This doctoral capstone project aims to investigate the literature to identify ways high school students with ASD receive adequate or inadequate support for their social-emotional needs in inclusive educational settings. Through a comprehensive literature review, this capstone will synthesize research across three primary areas: the social-emotional challenges faced by high school students with ASD in inclusive classrooms and their impact; the effectiveness of existing SEL interventions; and the influence of teacher and peer awareness—along with the perceptions of students with ASD—in creating inclusive and neurodiverse-affirming learning environments.

Through this investigation, the doctoral capstone aims to contribute to developing more effective, neurodiversity-informed interventions that promote meaningful inclusion, reduce

stigma, and improve social-emotional and academic success for students with ASD in high school settings. Ultimately, the findings will contribute to guiding educators, school leaders, and policymakers in creating more supportive and inclusive environments that improve the social-emotional outcomes of students with ASD.

Research Questions

The following research questions guided this capstone project: (1) How do social-emotional challenges impact the social competencies, emotional well-being, academic engagement, and sense of belonging of high school students with ASD in inclusive environments?, (2) What is the effectiveness of existing SEL interventions in supporting social competence, emotional well-being, academic engagement, and sense of belonging, and how well do these interventions align with the individualized needs of students with ASD?, (3a) How do teachers' perceptions and awareness of neurodiversity principles influence the inclusion and social integration of students with ASD?, (3b) How do peer perceptions and awareness of neurodiversity influence the social emotional experiences of students with ASD? and (3c) How do students with ASD perceive their own SEL experiences and social integration in high school?, and (4) What solutions and recommendations can be developed to enhance social-emotional outcomes for students with ASD as derived from the gaps in current practices and through incorporating neurodiversity-informed approaches?

Research Questions 1 through 3 are addressed through the comprehensive literature review presented in Section 2, while Research Question 4 is addressed in Section 3, which outlines a plan for improvement with solutions and recommendations derived from the literature and guided by neurodiversity-affirming approaches.

Definition of Terms

Academic Engagement. The degree to which students are actively involved in and committed to learning, demonstrated through behaviors such as participation, persistence, and investment in classroom activities (Fredricks et al., 2004; Saggers et al., 2011).

Autism Spectrum Disorder (ASD). A neurodevelopmental condition characterized by differences in social communication, interaction, and restricted or repetitive patterns of behavior, with a wide range of abilities and support needs (American Psychiatric Association [APA], 2013).

Belonging. A sense of being accepted, respected, and included within a group or environment, recognized as a key protective factor for the social-emotional well-being of students with ASD in inclusive school settings (Botha & Frost, 2020).

Ecological Systems Theory. A model emphasizing the multiple interacting systems—microsystem, mesosystem, exosystem, and macrosystem—that influence child development, including school, family, and societal contexts (Bronfenbrenner, 1979; Bronfenbrenner & Morris, 2006).

Emotional Well-Being. A state that reflects students' capacity to manage emotions, cope with stress, and experience positive feelings of safety, and self-worth within school settings (Botha & Frost, 2020).

Neurodiversity Paradigm. A perspective that views neurological differences such as autism as natural variations of human diversity, emphasizing acceptance, identity, and strengths rather than deficits or disorders (Kapp, 2020).

Peer-Mediated Interventions (PMIs). Evidence-based practices that structure interactions between students with disabilities and their peers to promote social communication, reciprocity, and inclusion (Carter et al., 2019).

Social Model of Disability. A framework that defines disability as the result of societal, environmental, and attitudinal barriers rather than individual impairments, highlighting the need for systemic change to foster inclusion (Botha & Gillespie-Lynch, 2022).

Social and Emotional Learning (SEL). The process through which individuals acquire and apply knowledge, attitudes, and skills to understand and manage emotions, establish and maintain positive relationships, and make responsible decisions (Collaborative for Academic, Social, and Emotional Learning [CASEL], 2022).

Social Competence. The ability to interact effectively with others, build and maintain relationships, and engage in socially appropriate behaviors that promote inclusion and peer reciprocity (Carter et al., 2019; Humphrey & Lewis, 2008).

Section 2: Comprehensive Research Review

This doctoral capstone project employed a research synthesis process to critically examine the relationship between social-emotional challenges and SEL outcomes for high school students with ASD in inclusive educational environments. Specifically, the synthesis aimed to identify how effectively existing SEL interventions address the complex social, emotional, and academic needs of this population and where significant gaps in support persist. Through an in-depth analysis of empirical studies, this section reviews the challenges that impact students' development of social competencies, emotional regulation, academic engagement, and sense of belonging. It also evaluates the design, implementation, and outcomes of SEL practices to determine their alignment/ misalignment with the principles of meaningful, neurodiversity-affirming inclusion.

This section addresses Research Questions 1 through 3. Specifically, it examines (1) how social-emotional challenges impact the social competencies, emotional well-being, academic engagement, and sense of belonging of high school students with ASD in inclusive environments; (2) the effectiveness of existing SEL interventions in supporting these outcomes and their alignment with the individualized needs of students with ASD; and (3a–c) the influence of teachers' perceptions, peer perceptions, and students' own perspectives on shaping inclusive, neurodiverse-affirming environments. Research Question 4, which focuses on solutions and recommendations to enhance social-emotional outcomes, is addressed in Section 3 through the development of a comprehensive plan.

Methods

Primary Search Procedures

Using a comprehensive search procedure, I identified relevant studies aligned with the research focus. Through the University of Maryland Libraries' advanced search feature, I accessed a broad range of academic sources, including peer-reviewed journal articles, books, and dissertations. The search targeted literature specifically addressing challenges experienced by high school students with ASD, social-emotional learning interventions, and neurodiversity-affirming practices, emphasizing the perspectives of teachers, peers, and students with ASD.

For this process, I searched multiple academic databases commonly used in education and psychology research to ensure a comprehensive review. These databases included Academic Search Ultimate, APA PsycINFO, Education Source, and Education Resources Information Center (ERIC), all accessed through the EBSCOhost platform. I used a strategic combination of Boolean operators (AND, OR) and truncation symbols to refine the search results. My primary search terms included variations of keywords related to ASD (e.g., autism spectrum disorder, ASD, autis*), high school education (e.g., secondary school, high school, secondary education), social-emotional learning (e.g., SEL, social-emotional skill*, emotional and social learning), and related constructs such as social communication, emotional regulation, neurodiversity, social competence, and targeted interventions.

Additional Search Procedures

In addition to conducting database searches, I performed ancestral searches by reviewing the reference lists of key articles to identify additional relevant studies published within the past 15 years. I also manually searched Google Scholar and ASD-specific journals—including *Autism*

Research, *Journal of Autism and Developmental Disorders*, *Focus on Autism and Other Developmental Disabilities*, and *Research in Autism Spectrum Disorders*—to locate additional articles. I entered targeted keyword combinations, reviewed abstracts and article titles, and assessed each source for relevance to the research focus. I further explored citation networks and related article suggestions available through Google Scholar and publisher databases to identify studies that met the inclusion criteria.

Inclusion and Exclusion Criteria

I utilized a predetermined set of inclusion and exclusion criteria to guide the selection of studies for this literature review. To qualify, studies needed to be peer-reviewed, published in English, and conducted within the United States, recognizing that services and educational practices can vary significantly across countries. I considered research published within the past 15 years (2010–2025) to ensure relevance to current educational contexts. Eligible studies examined topics such as social-emotional learning, social communication, emotional regulation, neurodiversity, teacher and peer perceptions, student perspectives, or evidence-based SEL interventions for high school students with ASD in inclusive school settings. Only empirical studies employing quantitative, qualitative, or mixed-methods designs were included to ensure that findings were grounded in systematically collected data.

I excluded studies that focused on interventions outside of school settings, such as home-based or clinical therapy. I also omitted research that exclusively examined nonverbal students or individuals with intellectual disabilities, as these populations may face distinct challenges not commonly representative of the high school students with ASD in inclusive classrooms targeted by this review.

Study Selection Process (Figure 2)

I followed a three-phase screening process to systematically refine the pool of relevant studies. An initial database search yielded 369 entries, which I imported into Zotero for reference management and duplicate removal. After eliminating duplicates, 127 entries remained. I screened these based on their titles and abstracts, excluding any that did not meet the inclusion criteria.

After the initial title and abstract screening, I conducted a full-text review of 112 articles that appeared relevant to the research focus. Through additional manual searches and backward citation tracking, I identified 32 more potentially relevant articles, expanding the total pool to 144. I then reviewed each full text to determine whether it aligned with the research questions and met the inclusion criteria. Articles that did not explicitly address the research focus or failed to meet methodological standards were excluded. This final screening process resulted in a selection of 17 studies included in the research synthesis.

I developed a structured coding system to extract key information from each selected study. I coded each study using a matrix format (Table 2) that included the following categories: study focus, authors, stated purpose of the research, research question(s), participant characteristics, research design, independent variable, dependent variable, and results. This coding framework allowed me to synthesize relevant data comprehensively and organize comparisons across studies.

I categorized the studies into three key areas based on the research questions, creating a literature map (Table 3). First, I grouped studies that addressed social-emotional challenges and their impact on social competence, emotional well-being, academic engagement, and sense of

belonging to examine the difficulties high school students with ASD face in inclusive environments. Second, I analyzed research that evaluated the effectiveness of SEL interventions, focusing on how well these interventions met the individualized needs of students with ASD and aligned with social-emotional, academic, and inclusion-related outcomes. Third, I examined studies that explored the perspectives of teachers, peers, and students with ASD to understand how these stakeholders perceive social-emotional learning, evaluate the adequacy of current supports, and identify factors that influence successful social integration. It is important to note that some studies addressed more than one of these areas, which allowed them to be represented across categories. This overlap enhanced the comprehensiveness of the review and helped reveal the interconnected nature of challenges, interventions, and perspectives.

Synthesis and Interpretation

Findings from the research synthesis were categorized into three primary areas. The first area included studies that examined the impact of social-emotional challenges on the SEL outcomes of high school students with ASD in inclusive settings. Studies included in the second area evaluated the effectiveness of SEL interventions, focusing on targeted strategies designed to support social-emotional competence. Studies that fit the third area explored teachers' and peers' perceptions and their awareness of neurodiversity principles. This area also included research on the perspectives of students with ASD to better understand how these students perceive their own SEL experiences and social integration in high schools.

I organized the studies into three tables. Table 4 lists the SEL outcomes, common SEL challenges, and the key findings from the studies included in this area. Table 5 summarizes the

types of interventions, their effectiveness, and their impact on SEL outcomes. Table 6 compiles findings from studies that report the perceptions of teachers, peers, and students with ASD.

The research synthesis presents a study-by-study analysis that examines the complexities of SEL for high school students with ASD in inclusive settings. Each thematic area includes an in-depth examination of individual studies to identify recurring themes, compare findings, and analyze research approaches and outcome differences. This structured analysis explores how various intervention models contribute to the understanding of SEL for students with ASD. The research synthesis summarizes evidence of the impact of challenges on SEL outcomes, and identifies the approaches needed to develop more effective, neurodiverse-affirming SEL practices in inclusive high school environments.

Results

This doctoral capstone sought to review and analyze the literature to identify ways high school students with ASD receive adequate/inadequate support for their social-emotional needs in inclusive educational environments. The research synthesis analyzed existing literature in three key areas: (1) the impact of social-emotional challenges on students' SEL outcomes, (2) the effectiveness of existing SEL interventions, and (3) the influence of teachers', peers', and students with ASD perspectives on creating inclusive and neurodiverse-affirming learning environments.

First, this research synthesis examined how existing studies assess the impact of social-emotional challenges on social competence, emotional well-being, academic engagement, and sense of belonging among high school students with ASD in inclusive settings. Second, it

summarized the effectiveness of current SEL interventions, analyzing their strengths and limitations in addressing the unique social-emotional needs of students with ASD. Third, this synthesis reviewed evidence on the influence of teachers and peers' awareness and the perspectives of students with ASD in shaping inclusive and neurodiverse-affirming learning environments. Based on findings across these areas, this research synthesis aimed to identify a plan for improvement and provide recommendations for more effective, neurodiversity-informed approaches that enhance social-emotional outcomes for high school students with ASD in inclusive educational settings.

1. The Impact of Social-Emotional Challenges on SEL Outcomes for High School Students with ASD

Social-emotional learning gained prominence in educational discourse as a framework for developing students' emotional intelligence, resilience, and interpersonal skills (Collaborative for Academic, Social, and Emotional Learning [CASEL], 2022). The first section of this research synthesis examined how social-emotional challenges impact the SEL outcomes of students with ASD in inclusive educational settings. Drawing upon CASEL's five core competencies, self-awareness, self-management, social awareness, relationship skills, and responsible decision-making, this area of the research synthesis collected evidence from the pool of 17 research studies that met inclusion criteria about SEL challenges and their impact on four key SEL outcomes: (1) social competencies, (2) emotional well-being, (3) academic engagement, and (4) a sense of belonging (Table 4).

These four outcomes were intentionally selected because they reflect both the evidence base and the lived realities of high school for students with ASD. Social competence addresses the challenge of isolation, as research shows that students with ASD are often on the margins of peer networks with fewer reciprocal friendships (Kasari et al., 2011; Rotheram-Fuller et al., 2010). Emotional well-being responds to the heightened levels of anxiety, stress, and masking reported by adolescents in mainstream schools, which directly affect their ability to learn and connect (Botha & Gillespie-Lynch, 2022; Humphrey & Hebron, 2015). Academic engagement links SEL outcomes to the high-stakes academic expectations of high school, highlighting how social and emotional competences support the classroom participation and academic achievement (Hammond & Hoffman, 2014; Dean et al., 2020). Finally, sense of belonging transforms inclusion from simple placement into authentic participation and identity safety, serving as a foundation for resilience and self-concept (Carter et al., 2019; Williams et al., 2019).

Taken together, these four outcomes move beyond documenting the challenges faced by students with ASD and instead analyze how those challenges directly shape SEL outcomes within the secondary school context. Framing SEL outcomes in terms of social competence, emotional well-being, academic engagement, and belonging adapts broader competencies to the realities of high school, where academic pressures, identity formation, and complex peer dynamics intersect.

1.1 Social competencies

Social competences are the skills necessary to establish and maintain positive relationships, navigate social contexts, and communicate effectively (CASEL, 2022). Research suggested that students with ASD often struggle with social inclusion, experiencing higher rates

of peer rejection and bullying, with a negative impact on their social competence development (Williams et al., 2019). In a qualitative meta-synthesis focused on how students with ASD make sense of themselves within the context of their experiences in mainstream school settings, William and colleagues (2019) synthesized studies that explored students' self-understanding, social relationships, and the accessibility of the school environment. Their study highlighted that while more students with ASD are included in mainstream settings due to inclusive education policies, many continue to experience social and emotional exclusion. Studies using social networking surveys indicated that students with ASD are less accepted by peers and have fewer reciprocal friendships compared to their typically developing classmates (Kasari et al., 2011; Rotheram-Fuller et al., 2010). Even when they are part of social networks, they tend to remain on the periphery, with limited peer connections. The lack of peer acceptance not only increases the risk of social isolation but also makes students more vulnerable to bullying and victimization (Humphrey & Hebron, 2015).

One significant factor contributing to social challenges is the presence of restricted and repetitive behaviors and interests (RRBIs), a core characteristic of ASD that includes rigid routines, repetitive movements, and highly focused circumscribed interests. While these behaviors provide comfort and predictability, they also affect social competence by limiting flexibility in peer interactions and reducing opportunities for shared engagement (Turner-Brown et al., 2011). Among RRBIs, circumscribed interests, highly specialized and narrow areas of interest, can have a direct impact on social competence by shaping the way students with ASD interact with their peers. Consequently, RRBIs serve as both a bridge and a barrier to social

engagement, depending on whether they are shared or accommodated in inclusive settings (Turner-Brown et al., 2011).

Turner-Brown et al. (2011) conducted a study to evaluate the phenomenology and measurement of circumscribed interests as a form of RRBIs in individuals with ASD. The study used structured assessments, including the Interests Scale, the Interview for Repetitive Behavior, and the Repetitive Behavior Scale-Revised, to examine the nature, intensity, and functional impact of circumscribed interests. Participants with ASD were assessed for the number, type, and degree of impairment associated with their interests. The researchers sought to establish reliable methods for measuring circumscribed interests and to explore how these highly focused interests influence social-emotional functioning. The findings indicated that circumscribed interests significantly impact social competence by limiting peer interactions to those who share similar interests, making reciprocal relationships more challenging. In inclusive high school settings, where social engagement often relies on flexibility and shared experiences, students with ASD struggle to participate in broader social conversations. Peers who do not share their interests may find their focus unusual, leading to social isolation or peer rejection. While circumscribed interests can offer students with ASD cognitive and emotional benefits, they also create barriers to peer interactions, limiting opportunities for social inclusion (Turner-Brown et al., 2011). Even when students with ASD do form friendships, the nature of these relationships and their social participation patterns differ from those of their neurotypical peers.

To further explore these differences, Kuo et al. (2011) investigated the friendship characteristics and activity patterns of adolescents with ASD, providing critical evidence on how SEL challenges impact their social competence. They conducted a study that examined how

adolescents with ASD and their parents perceive friendships, analyzed factors associated with friendship quality, and explored gender differences in activity patterns with friends. The study used mail-based surveys and collected data from 91 adolescents with ASD and their parents across 27 U.S. states during the summer months. The inclusion criteria required that participants have a professional ASD diagnosis, a fifth grade reading level or higher, and a score of 15 or greater on the Social Communication Questionnaire (SCQ), which was administered during a phone interview with parents. The surveys contained questions on friendship characteristics, activity engagement, and social interaction patterns, while parents provided additional information about demographics and autism-related symptoms.

One of the primary findings from Kuo et al. (2011) study with direct implications on social competences was the mismatch in perceptions between adolescents with ASD and their parents. While almost all adolescents (96%) identified at least one friend, only 86% of parents reported their child having one friend. Fewer parents than adolescents identified three or more friends. This discrepancy suggests that adolescents with ASD may define friendship differently than their parents, potentially focusing more on shared interests and activities rather than spontaneous social interactions or emotional support. Adolescents who spent more time with friends reported higher companionship and perceived friendship quality, but friendships were often limited to same-gender peers and school settings (Kuo et al, 2011). Additionally, the study revealed that adolescents with more severe autism symptoms were more likely to report friendships that differed completely from their parents' reports, highlighting the impact of social communication difficulties on relationship formation and perception. These findings build on

Turner-Brown et al. (2011) by emphasizing how RRBIs, including circumscribed interests, influence peer relationships and limit broader social engagement.

A possible explanation for this perceptual mismatch is the different conceptual frameworks that adolescents with ASD and their parents use to understand social relationships (Kuo et al, 2011). While parents may emphasize the depth of emotional connection and reciprocal support as defining features of friendship, adolescents with ASD may place greater value on shared interests, structured activities, or routine-based interactions. This distinction aligns with the broader discussion of autism as both a deficit and a difference, a perspective explored in Kapp et al.'s (2012) study. In alignment with the neurodiversity framework, this doctoral capstone intentionally uses identity-first language (e.g., "autistic students") when referencing studies in which the authors themselves advocate for this terminology. For example, Kapp et al. (2012) noted that many autistic self-advocates prefer identity-first language because it affirms autism as a central and inseparable part of who they are, reflecting a view of autism as a natural and valid form of human diversity. Kapp and his colleagues (2012) utilized an online survey to collect data from 657 participants across different groups, including autistic individuals (both diagnosed and self-identified), parents, friends and relatives of individuals with ASD, and individuals with no direct connection to autism. Kapp et al. (2012) investigated the conceptual difference between the medical model of autism, which views autism primarily as a deficit requiring intervention, and the neurodiversity movement, which frames autism as a natural variation of human cognition and identity. The study seeks to understand how individuals with autism, their families, and those without direct ties to autism perceive the condition, particularly in terms of whether autism should be eliminated, ameliorated, or celebrated. Kapp et al.'s (2012)

findings reinforced the notion that social challenges in autism should not be viewed solely through a deficit lens, but rather as differences that can be accommodated and understood. The study aligns with Kuo et al.'s (2011) findings by highlighting the importance of understanding autistic perspectives on social relationships. Just as Kuo et al. found that adolescents with ASD define friendship differently than their parents, Kapp et al. (2012) demonstrated that autistic individuals often perceive their social interactions and identities differently than how non-autistic individuals do. These findings emphasize the need for interventions that bridge social differences rather than simply teaching individuals with ASD to mimic neurotypical behaviors.

Understanding social relationships from an autistic perspective is essential, as research consistently shows discrepancies between how autistic individuals and their non-autistic counterparts perceive social interactions and friendships. While Kuo et al. (2011) and Kapp et al. (2012) highlighted the divergence in definitions and experiences of friendship, further research has explored the underlying cognitive and perceptual mechanisms that contribute to social functioning challenges in individuals with ASD.

The study by Semrud-Clikeman et al. (2016) delved deeper into these mechanisms by utilizing both direct and indirect measures to assess social perception in children with high-functioning autism (HFA), nonverbal learning disabilities (NLD), and typically developing peers. Their findings provide a more nuanced understanding of the specific cognitive and emotional difficulties that impact social competence in these populations. Semrud-Clikeman et al. (2016) study incorporates both observational assessments and executive functioning evaluations to gain a more comprehensive understanding of how children with HFA and NLD perceive and engage in social interactions. The researchers aimed to determine whether children

with HFA exhibit greater difficulty in social perception than those with NLD and whether these difficulties correlate with executive dysfunction, which has been previously linked to social impairments in both groups. The study recruited 105 children between the ages of 8.5 and 16.6 years, divided into three groups: HFA (n = 36), NLD (n = 31), and TD controls (n = 38). Participants were referred to by educators, psychologists, psychiatrists, and pediatricians, or were recruited as part of a larger five-year study on developmental disorders. To ensure diagnostic accuracy, children with HFA were identified using the Autism Diagnostic Interview-Revised (ADI-R) and DSM-IV-TR criteria, while children with NLD met specific neuropsychological criteria related to visual-spatial and executive functioning deficits. All participants had verbal IQ scores above 80, and individuals with severe mood disorders or additional neurological conditions were excluded.

Semrud-Clikeman et al. (2016) used a mix of behavioral ratings and direct measures of social perception to assess social functioning. Parents and teachers completed the Behavior Assessment System for Children-2 (BASC-2) and the Behavior Rating Inventory of Executive Functioning (BRIEF) to evaluate externalizing and internalizing behaviors, adaptability, and executive functioning skills. Additionally, children participated in the Child and Adolescent Social Perception Measure (CASP), which required them to interpret emotional and nonverbal cues in video vignettes featuring social interactions. The combination of subjective reports (from parents and teachers) and objective direct assessments (from the CASP) provided a more nuanced picture of how social difficulties manifest in children with HFA and NLD.

The results indicated that children with HFA exhibited the most significant challenges in social perception, particularly in their ability to interpret emotional cues (CASP-EM) and

nonverbal social signals (CASP-NV)(Semrud-Clikeman et al., 2016). While both the HFA and NLD groups struggled with nonverbal cues, the HFA group performed significantly worse than the NLD group on emotional recognition tasks, suggesting that social-emotional processing deficits are more pronounced in children with HFA. These difficulties likely contribute to misunderstandings in social interactions, reinforcing social withdrawal and feelings of isolation (Semrud-Clikeman et al., 2016).

In addition to social perception challenges, executive functioning deficits were strongly correlated with social difficulties (Semrud-Clikeman et al., 2016). Children with both HFA and NLD displayed significant impairments in emotional regulation, cognitive flexibility, and working memory, as measured by the BRIEF Parent and Teacher Reports. The HFA group showed the highest levels of social withdrawal, depression, and anxiety, with teacher and parent ratings placing them in the clinically significant range for these issues. The NLD group also exhibited elevated levels of sadness and social withdrawal, though to a slightly lesser extent than the HFA group. Importantly, Semrud-Clikeman et al. (2016) found that children with weaker executive functioning skills were more likely to struggle with social interpretation, indicating that difficulties with cognitive control, flexibility, and working memory may exacerbate social misunderstandings.

The findings identified a considerable discrepancy between parent/teacher reports and children's self-perceptions (Semrud-Clikeman et al., 2016). While external raters reported significant social withdrawal and emotional struggles among children with HFA and NLD, the self-report measures did not reflect clinically significant distress. This suggests that children in these groups may not fully recognize their own social difficulties or emotional distress,

potentially due to alexithymia (difficulty identifying and describing emotions) or a lack of social self-awareness. These findings align with a broader body of research suggesting that emotional self-awareness is a major factor influencing social competence and social emotional outcomes for students with ASD. The meta-analysis by Huggins et al. (2021) systematically reviewed 47 studies examining emotional self-awareness in autism, providing strong evidence that emotional self-awareness difficulties are more common in autism and worsen with age, particularly during adolescence and adulthood. These difficulties may be exacerbated by mental health challenges and influenced by how emotional self-awareness is measured, highlighting the complex interplay between self-perception, social experiences, and emotional regulation in individuals with ASD. Given that emotional self-awareness is foundational to effective emotional regulation, these findings directly connect to broader concerns about emotional well-being, the next key SEL outcome investigated in this area of research synthesis.

1.2. Emotional well-being

Emotional well-being is defined as students' ability to manage stress, express emotions constructively, and develop resilience (CASEL, 2022). However, as Botha and Gillespie-Lynch (2022) highlighted in their qualitative synthesis, individuals with ASD frequently experience emotional regulation difficulties due to heightened exposure to minority stress, which contributes to increased anxiety, depression, and social isolation. These challenges are not inherent to autism but are exacerbated by systemic factors, such as ableism, discrimination, and societal pressures to conform to neurotypical norms. The minority stress model, when applied to autism, suggests that negative social experiences—such as bullying, exclusion, and forced masking of autistic

traits—create additional psychological burdens, making it harder for students with ASD to develop emotional resilience.

A key factor contributing to the emotional challenges is masking, or the suppression of autistic traits to conform to social expectations. Botha and Gillespie-Lynch (2022) discussed how masking leads to emotional exhaustion, a challenge that is further intensified when students feel their interests are dismissed or misunderstood by peers and educators. Additionally, co-occurring mental health conditions play a significant role in the emotional well-being of individuals with ASD, though no single study specifically measures emotional well-being in high school students with ASD. Instead, evidence is drawn from research on related mental health difficulties, stressors, and neurodevelopmental co-occurrences. Ahlers et al. (2017) examined the challenges that individuals with ASD face in navigating complex social-emotional issues, particularly anxiety, social isolation, and grief. The authors discuss misconceptions about ASD and emphasize that while schools often provide academic and behavioral support, they frequently lack targeted interventions for addressing these emotional difficulties.

Co-Occurring Anxiety: 62% of females with ASD and 37% of males with ASD experience significant anxiety (Accardo et al., 2024), often exacerbated by social stress, fear of judgment, and unpredictable social environments (Kapp et al., 2013). Anxiety refers to a broad range of disorders that cause distressing emotional responses. These responses arise from specific fears of actual or perceived imminent threats, as seen in phobias, or from anticipatory anxiety about future situations, such as social anxiety and separation anxiety. In some cases, less specific concerns trigger anxiety, as observed in generalized anxiety disorder. When individuals experience anxiety, they often change their behaviors in ways that significantly impair daily

functioning (American Psychiatric Association [APA], 2013). Researchers recognized the connection between ASD and anxiety as early as 1943, when Kanner documented that many children with classic autism experienced severe anxiety-related challenges. Despite this early observation, researchers did not extensively examine the link between autism and anxiety until recent years. Mason and Scior (2004) argued that *diagnostic overshadowing*—when clinicians overlook mental health symptoms because they assume these symptoms are part of another condition, such as ASD—may have delayed the recognition of anxiety in individuals with autism. Over the past decade, researchers have significantly expanded their investigations into anxiety among individuals with ASD. Meta-analyses showed that children with ASD not only experience anxiety more frequently (31 studies; van Steensel et al., 2011) but also at more severe levels (83 studies; van Steensel & Heeman, 2017), especially those with higher cognitive functioning. Among individuals with ASD, the most frequently diagnosed anxiety disorders include generalized anxiety disorder, separation anxiety disorder, social anxiety disorder, and phobias (White et al., 2009).

Co-Occurring Depression and Low Self-Esteem: Students with ASD are at increased risk of depression, often due to chronic social isolation, peer rejection, and internalization of negative social reactions (Botha & Gillespie-Lynch, 2022; Hedges et al., 2014). These factors contribute to low self-esteem and social withdrawal (Botha & Frost, 2020). Hammon and Hoffman (2014) further highlight that adolescents with HFA frequently experience elevated levels of depression and anxiety compared to their neurotypical peers. Their study found that 32% of adolescents with HFA met criteria for depressive disorders, while 39% met criteria for anxiety disorders, reinforcing the high prevalence of internalizing symptoms in this population. The researchers

emphasize that peer relationships play a critical role in adolescent well-being, and that students with ASD often struggle with rejection and limited social interactions. As adolescents with ASD become more aware of their social difficulties, their risk for social anxiety, low self-esteem, and depressive symptoms increase.

Co-occurring anxiety and depression can increase emotional outbursts and stress, making emotional regulation even more complex. Botha and Frost (2020) conducted a study on 111 adults with ASD, testing the Minority Stress Model to examine the relationship between social stress and mental health disparities in the population with ASD. Their study explored several forms of minority stress, including everyday discrimination, such as social exclusion, workplace bias, and lack of accommodations. The authors examined internalized stigma, in which individuals with autism feel pressured to hide their traits or develop negative self-perceptions due to societal messages. Their findings indicate that individuals with autism hide their autism, suppress autistic behaviors and withhold their diagnosis to fit in and avoid differential treatment. Furthermore, individuals with autism expect rejection and anticipate judgment or exclusion, which contributes to increased stress and social withdrawal.

While Botha and Frost (2020) focused on adults with autism, their findings remain highly relevant to adolescents, as the minority stressors they identified—such as social stigma, masking, and fear of rejection—begin during adolescence, a critical period for social and emotional development. Adolescents with ASD are particularly vulnerable to anxiety and depression, often due to peer rejection, academic pressures, and difficulties with emotional self-awareness (Accardo et al., 2024; Kapp et al., 2013). The expectation to conform to neurotypical norms, particularly in school settings, can intensify emotional exhaustion and distress, reinforcing

patterns of social withdrawal and low self-esteem (Botha & Frost, 2020). These experiences are closely linked to a diminished sense of belonging, as adolescents with ASD who face repeated exclusion or pressure to mask their identity may struggle to feel accepted and valued within their school communities (Botha & Frost, 2020).

Hammond and Hoffman (2014) expanded on this issue by investigating the prevalence and severity of anxiety and depression in adolescents with high-functioning autism (HFA). Their quantitative study utilized a structured assessment approach, incorporating multiple standardized rating scales—including the Children's Depression Inventory (CDI), Reynolds Adolescent Depression Scale–Second Edition (RADS-2), and Multidimensional Anxiety Scale for Children (MASC)—to measure internalizing symptoms across a sample of 14 adolescents with HFA. To enhance reliability, the researchers gathered data from multiple sources, incorporating self-reports, parent reports, and teacher assessments through the Adolescent Symptom Inventory (ASI-4) and Youth Inventory (YI-4). Statistical analyses, including t-tests and Pearson correlations, were used to compare participant scores with normative samples, ensuring an objective evaluation of symptom severity.

The results indicated that while adolescents with HFA reported elevated social anxiety, separation panic, and anhedonia (lack of interest in social interaction), their self-reports did not fully align with parental and teacher observations, raising concerns about the validity of self-report measures for this population (Hammond & Hoffman, 2014). Parents and teachers consistently reported significantly higher levels of overall anxiety and depression than the adolescents themselves, suggesting that adolescents with HFA may lack insight into their emotional distress or struggle with self-awareness in reporting internalizing symptoms.

Additionally, Hammond and Hoffman (2014) found that higher levels of autism-related traits correlated with increased anxiety, reinforcing the argument that the expectation to conform to neurotypical social norms may exacerbate distress in this population.

Co-occurring ADHD: 50% of males with ASD and 57% of females with ASD also have co-occurring ADHD, which contributes to higher impulsivity, frustration, and difficulty maintaining focus (Accardo et al., 2024). Mayes et al. (2017) conducted a large-scale study examining the prevalence of dysgraphia—a motor-based writing impairment—in elementary through high school students with ASD and ADHD. The study assessed over 1,000 students, measuring their graphomotor ability, attention, working memory, and processing speed. Results revealed that 92% of the sample exhibited significant weaknesses in graphomotor skills, and more than half of the students with ASD or ADHD met the criteria for dysgraphia, demonstrating persistent difficulties with handwriting, letter formation, and overall written expression. These impairments not only affect academic performance but also contribute to frustration and avoidance of writing-related tasks, which are critical for classroom success (Mayes et al., 2017). Furthermore, the study found that students with ASD who also met diagnostic criteria for ADHD displayed greater deficits in attention and impulse control compared to their peers with ASD alone. Attention-related challenges exacerbate academic struggles by making it difficult for students to stay engaged, follow multi-step directions, and complete assignments independently. Mayes et al. (2020) further investigated the impact of these difficulties on academic achievement, revealing that written expression was the most common area of underachievement among students with ASD and ADHD. Despite variability in reading and math performance, persistent struggles with written expression highlight the need for targeted interventions that

address both fine motor difficulties and broader cognitive challenges. Without appropriate support, students with ASD and ADHD may continue to experience barriers to academic success, particularly in tasks requiring sustained attention, organization, and independent work. Challenges in executive functioning, such as difficulty with organization and sustained effort, further impact their ability to participate fully in academic tasks (Mayes et al., 2017), influencing not only their written output but also their overall engagement and participation in classroom learning.

1.3 Academic engagement

Academic engagement refers to students' motivation, participation, and commitment to learning (CASEL, 2022). Research indicates that positive SEL interventions can enhance academic engagement by improving social communication with peers and adults, reducing anxiety, improving self-efficacy, and a growth mindset (Dean et al., 2020; Gardner et al., 2014; Laugeson et al., 2012; Owen-DeSchryver et al., 2024). For students with ASD, inclusive classroom environments that integrate SEL practices can support their engagement by reducing barriers to learning and creating structured social support systems (Williams et al., 2019). However, several challenges impact academic participation and engagement for students with ASD, limiting their access to rigorous curriculum and meaningful social interactions.

Even though 59% of students with ASD do not have a diagnosed intellectual disability, they remain underrepresented in general education settings, restricting their exposure to grade-level content and peer integration opportunities (Kraemer et al., 2020). Only 42% of students with ASD spend 80% or more of their school day in general education, limiting their social skill development and classroom participation. Anxiety, sensory overload, and fear of peer judgment

often contribute to avoidance behaviors, reduced verbal contributions, and lower engagement in group activities, further exacerbating academic and social isolation. These barriers to academic engagement are further illuminated by Kraemer et al. (2020), who examined the quality of high school programs for students with ASD in the United States, through a randomized clinical trial (RCT) conducted by the CSESA. Data was collected at pretest before any interventions. Their study assessed program effectiveness using the Autism Program Environment Rating Scale-Middle/High School (APERS-MHS), evaluating 60 high schools across three geographic regions (California, North Carolina, and Wisconsin). The study by Kraemer and colleagues (2020) sought to determine the overall quality of ASD-specific educational supports, identify strengths and weaknesses across different program domains, and explore how different factors influence the quality of educational experiences for students with ASD. The findings revealed that while program quality was slightly above the adequate threshold, several critical areas, particularly those impacting academic engagement, fell below minimum quality standards. Domains such as social competence, communication, independent functioning, and functional behavior received poor ratings, highlighting key deficits in schools' ability to support students with ASD in both academic and social contexts (Kraemer et al., 2020). Additionally, instructional quality was rated as only marginally adequate, suggesting that many schools struggle to implement evidence-based teaching strategies tailored to the unique learning profiles of students with ASD (Kraemer et al.,2020).

These findings suggest that one major factor contributing to lower academic engagement is the executive functioning challenges commonly observed in students with ASD, particularly those with co-occurring ADHD (Kraemer et al.2020). Difficulties with task initiation,

organization, and sustained attention often impede academic progress, making it harder for students to stay on task, follow multi-step instructions, and manage time effectively (Hedges et al., 2014; Kapp, 2013; Kraemer et al., 2020). Without structured support and scaffolding, these challenges can lead to incomplete assignments, frustration, and disengagement from learning activities, further widening the gap in educational outcomes and post-secondary readiness.

1.4 A sense of belonging

A sense of belonging is fundamental to student success, as it influences self-esteem, motivation, and overall well-being (CASEL, 2022). Students who feel included in their school communities are more likely to participate in academic and social activities (Danker et al., 2016). However, many students with ASD report feelings of isolation due to negative peer interactions and a lack of understanding from educators (Botha et al., 2022). One major barrier to belonging is internalized stigma. Many students with ASD describe themselves as "weird" or "outsiders", largely due to bullying, peer rejection, and social exclusion, which significantly impact self-confidence and mental well-being (Botha & Gillespie-Lynch, 2022; Hedges et al., 2014). Lack of peer acceptance not only leads to social withdrawal but can also reinforce internalized negative beliefs, making it harder for students with ASD to develop a positive sense of self within their school communities. Another key challenge is the struggle with identity and neurodiversity acceptance. Individuals with ASD often see autism as an inseparable part of their identity, yet many experience pressure to conform to neurotypical norms, leading to emotional stress and identity confusion (Botha & Gillespie-Lynch, 2022; Kapp et al., 2013). While some individuals with ASD report positive emotions about their autism, others struggle with social stigma and societal expectations. This contrast is particularly evident between students with ASD and their

parents, where students with ASD may embrace their neurodivergence, parents often view autism as something to be "treated" rather than an identity to be affirmed (Kapp et al., 2013). The disconnect between perspectives can contribute to further challenges in self-acceptance and belonging.

For example, Hedges et al. (2014) conducted a qualitative study using focus groups to examine the experiences of students with ASD in high school settings. The study included 41 participants across seven focus groups in two communities. Data was collected through interactive discussions with key stakeholders, including students, parents, educators, and special education personnel, to identify key barriers in the high school experience. The analysis followed a thematic approach, utilizing coding, categorization, and team-based triangulation to ensure accuracy and consistency in identifying key themes. Through their analysis, the researchers identified three primary themes that illustrate the disconnect between high school structures and the needs of students with ASD: (1) inconsistent academic and social supports, (2) difficulties with interpersonal connections, and (3) disconnect between knowledge and practical implementation of targeted interventions.

First, Hedges and colleagues (2014) found that high school environments are highly inconsistent, making it difficult for students with ASD to adapt to daily expectations and transitions. Participants reported variability across teachers, schedules, and academic expectations, leading to stress and disengagement. Changes in daily schedules—such as assemblies, fire drills, or substitute teachers—often disrupted students' ability to regulate their emotions and behavior. Additionally, support structures decreased significantly from middle to high school, creating barriers to academic and social success.

A second key finding in Hedges et al. (2014) study was the struggle to form meaningful relationships with both peers and teachers. Many students with ASD faced bullying, social rejection, and a lack of peer inclusion, leading to isolation and lower self-esteem. Teachers noted that some students' social behaviors were perceived as "annoying" or disruptive, making it harder for them to integrate into group activities. Additionally, communication breakdowns between school personnel and parents further complicated efforts to support students effectively.

Finally, the study revealed a general lack of knowledge among school staff about autism, leading to inadequate implementation of individualized supports. Parents expressed frustration that teachers did not always understand their child's needs or how to apply IEP accommodations consistently. Special education personnel also reported limited collaboration among educators, resulting in ineffective interventions and a lack of structured transition planning for students with ASD (Hedges et al., 2014).

Collectively, these challenges have a profound impact on students' sense of belonging. When students with ASD experience inconsistent supports, social rejection, or limited understanding from educators, they begin to internalize messages of exclusion (Botha & Gillespie-Lynch, 2022; Hedges et al., 2014). Over time, these experiences erode their confidence in being accepted as authentic members of the school community (Danker et al., 2016). Belonging is not simply about physical inclusion, it requires feeling valued, understood, and supported in one's identity (CASEL, 2022). Without intentional efforts to create affirming environments where neurodivergent identities are recognized and respected, students with ASD are likely to remain on the margins of school life, disconnected from the social and academic opportunities that foster growth and engagement (Botha et al., 2022; Kapp et al., 2013).

In a more recent study, Hume et al. (2022) evaluated the Collaborative for Academic, Social, and Emotional Learning's CSESA model and found it to be highly effective in improving social competence for students with ASD, particularly through peer-mediated strategies like Peer Networks and Peer Supports. While teachers rated the program highly for promoting school connectedness (mean score = 5.29 out of 6), the study did not directly assess students' own perceptions of belonging. This limits our understanding of how well the intervention met students' internal sense of inclusion. Moreover, the study emphasized that implementation fidelity varied across sites, suggesting that even evidence-based practices can yield uneven outcomes without consistent support and training. These findings highlight the importance of designing SEL interventions that are both flexible and systematically evaluated for their impact on students' psychological and social experiences, including belonging (Hume et al.,2022).

The findings from Hume et al. (2022) and Hedges et al. (2014) highlight the systemic gaps in high school education that contribute to low engagement, emotional distress, and limited social inclusion for students with ASD. While it provides some evidence on the challenges students with ASD face in high school settings, these studies do not systematically evaluate specific interventions. Further investigation is needed to determine which SEL interventions effectively address the social competences, emotional well-being, academic engagement, and the sense of belonging of students with ASD in inclusive settings.

Conclusions and Next Steps

The first section of this research synthesis analyzed the complex interplay between social-emotional challenges and SEL outcomes for high school students with ASD. While

inclusive education aims to promote academic and social participation, systemic barriers, lack of peer acceptance, and inadequate SEL support often prevent students from fully engaging in school life. The studies reviewed emphasized the need for SEL interventions that address the unique strengths and challenges of students with ASD, focusing on peer education, executive functioning supports, and identity-affirming practices. While this section of the research synthesis provided evidence of the specific challenges students with ASD face in inclusive environments, it did not evaluate the effectiveness of existing SEL interventions. Given the importance of SEL in supporting high school students with ASD, the following section examines the effectiveness of existing SEL programs and their potential to address the social-emotional and academic needs of students with ASD in high school settings.

2. The Effectiveness of Existing SEL Interventions

To assess the effectiveness of SEL interventions for students with ASD, this research synthesis categorized interventions based on the studies identified in the research review into three primary types: (1) peer-mediated interventions, (2) comprehensive school-based programs, and (3) social skills training (Table 5). Peer-mediated interventions involve structured social support from neurotypical peers in inclusive environments to encourage social interaction, reduce isolation, and improve social communication skills. These interventions are designed to facilitate meaningful peer relationships by embedding social skills practice into real-world interactions, making them a valuable approach for high school students with ASD (Carter et al., 2019; Gardner et al., 2014; Owen-DeSchryver et al., 2024). Comprehensive school-based programs integrate multiple intervention strategies within a school-wide framework, addressing

social competence, emotional well-being, academic engagement, and sense of belonging through a multi-tiered support system (Hume et al., 2022; Kraemer et al., 2020; Steinbrenner et al., 2020). One of the most widely studied models is the CSESA model, which incorporates peer-mediated support, educator training, transition planning, and social skills instruction to enhance student outcomes (Hume et al., 2022; Steinbrenner et al., 2020). Social skills training focuses on explicit, structured instructions to teach students with ASD essential social competencies in controlled settings. These interventions are delivered either through peer-mediated learning opportunities or structured, teacher-led programs that provide direct instruction in reciprocal communication, social problem-solving, and conflict resolution (Dean et al.,2020; Laugeson et al., 2012).

2.1. Peer-Mediated Interventions (PMI) for Students with ASD in Inclusive High School Settings

High school can be a socially complex environment, and for many students with ASD, successfully navigating peer interactions presents significant challenges. Social communication difficulties, limited peer engagement, and heightened risks of social isolation often characterize the experiences of students with ASD in inclusive school settings (Gardner et al., 2014). Despite being physically present in classrooms, cafeterias, and extracurricular activities, these students frequently struggle to initiate and sustain peer relationships, leading to feelings of loneliness and exclusion (Carter et al., 2015). Research suggests that without targeted interventions to establish social connections, meaningful interactions between students with and without ASD remain limited (Gardner et al., 2014).

One promising approach to addressing this challenge is peer-mediated interventions (PMIs), which actively involve neurotypical peers in supporting the social development of students with ASD. PMI is broadly defined as an intervention in which typically developing peers are trained to facilitate social interactions, encourage participation, and model appropriate behaviors to support students with ASD in developing communication and relationship-building skills (Carter et al., 2019)

Gardner et al. (2014) investigated the impact of PMIs on the social interactions of high school students with ASD. The study was motivated by the well-documented social isolation of students with ASD, who often struggle to form meaningful peer relationships despite being included in general education settings. The authors aimed to evaluate the efficacy, social validity, and treatment fidelity of peer networks as an intervention to increase social engagement and peer interactions. Using a single-subject ABAB and ABA single-subject withdrawal design, the study examined the effects of peer networks on the social interactions of two high school students with ASD: Anton, an 18-year-old senior, and George, a 14-year-old freshman. Experimental control was demonstrated only for Anton, whose ABAB design allowed two intervention and two withdrawal phases, providing stronger evidence of a functional relationship between the intervention and changes in social engagement. In contrast, George's ABA design included only one withdrawal phase, limiting the ability to establish experimental control for his outcomes (Gardner et al., 2014). Both students had limited social engagement before the intervention, reinforcing the need for structured peer support. The study introduced small peer groups of three to six neurotypical students around each participant, facilitated by an adult mentor. These groups met regularly during school advisory periods, engaging in structured social activities and

discussions. Findings demonstrated a strong functional relation between peer network intervention and increased social engagement. For example, Anton's participation was evaluated using an ABAB withdrawal design, allowing for two intervention phases and two comparison (baseline and withdrawal) phases to assess the functional relationship between the intervention and social engagement. During the initial baseline phase, Anton exhibited peer interactions during only 3% of observed intervals, reflecting limited social involvement. Following the introduction of the peer network intervention, his interactions increased to 54%, indicating a substantial growth in social engagement as a result of structured peer support. When the intervention was withdrawn, his interactions declined significantly to 8%, suggesting that the gains were not maintained in the absence of the structured network. Upon reintroduction of the intervention, his peer interactions increased to 44%, further reinforcing the effectiveness of the peer network in promoting sustained social interaction. In contrast, George's progress was examined using an ABA design, as time constraints toward the end of the semester did not allow for a reintroduction phase. During baseline, George's peer interactions were observed in 16% of intervals, with an increase to 65% during the intervention phase, demonstrating a strong initial response to the peer network. However, following the withdrawal of the intervention, his interactions declined to 19%, once again illustrating the dependence of the observed social gains on the presence of the structured support. Active social engagement, defined as initiating or participating in peer interactions, showed a similar pattern of growth and decline for both students. Anton's active engagement increased from just 4% during baseline to 68% during intervention, then decreased to 11% during the withdrawal phase, aligning closely with the overall pattern of his social interaction data. George also demonstrated increased active

engagement, rising from 10% during baseline to 50% during intervention, before declining to 14% after the intervention was withdrawn (Gardner et al., 2014).

Beyond increasing peer interactions, the intervention also targeted individualized social goals. Anton showed slight improvement in waiting for his turn to speak, though this skill proved challenging to reinforce in a group setting. George demonstrated significant progress in maintaining engagement in conversation with peers, as his goal was naturally embedded into the peer interactions. The study also assessed social validity by gathering perspectives from students, peer partners, facilitators, and parents. Results indicated that students, peer partners, and facilitators found the intervention feasible and beneficial. By the end of the study, peer partners reported viewing the focus students as friends, suggesting that structured peer interactions can foster meaningful social relationships (Gardner et al., 2014). Facilitators found the intervention practical for high school settings, requiring minimal additional resources while yielding significant improvements in student engagement. Parents reported positive outcomes, though one parent noted that their child did not discuss the group much at home, highlighting the need for further exploration of how students internalize and transfer social skills beyond structured settings. The findings from Gardner et al. (2014) provide evidence that PMI can significantly enhance the social experiences of high school students with ASD; however, long-term strategies are needed to prevent regression. Moreover, given the study's small sample size and controlled design, broader research needs to explore how PMI functions when implemented on a larger scale across multiple school settings.

Building on this foundation, Carter et al. (2019) conducted an exploratory study to examine the feasibility and effectiveness of peer support arrangements and peer networks for a

larger sample of 102 high school students with ASD across 15 public high schools. These high schools were part of the first year of the implementation of the CSESA model. Peer support arrangements involved assigning one or more neurotypical peers to provide ongoing social and academic support to a student with ASD in an inclusive general education classroom. Peer networks, on the other hand, established small social groups (3-6 peers) that met regularly in non-classroom settings (e.g., lunch periods, extracurricular activities) to foster social connections through structured and unstructured interactions. This study aimed to address the complexities of implementing PMI in real-world school settings, assessing how well these strategies fit within existing school structures and how educators perceived their effectiveness. Using a quantitative approach, Carter and his colleagues (2019) collected data on student characteristics, intervention implementation, and educator perspectives. Findings revealed that PMIs were applied across a diverse range of students with ASD, regardless of cognitive ability, diploma track, or level of social impairment. Peer support arrangements were more commonly implemented for students pursuing standard diplomas, while peer networks were more frequently utilized for students on alternative diploma pathways. Interventions were delivered frequently and consistently, but with some variability in key components: 43.9% of peer support arrangements did not have a written plan, 35% of interventions lacked an initial orientation session. Peer support strategies were often implemented well, but feedback and progress monitoring were inconsistent (Carter et al, 2019).

Educators demonstrated flexibility in implementation, tailoring interventions based on student needs and classroom dynamics. They reported high levels of social validity for both interventions, indicating that they found peer-mediated approaches feasible, acceptable, and

beneficial for students with ASD. Over 90% of participating educators stated that they would continue using these interventions, recognizing their potential to improve social competence and school engagement. However, some logistical challenges were noted, including the need for consistent peer participation and staff training to maintain intervention effectiveness over time (Carter et al.,2019).

Carter et al. (2019) demonstrated that PMI, particularly peer support arrangements and peer networks, can be effectively implemented in high school settings to increase social interactions, engagement, and overall school participation for students with ASD. Their study highlighted the importance of structured facilitation and implementation, as well as the feasibility of embedding peer-mediated strategies within existing educational frameworks. While Carter and his colleagues examined the benefits of PMIs for students with ASD, it also highlighted the essential contribution of neurotypical peers in creating more inclusive school environments. Peer mediation is not just about supporting students with ASD; it also provides valuable learning experiences for the neurotypical peers involved, helping them develop empathy, leadership skills, and a deeper understanding of neurodiversity.

Building on this perspective, Owen-DeSchryver et al. (2024) conducted a pilot study examining changes in academic and behavioral outcomes for 204 neurotypical high school students who participated as peer partners in a semester-long peer-mediated program called Peer to Peer across eight public high schools. The study aimed to determine whether involvement in PMI led to measurable improvements in GPA, attendance, behavioral referrals, and suspensions among peer participants. Their study highlights the mutual benefits of peer engagement, demonstrating that structured peer interactions not only facilitate social inclusion for students

with ASD but also contribute to the personal and educational growth of their neurotypical peers. Improvements were particularly significant for students who had lower GPAs or prior behavioral challenges before joining the program, suggesting that engaging in structured peer support may enhance academic engagement, responsibility, and school connectedness.

The findings from Carter et al. (2019) highlight the effectiveness of PMI in promoting inclusion and social engagement for high school students with ASD. Peer support arrangements and peer networks helped increase meaningful peer interactions and participation in school life, while also offering benefits to neurotypical students, such as increased empathy, social awareness, and leadership development. Similarly, Gardner et al. (2014) demonstrated the potential of peer networks to dramatically improve social engagement for students with ASD, even in cases where students had minimal peer interaction before the intervention. Although these studies show strong potential, their impact is often limited to small-group settings and can depend on the consistency of peer participation and adult facilitation. Expanding on this idea, Owen-DeSchryver et al. (2024) found that neurotypical students participating in PMIs also experienced academic and behavioral improvements, particularly those who previously struggled with GPA or school behavior. This indicates that PMI can contribute to a more inclusive and supportive school culture overall. Additionally, Hume et al. (2022) found that SEL interventions like the CSESA model had a strong impact on social competence and individualized academic goal attainment for students with ASD, though the study also revealed inconsistent implementation and a lack of direct measurement of emotional well-being and students' own sense of belonging. These limitations point to the importance of designing interventions that go beyond social skill-building to address students' holistic development, including emotional and

psychological well-being. To better understand how to scale up these benefits and ensure more widespread implementation, it is important to investigate comprehensive, school-wide programs that incorporate PMI while addressing the diverse needs of students with ASD across multiple domains.

2.2 Comprehensive School-Wide Programs

The Center on Secondary Education for Students with Autism Spectrum Disorder (CSESA) was established to address the unique and complex needs of high school students with ASD through evidence-based, school-wide practices. Researchers affiliated with CSESA developed a multi-tiered intervention model aimed at enhancing students' academic performance, social competence, independence, and transition planning. This program was implemented in selected high schools, which became known as CSESA schools, and was subsequently evaluated for its effectiveness compared to "business as usual" practices in control schools.

The CSESA model is a comprehensive framework that integrates academic strategies, peer relationships and social competence, behavioral supports, and transition planning into a unified approach for supporting students with ASD. It is designed to function within both inclusive and specialized settings, ensuring that interventions are tailored to students' individual needs while promoting long-term success. Implementation of the model followed a structured process: (a) formation and training of a school-based autism team (A-team), (b) assessment of program quality along with student needs and priorities, (c) development of a two-year implementation plan, and (d) provision of weekly coaching and ongoing professional development to support fidelity across all domains (Hume et al., 2022).

In the academic domain, the CSESA model incorporates structured literacy interventions, including the Alternative Achievement Literacy approach, adapted from the Alternative Literacy Framework (Browder et al., 2007), to support students with emerging literacy skills. For students reading at or above a second-grade level, Collaborative Strategic Reading (CSR) is used to strengthen passage comprehension across subject areas (Reutebuch et al., 2015).

Research by Steinbrenner et al. (2020) and Hume et al. (2022) evaluated different aspects of the model. Hume et al. (2022) focused on the model's impact on student and family outcomes, while Steinbrenner et al. assessed implementation fidelity, examining how well schools adopted and sustained the CSESA interventions. Additionally, Carter et al. (2019) contributed to the model's peer support component by studying the role of peer networks in enhancing social engagement, which remains a core feature of the broader CSESA framework.

The focus of the CSESA model is on PMI, which leverages the role of neurotypical peers in fostering social inclusion and engagement. The Peer Networks intervention involves structured peer groups that meet outside the classroom—during lunch, extracurricular clubs, or other informal settings—to facilitate social relationships and reinforce social goals (Carter et al., 2019). Similarly, Peer Supports pair two or three neurotypical peers with a student with ASD in academic settings to promote both social and academic engagement (Carter et al., 2019). Additionally, CSESA incorporates Social Competence Intervention - High School (SCI-HS), an adaptation of a middle school social skills program that explicitly teaches reciprocal conversation, social problem-solving, and perspective-taking to students with ASD who have at least average verbal intelligence (Stichter et al., 2016). These interventions integrate structured social opportunities into daily school life, creating a more inclusive educational environment.

Supporting independent functioning and self-regulation is another essential goal of CSESA. The model incorporates evidence-based practices for independence, which rely on the Secondary School Success Checklist to identify key target skills for individual students (Hume et al., 2018; Wong et al., 2015). Teachers then implement personalized strategies to support self-management, executive functioning, and behavioral independence, helping students navigate the demands of high school with greater autonomy. This component ensures that students develop the adaptive skills necessary for both academic success and daily life.

The CSESA model emphasizes the importance of transition planning by equipping students with the skills and resources they need for post-secondary education, employment, and independent living. Community and School Resource Mapping helps school teams create comprehensive directories of local services available to students with ASD (Test et al., 2009). Additionally, the CSESA model promotes Student Involvement in IEP Meetings, providing structured lessons that empower students to actively participate in their educational planning (Test et al., 2009). The model also includes Transition Planning for Postsecondary Outcomes, offering special educators training and resources to develop high-quality transition plans that align with students' goals and abilities (Test et al., 2009). Furthermore, students engage in Work-Based Learning Experiences, where they explore career options and gain hands-on job experience (Test et al., 2009). Lastly, the Transitioning Together program provides an eight-week psychoeducational intervention for students and their families, equipping them with coping strategies and transition readiness skills (DaWalt et al., 2018). These interventions aim to bridge the gap between high school and adulthood, ensuring that students with ASD are well-prepared for their future.

Steinbrenner et al. (2020) and Hume et al. (2022) are closely related studies, both focusing on the CSESA model. While Hume et al. (2022) primarily evaluated the efficacy of the CSESA model in improving student outcomes, Steinbrenner et al. (2020) focused more on implementation fidelity and assessment—that is, how well the intervention was carried out across different schools.

Hume et al. (2022) conducted a cluster randomized control trial including 60 high schools across North Carolina, Wisconsin, and California, involving 547 students. The research examined the impact of CSESA model on program quality, student goal attainment, standardized student outcomes, and family-related outcomes, comparing results to a control group receiving standard educational services. Results indicated that schools implementing the CSESA model demonstrated significantly higher program quality as measured by the Autism Program Environment Rating Scale (APERS). Students in CSESA schools showed greater attainment of individualized educational goals but did not perform significantly better on standardized assessments compared to their peers in the control group. In terms of social competence, the study found that the CSESA model had a significant positive impact on social goal attainment, as measured by the Goal Attainment Scale (GAS). PMIs, such as Peer Networks and Peer Supports, played an essential role in social engagement, while the Social Competence Intervention-High School (SCI-HS) specifically targeted social skill development. With an effect size of 1.52 ($p < .01$), these findings suggest that SEL interventions within the CSESA model were effective in improving social competence for students with ASD. Additionally, no significant differences were found in family-related outcomes. The study found strong social validity, with school staff rating CSESA favorably. Despite positive findings regarding program implementation and goal

attainment, the lack of significant impact on standardized assessments raises questions about the intervention's long-term efficacy in measurable academic progress (Hume et al., 2022).

Steinbrenner et al. (2020) focused on the implementation fidelity of the CSESA model, examining how well high schools adopted and sustained the intervention across multiple sites, over two years. The study aimed to assess whether schools effectively integrated the CSESA interventions into their educational practices and whether these interventions were implemented with consistency across different settings. Researchers used an implementation index approach, which measured fidelity based on training hours, coaching support, school planning efforts, intervention quality, teaming, and student dosage. The mean implementation rating for CSESA schools was 2.07 out of 3.00 (69% fidelity), compared to 16% fidelity in services-as-usual (SAU) schools. This indicates that, while the intervention was largely implemented as intended, there was variability in how consistently schools applied different components. Steinbrenner et al. (2020) attribute the variability to staff turnover, inconsistent teacher buy-in, and differences in administrative support. Schools with strong leadership and ongoing coaching maintained higher fidelity, while those with fewer resources or teacher engagement struggled with consistent application. General education teachers were less likely to integrate interventions when they perceived them as additional work (Steinbrenner et al., 2020). The study highlighted the need for structured implementation planning, ongoing professional development, and administrative commitment to ensure sustainability.

Despite its comprehensive nature, the CSESA model did not explicitly emphasize direct social skills instruction beyond its PMIs. While peer networks and peer support facilitated social opportunities, students with ASD often require structured, individualized training in social

communication, problem-solving, and peer interactions (Steinbrenner et al., 2020). This gap in social skills instruction highlights the need for social skills training programs, which complement school-wide SEL initiatives by providing explicit instruction and reinforcement for students with ASD.

2.3 Social skills training interventions

Dean et al. (2020) conducted RCT to compare two distinct models of group social skills interventions for adolescents with ASD in inclusive secondary school settings: SKILLS and ENGAGE. The study aimed to assess which intervention model was more effective in promoting social engagement and reducing social stress for students with ASD. SKILLS Intervention, modeled after clinic-based social skills programs, included only students with ASD or those with significant social difficulties. Sessions were structured and led by clinicians, utilizing didactic instruction, modeling, role-play, and assigned homework to reinforce social skills. In ENGAGE Intervention, a peer-mediated model, typically developing (TD) peers were trained as intervention agents to support students with ASD in developing social competencies. Unlike SKILLS, peer mentors played an active role in facilitating engagement during group activities.

Following the intervention, both SKILLS and ENGAGE participants demonstrated increased joint engagement and reduced solitary behavior (Dean et al., 2020). However, there were significant differences in social stress and overall social experience between the two groups. SKILLS participants reported higher social stress, increased problem behaviors, and emotional distress at follow-up. Dean and his colleagues (2020) suggested that being in a homogenous group with others facing similar social challenges may have heightened

participants' awareness of their own social difficulties, exacerbating stress and interpersonal concerns. ENGAGE participants, on the other hand, experienced lower social stress and improved social quality of life. The presence of trained peer mentors appeared to buffer social anxiety, providing a supportive, inclusive environment that facilitated greater social competence and generalization of skills outside of intervention. These findings indicate that structured instruction alone is insufficient for social skills interventions to be effective; for meaningful improvements, students need opportunities for naturalistic peer interactions that promote generalization and real-world social application (Dean et al.,2020). While interventions like the SKILLS program provided direct instruction, the findings suggested that social competence gains may be limited without reinforcement outside of training sessions.

In contrast, Laugeson et al. (2012) examined the UCLA Program for the Education and Enrichment of Relational Skills (PEERS), an intervention specifically designed to enhance social skill generalization by incorporating structured lessons, real-life practice, and parent involvement. The RCT with 28 middle and high school students (ages 12-17) diagnosed with ASD, Asperger's Syndrome, or PDD-NOS. Participants were assigned to one of two groups: a treatment group (n=14), which received the PEERS intervention immediately, and a delayed treatment control group (n=14), which waited 14 weeks before receiving the intervention.

The 14-week intervention consisted of weekly 90-minute sessions, where adolescents were taught social communication, friendship-building, and conflict-resolution skills through didactic lessons, role-playing, and behavioral rehearsal. Unlike many social skills programs, PEERS integrated a parent-assisted coaching model, with parents participating in separate training sessions to support their teens' social development outside of structured sessions

(Laugeson et al., 2012). This feature aimed to increase skill retention and application in real-world settings, bridging the gap between intervention and actual peer interactions.

Results from Laugeson et al. (2012) demonstrated significant improvements in social skills, peer relationships, and social responsiveness among participants in the treatment group compared to the control group. Adolescents who participated in PEERS showed notable gains in cooperation, assertion, and responsibility, demonstrating a greater ability to engage in social interactions and navigate peer relationships. The study also found a reduction in ASD-related social deficits, with improvements in social communication, social awareness, and motivation, as measured by the Social Responsiveness Scale.

Beyond self-reported improvements, adolescents in the treatment group reported more social invitations and hosted gatherings than those in the control group. Independent teacher reports further confirm increased assertiveness and overall social skill development among PEERS participants. At the 14-week follow-up, most social gains were maintained or further improved, particularly in social responsiveness and peer engagement. The only decline area was social cognition, suggesting that abstract social reasoning skills may require continued reinforcement, and ongoing support for students with ASD to develop more abstract social reasoning abilities. While PEERS provides structured instruction in social communication and peer interactions, reinforcing social cognitive skills—such as perspective-taking, flexible thinking, and understanding social nuances—may require more sustained, relationship-based support (Laugeson et al., 2012).

One way to strengthen social cognition beyond structured training is through mentorship-based interventions, where individuals engage in ongoing, real-world social exchanges with

trusted mentors. Weiler et al. (2022) explored this approach through the Autism Mentorship Program (AMP), which paired adolescent mentees with adult mentors who also had ASD. Unlike PEERS, which focuses on explicit skills training and parent coaching, AMP creates opportunities for social learning through shared experiences, informal modeling, and real-time problem-solving in social contexts. The study examined whether mentoring relationships could enhance social-emotional development, self-concept, and overall well-being for both mentees and mentors with ASD. The research utilized a single-group mixed-method pilot study design to assess the social validity of the program and its preliminary impact on social skills and mental health outcomes. The study included seven adolescent mentees, seven adult mentors, and eight parents, with data collected through pre- and post-test assessments. These assessments measured changes in self-concept, relationship satisfaction, social skills, and emotional well-being. AMP was conducted in an after-school setting, where adult mentors provided structured and informal support to their adolescent mentees.

Findings indicated high participant satisfaction, with both mentees and mentors reporting positive experiences and meaningful connections (Weiler et al., 2022). Mentees demonstrated improvements in self-concept and social skills, as well as reductions in internalizing and externalizing behaviors. The study suggests that mentoring relationships may serve as a valuable support system for adolescents with ASD, reinforcing social cognition and emotional regulation in a more organic, individualized manner. However, the small sample size and lack of a control group limit the generalizability of the findings. The authors conclude that while AMP shows promise as an intervention, further research with a larger sample and a more rigorous study design, such as a RCT, is needed to establish its effectiveness (Weiler et al., 2022).

Conclusions and Next Steps

The research review of SEL interventions for students with ASD highlights that most existing interventions primarily focus on improving social competence through peer-mediated strategies, such as peer support arrangements, social skills groups, and structured peer networks (Carter et al., 2019; Dean et al., 2020; Owen-DeSchryver et al., 2024). These interventions demonstrate effectiveness in enhancing social skills, increasing peer interactions, and fostering engagement in structured social settings. However, they often fail to comprehensively address the broader SEL challenges that high school students with ASD face, particularly in areas of emotional well-being, academic engagement, and sense of belonging.

Comprehensive school-based programs, such as the CSESA model, attempt to integrate multiple intervention strategies within a school-wide framework, offering a multi-tiered support system (Hume et al., 2022; Steinbrenner et al., 2020). These programs show promise in improving program quality and individualized goal attainment but have limited success in increasing academic achievement and emotional well-being. While schools implementing CSESA report improved educational environments and social engagement opportunities, standardized assessments fail to reflect significant academic gains, highlighting the ongoing challenge of translating SEL interventions into quantifiable academic success (Hume et al., 2022).

One significant gap in existing SEL interventions is their limited focus on emotional well-being, particularly addressing co-occurring conditions such as anxiety, depression, and ADHD, which are prevalent among students with ASD (Dean et al., 2020). While PMIs encourage social interaction, they do not provide sufficient support for navigating the emotional

complexities of high school life, nor do they adequately prepare students for the unstructured social dynamics of inclusive settings (Carter et al., 2019). The findings suggest that SEL interventions largely focus on teaching communication skills rather than equipping students with strategies to manage social anxiety, build self-advocacy skills, or cope with the mental health challenges that often accompany ASD.

Another critical limitation is the inconsistent implementation and fidelity of SEL programs across different school settings (Steinbrenner et al., 2020). Many interventions rely heavily on the presence of trained staff or peer mentors, which can lead to variability in effectiveness depending on the level of professional development and support provided to educators. Educators often lack the necessary training to fully understand neurodiversity and the individualized needs of students with ASD, leading to inconsistent application of SEL strategies and missed opportunities for meaningful inclusion (Carter et al., 2019). Without targeted professional development, teachers may struggle to create an environment that supports both social competence and emotional well-being, ultimately limiting the impact of SEL interventions.

Moreover, while many studies reported positive social outcomes, few directly measured the sense of belonging from the students' perspectives, leaving a gap in understanding how well these interventions truly integrate students with ASD into the broader school community (Hume et al., 2022). The absence of student-reported measures of social inclusion and sense of belonging suggests that more research is needed to assess the subjective experiences of students with ASD within SEL programs.

3. The Influence of Teachers', Peers', and Students with ASD Perspectives on Creating Inclusive and Neurodiverse-Affirming Learning Environments

Many SEL curricula are designed with the assumption of neurotypical social development, often focusing on general communication skills rather than explicitly teaching essential competencies such as interpreting social cues, managing social anxiety, and navigating the complex emotional landscape of high school (Hume et al., 2022; Kraemer, 2020). Despite the implementation of SEL programs, students with ASD frequently report difficulties with peer interactions, often experiencing social isolation and exclusion within school environments (Dean et al., 2020). These challenges stem from a combination of intrinsic social communication differences and external barriers, including limited peer engagement opportunities and inconsistent SEL interventions that fail to address the emotional complexities associated with ASD (Carter et al., 2019).

A key contributor to this gap is the limited understanding or misconceptions that educators and peers may have regarding neurodiversity, which can affect how SEL strategies are implemented and perceived (Kapp, 2012). Without a comprehensive awareness of ASD-specific social-emotional needs, SEL programs risk overlooking critical components such as emotional regulation, self-advocacy, and mental health support for students with ASD (Hume et al., 2022). The lack of targeted SEL interventions in high school settings further exacerbates these issues, as students with ASD must navigate unstructured social environments with minimal tailored support (Dean et al., 2020). Additionally, peer-mediated SEL approaches, while beneficial in facilitating social interactions, often prioritize surface-level communication skills rather than

addressing co-occurring conditions such as anxiety, depression, or ADHD, which significantly impact students' overall well-being and social participation (Carter et al., 2019).

To gain deeper understanding, this research synthesis explored the perceptions of both teachers and peers regarding autism and the specific social-emotional needs of students with ASD (Table 6). Additionally, it is essential to incorporate the voices of students with ASD themselves, as understanding their lived experiences can help inform the development of SEL programs that are more inclusive and responsive. The research synthesis categorized findings of this theme into three key areas: (1) how teachers' perceptions and awareness of neurodiversity influence the inclusion and social integration of students with ASD, (2) how peer' perceptions shape the social-emotional experiences of students with ASD, and (3) how students with ASD perceive their own SEL experiences and social integration in high school.

3.1. How teachers' perceptions and awareness of neurodiversity influence the inclusion and social integration of students with ASD

Teachers play an essential role in shaping the social-emotional experiences of students with ASD in high school settings. However, research indicated that while educators generally recognize the social and emotional challenges faced by students with ASD, there are significant gaps in their knowledge of neurodiversity, which affects their ability to effectively implement inclusive SEL practices (Kraemer et al., 2020; Kapp et al., 2012). Many SEL interventions assume neurotypical development, focusing primarily on communication skills while neglecting critical areas such as emotional regulation, self-advocacy, and the mental health challenges co-occurring with ASD, including anxiety and depression (Semrud-Clikeman et al., 2016). Teachers

consistently perceive students with ASD as struggling with both social interactions and emotional regulation within the classroom, often attributing these difficulties to impairments in executive functioning, which impact the ability to interpret social cues, manage social anxiety, and adapt to the unstructured nature of high school interactions (Semrud-Clikeman et al., 2016). Without explicit instructional strategies tailored to these needs, students with ASD may experience social isolation, exclusion, or difficulties in peer interactions, even in schools that actively implement SEL programs (Carter et al., 2019).

A study by Semrud-Clikeman et al. (2016) further illustrated how executive functioning and social perception difficulties contribute to social-emotional struggles for students with ASD. Using a combination of behavioral rating scales from teachers and parents and direct social perception assessments, the study found that students with ASD had significant difficulty understanding emotional and nonverbal cues, reinforcing previous findings that these students struggle with pragmatic language and social reciprocity. Semrud-Clikeman et al. (2016) found a notable discrepancy between self-reports and parent/teacher reports of social-emotional functioning in children with ASD. While parents and teachers frequently reported concerns related to withdrawal and depression, self-reports from the children did not reflect clinically significant difficulties. This discrepancy suggests that students with ASD may either be unaware of the extent of their social-emotional challenges or may under report these issues due to difficulties with self-assessment. These findings reinforce the need for SEL interventions that address both social skill development and emotional well-being through structured, teacher-supported strategies.

The extent to which educators embrace a neurodiversity-informed perspective significantly influences the effectiveness of SEL interventions (Kapp et al., 2012). When teachers adopt a strengths-based approach, viewing ASD as a natural difference rather than disorder students with ASD benefit from more flexible teaching methods and classroom accommodations that align with their unique social and emotional learning needs. Conversely, when teachers adhere to a medical model that emphasizes "fixing" or "normalizing" autistic behaviors, SEL strategies may be less effective, as they fail to address the core social-emotional challenges that students with ASD experience in inclusive settings (Kapp et al., 2012). Teachers generally perceive PMIs as beneficial for improving social competencies and connections among students with ASD and their neurotypical peers (Gardner et al., 2014; Carter et al., 2019). These interventions have been found to increase social interactions beyond structured meetings, suggesting broader impacts on the school experience. However, challenges such as inconsistent peer training, limited teacher facilitation, and difficulties in maintaining intervention fidelity highlight gaps in teacher understanding of neurodiversity and inclusive social learning strategies (Carter et al., 2019).

Despite the recognized benefits of PMIs, teachers often lack the specialized training required to implement these programs effectively (Kraemer et al., 2020). Research indicated that the quality of inclusion is not solely determined by physical placement in general education classrooms but by the extent to which educators actively create structured social-learning opportunities. In schools where teachers receive minimal professional development on autism and neurodiversity, SEL interventions may be implemented inconsistently, leading to limited social-emotional progress for students with ASD. Teachers and parents report higher levels of

anxiety and depression symptoms in students with ASD than the students themselves acknowledge, suggesting a critical need for more targeted SEL interventions that explicitly address emotional well-being (Hammond & Hoffman, 2014). The lack of SEL strategies designed to support co-occurring mental health conditions further underscores the need for educators to receive specialized training in recognizing and addressing the emotional needs of students with ASD.

The findings from the articles reviewed in this subsection indicated a strong need for professional development programs that enhance teachers' understanding of neurodiversity and equip them with the skills necessary to implement effective SEL strategies for students with ASD. Educators must receive training in neurodiversity-informed teaching practices that emphasize acceptance, flexibility, and student strengths (Kraemer et al., 2020). They also need training on SEL strategies tailored to ASD, focusing on emotional regulation, self-advocacy, and social anxiety management, along with sustained implementation of PMIs to ensure fidelity and structured peer support (Carter et al., 2019). Additionally, teachers should be trained to recognize and address co-occurring mental health challenges, integrating SEL with school-based mental health resources, in collaboration with trained professionals in providing mental health supports. Strengthening professional development in these areas will allow schools to create more inclusive environments where SEL programs not only improve communication skills but also enhance the emotional well-being and overall school experience of students with ASD.

3.2 How Peers' Perceptions Shape the Social-Emotional Experiences of Students with ASD

Peers play a key role in intervention efforts, as their active participation is essential to the effectiveness of PMI. PMI is the most prevalent approach discussed in research studies examining social emotional support for students with ASD in inclusive high school settings. PMI appears in multiple forms, including peer networks, where a structured group of peers regularly meets with a student with ASD to promote social engagement (Gardner et al., 2014), peer support arrangements, where one or more peers assist a student with ASD within general education classrooms (Carter et al., 2019), and peer partner programs, in which peers provide social and academic support throughout the school day (Owen-DeSchryver et al., 2024). Educators and researchers emphasize the value of PMIs, in which they train typically developing peers to promote social interaction, engagement, and communication for students with ASD (Gardner et al., 2014; Carter et al., 2019). These interventions address common challenges such as social communication difficulties, peer isolation, limited relationships, and increased vulnerability to bullying (Carter et al., 2019; Hedges et al., 2014). Additionally, because PMI occurs within natural school environments, such as classrooms, lunchrooms, and extracurricular settings, it is a practical and sustainable approach for meaningful inclusion (Gardner et al., 2014; Carter et al., 2019).

In their study "The Reciprocity of Peer-Mediated Interventions: Examining Outcomes for Peers", Owen-DeSchryver et al. (2024) highlight that PMI not only benefits students with ASD by increasing social engagement but also improves SEL for participating peers. Their findings indicated that peers participating in PMI programs experience increased academic engagement, improved GPAs, and reduced behavioral referrals and suspensions. Additionally, peer

participants reported gains in empathy, a deeper understanding of disabilities, and improvements in their social-emotional skills, such as communication and compassion (Owen-DeSchryver et al., 2024). Gardner et al. (2014) study found that peers involved in PMI programs often form friendships with their classmates who have ASD by the end of the intervention, indicating a shift in peer perceptions and increased social connectedness (Gardner et al., 2014). These findings highlight the reciprocal benefits of PMIs: while students with ASD gain social opportunities, their typically developing peers develop prosocial skills and a greater appreciation for neurodiversity.

Through further investigation into the ways in which peer perceptions and their understanding of SEL challenges impact the experiences of high school students with ASD, this capstone research synthesis compiled evidence across the studies included. Four of the research studies examined directly addressed peer perception questions, shedding light on how peers view students with ASD, how their attitudes change through participation in PMIs, and the limitations in addressing neurodiversity awareness.

Gardner et al. (2014) explored peer perceptions within the context of peer network interventions, examining perspectives from students with ASD, their peer partners, facilitators, and parents. This study found that neurotypical peers overwhelmingly valued their participation in these interventions, noting improvements in their communication skills, perspective-taking, and overall social awareness. Many peer partners reported developing meaningful friendships with their classmates with ASD by the end of the intervention. Additionally, they expressed a desire to continue or expand the program, reinforcing the idea that structured peer-mediated interactions can lead to positive, lasting changes in peer perceptions. These findings suggest that

when given opportunities to engage meaningfully with students with ASD, neurotypical peers become more understanding and accepting, positioning themselves as effective social facilitators in inclusive settings (Gardner et al., 2014).

The study by Owen-DeSchryver et al. (2024) further examined peer perceptions by focusing on how peer partners themselves experienced PMIs. This research revealed similar results, as peers reported increased empathy, a deeper understanding of disability, and even academic benefits as a result of their participation. However, the study also identified a key limitation: the lack of diversity among the peers who volunteer for PMIs. Most participating peers were white and female, raising concerns about whether the intervention effectively reaches a broad cross-section of students. The findings highlight that while PMIs create positive shifts in peer attitudes and promote inclusion, their impact may be limited if the programs do not intentionally recruit diverse peer participants or address broader issues of equity and representation (Owen-DeSchryver et al., 2024).

Hedges et al. (2014) took a different approach by investigating peer perceptions outside of structured intervention settings. The study found that many general education teachers observed that students with ASD were often perceived as “annoying” or socially inappropriate by their peers, which negatively impacted their ability to form friendships. Additionally, the study reported that bullying and other forms of negative peer interactions were common experiences for students with ASD. These findings contrast with those of Gardner et al. (2014) and Owen-DeSchryver et al. (2024), suggesting that without structured intervention, students with ASD may struggle to establish positive peer relationships. The study highlights a crucial gap in current PMI research: while interventions can improve peer perceptions, the broader

school environment may still foster exclusionary attitudes if proactive social-emotional learning initiatives are not in place (Hedges et al., 2014).

Carter et al. (2019) examined PMIs from an implementation perspective, focusing on feasibility and social validity. While most peer participants viewed the interventions as beneficial, the study found mixed responses regarding whether these interventions led to meaningful out-of-school friendships. This raises important questions about the long-term impact of PMIs: while they provide structured opportunities for social interaction, they may not always translate into deeper, self-sustaining peer relationships outside of the intervention setting. These findings suggest that while peer support arrangements and networks help foster social interactions, additional strategies may be needed to ensure that relationships persist beyond structured interventions (Carter et al., 2019).

Although these studies demonstrate that PMIs can positively shift peer perceptions, they do not extensively explore whether peers develop a deeper understanding of neurodiversity. This represents a critical gap in the research, as a broader awareness of neurodiversity has been linked to more inclusive attitudes toward autism. Kapp et al. (2012) found that individuals who are aware of neurodiversity are more likely to view autism as a valued identity rather than a deficit. If PMIs incorporated explicit education on neurodiversity, students with ASD might experience less stigma and exclusion, as their differences would be understood rather than pathologized. However, Kapp et al. (2012) also noted that negative emotions about autism persist even among those who are aware of neurodiversity, suggesting that structured peer education programs may be necessary to explicitly address stereotypes and promote truly inclusive attitudes. Peer perceptions contribute to the body of evidence that supports the effectiveness of PMIs and

inclusive practices; however, it is equally important to examine how students with ASD themselves perceive their SEL experiences and social integration in high school. Their perspectives can contribute to a better understanding of what works, what challenges remain, and how interventions impact their daily lives.

3.3 How students with ASD perceive their own SEL experiences and social integration in high school

Research examining the perspectives of students with ASD on their SEL experiences and social integration in high school revealed complex and often mixed findings. While some students appreciate structured peer interventions, others struggle with broader social integration due to negative peer perceptions, lack of appropriate support, and internalized anxiety. Their perspectives highlight both the benefits of targeted interventions and the limitations of traditional high school environments in fostering meaningful inclusion.

In a single-case study using ABAB design and ABA design, Gardner et al. (2014) explored how two students with ASD perceived their involvement in a peer network intervention, revealing that while they generally valued the opportunity to engage with peers, their perceptions of social skill improvements varied. One student explicitly acknowledged learning new skills, while another expressed uncertainty about personal gains. However, both students viewed their peer partners as friends, indicating that peer networks may effectively foster social connectedness, even if perceived skill acquisition differs among participants (Gardner et al., 2014). Structured interventions significantly increased the social interactions and engagement of students with ASD. Anton's peer interactions rose from 3% at baseline to 54%

during intervention, while George's interactions increased from 16% to 65%. However, when the intervention was withdrawn, their social engagement dropped dramatically, suggesting that sustained, structured opportunities are essential for maintaining social progress (Gardner et al., 2014).

Weiler et al. (2022) further examined the impact of peer-based support, finding that students with ASD who participated in mentorship programs self-reported improvements in social confidence, emotional regulation, and relationship satisfaction. Many students felt more comfortable engaging in conversations and developed a stronger sense of belonging due to their mentor relationships. Importantly, many mentees emphasized the value of having a mentor who shared their ASD experience, meaning someone who also identified as having ASD and could personally relate to their challenges, suggesting that traditional school-based SEL interventions may not provide the same level of personal connection and relatability (Weiler et al., 2022).

Despite the benefits of structured peer interventions, broader social integration remains a significant challenge for many students with ASD. Hedges et al. (2014) found that students with ASD frequently reported social isolation and negative peer experiences, with one student explicitly stating, "kids are not nice from my experience". Another student expressed skepticism about high school social opportunities, reinforcing a sense of disillusionment with the available support systems (Hedges et al., 2014). Additionally, some students felt that being identified as different was a source of discomfort, discouraging them from seeking additional support services. One student stated, "sometimes being identified as different is bad", highlighting how stigma can deter students from engaging in resources designed to assist them. These findings align with reports that many general education teachers perceive students with ASD as socially

inappropriate or annoying, which negatively impacts peer acceptance and limits friendship opportunities (Hedges et al., 2014).

Kuo et al. (2013) further explored the differences between self-perceptions and external observations of social integration. Their study found that students with ASD often perceive their social experiences more positively than their external observers do, or that their criteria for friendship may differ from neurotypical standards. Many students with ASD reported strong social connections through shared activities, such as video games, which were linked to higher friendship quality. However, the study also noted a limited number of opposite-gender friendships and a reliance on structured interactions, suggesting that students with ASD still face challenges in broader peer networks and require alternative socialization strategies (Kuo et al., 2013).

High school environments often fail to accommodate the unique social-emotional needs of students with ASD. Hedges et al. (2014) reported that inconsistencies in teacher expectations, unpredictable class schedules, and complex social norms create barriers to successful peer relationships. Additionally, sensory sensitivities and social anxiety further hinder students' ability to engage with their neurotypical peers in traditional social settings (Hedges et al., 2014).

Hammond and Hoffman (2014) examined mental health concerns among adolescents with high-functioning autism (HFA) and found that, compared with normative samples, they exhibited elevated levels of social anxiety, separation panic, and anhedonia (diminished ability to experience pleasure). Parents and teachers also reported significantly higher levels of overall anxiety and depressive symptoms for these adolescents. However, the adolescents themselves did not consistently report elevated anxiety or depression, which raises questions about the

validity of self-report measures in this population. Specifically, the findings suggest that adolescents with HFA may struggle to accurately recognize or communicate internalizing symptoms, and that standardized measures may conflate these symptoms with core features of autism. This highlights the importance of using multiple sources of data—student, parent, and teacher reports—when assessing the emotional well-being of adolescents with ASD, as well as the need for SEL approaches that account for these complexities (Hammond & Hoffman, 2014).

Kapp et al. (2012) provided direct insight into how autistic individuals perceive autism itself, finding that many students self-identify as autistic and reject the idea of a cure, aligning with the neurodiversity movement's perspective. While students expressed both positive and negative emotions about their condition, their social-emotional experiences were influenced by external acceptance and support. The study suggests that if high schools adopt SEL programs rooted in neurodiversity principles, students with ASD may experience improved self-esteem, stronger peer relationships, and greater social integration (Kapp et al., 2012).

Conclusions

The perspectives of students with ASD on their SEL experiences and social integration reveal a complex reality. PMIs and mentorship programs provide structured opportunities for social engagement and can foster meaningful friendships; however, their impact is short-lived without continued support. Many students experience social isolation, stigma, and barriers to friendship formation, particularly in unstructured settings. Additionally, differences in friendship expectations, anxiety about being perceived as different, and the lack of neurodiversity-focused SEL programs contribute to the ongoing challenges of social integration and emotional support. Future research and school-based interventions should prioritize sustained peer support,

mentorship opportunities, and neurodiversity education to create more inclusive and supportive high school experiences for students with ASD.

Discussion

This doctoral capstone examined the literature on how high school students with ASD experience SEL challenges in inclusive educational environments and how current interventions address, or fail to address, these needs. The findings highlight three primary areas of focus: the impact of social-emotional challenges on student outcomes, the effectiveness of existing SEL interventions, and the influence of teachers', peers', and students' own perspectives on developing inclusive environments. Together, these results contribute to a growing body of research emphasizing the necessity for holistic, identity-affirming approaches to supporting students with ASD in high school settings (Botha & Gillespie-Lynch, 2022).

First, findings from this synthesis support previous research indicating that students with ASD experience pronounced challenges with social competence, emotional well-being, academic engagement, and sense of belonging within inclusive settings (Williams et al., 2019; Turner-Brown et al., 2011; Kuo et al., 2011). While inclusive education policies have increased opportunities for physical integration, the literature consistently reports high levels of peer rejection, social isolation, and emotional distress among students with ASD. The RRBIs, including circumscribed interests, appear to function both as potential bridges to social connection and as barriers, depending on the degree to which they are understood and accommodated within school settings (Turner-Brown et al., 2011). Emotional well-being emerged as an especially critical area of concern, with elevated rates of anxiety, depression, and

minority stress observed among adolescents with ASD (Botha & Gillespie-Lynch, 2022; Hammond & Hoffman, 2014). These difficulties appear to be compounded by executive functioning challenges and by limited opportunities for authentic, meaningful peer engagement, which together may exacerbate academic disengagement and feelings of marginalization.

Second, the review of SEL interventions identified both areas of promise and persistent gaps. PMIs, such as peer networks and peer support arrangements, have been shown to enhance social interactions and engagement (Gardner et al., 2014; Carter et al., 2019). However, evidence suggests that these interventions primarily target surface-level social communication skills rather than deeper emotional or identity-based needs. Comprehensive models such as the CSESA model demonstrated positive impacts on individualized goal attainment and program quality (Hume et al., 2022; Steinbrenner et al., 2020), yet challenges with fidelity of implementation, sustainability, and teacher training were consistently reported. Critically, few interventions explicitly measured students' subjective experiences of belonging, highlighting an important limitation in the current evidence base. These findings suggest that while targeted interventions can improve specific social competencies, they may fall short of addressing the broader emotional resilience and self-advocacy skills essential for long-term success in inclusive settings.

Third, the examination of teachers', peers', and students' perspectives provided further understanding into why SEL interventions often achieve only partial success. Although educators increasingly acknowledge the social-emotional needs of students with ASD, many lack neurodiversity-informed training necessary for fully inclusive practice (Kraemer et al., 2020; Semrud-Clikeman et al., 2016). Structured PMIs have been shown to enhance peer empathy and engagement (Owen-DeSchryver et al., 2024); however, peer perceptions outside of structured

interventions remain influenced by persistent stigma and misunderstanding. Importantly, students with ASD themselves often report ambivalence regarding their social experiences in high school, with many describing ongoing social anxiety, rejection, masking, and internalized stigma (Hedges et al., 2014; Weiler et al., 2022). Together, these findings suggest that existing SEL efforts may inadequately support the lived realities of students with ASD, and that interventions must be explicitly designed to affirm identity, promote emotional well-being, and sustain authentic social connections.

While this synthesis emphasizes the importance of school-based interventions, it also highlights that students' social–emotional experiences are shaped by multiple systems within and beyond the school environment. From an ecological perspective, families occupy a central position in the mesosystem, connecting home, school, and community contexts that together influence student development and well-being (Bronfenbrenner, 1979). Parents and caregivers not only serve as advocates and support systems but also as interpreters of school expectations and reinforcers of emotional regulation strategies at home. Their perspectives provide essential context for understanding students' engagement, emotional well-being, and sense of belonging. Yet, as the literature suggests, families' viewpoints often differ from those of educators and even from students themselves, creating both opportunities and tensions in supporting inclusive practices (Hedges et al., 2014; Kuo et al., 2011; Kapp et al., 2013). Recognizing and integrating family perspectives strengthens home–school partnerships and aligns with the ecological model's emphasis on interconnected systems. This alignment provides a foundation for sustainable, collaborative practices that can enhance students' sense of belonging and overall success in inclusive high school settings.

Families' Perspectives and Roles

Families are central to autistic adolescents' social–emotional experiences and to the success of school-based SEL efforts. Parents and caregivers often act as interpreters of school culture, advocates for supports, and co-regulators of stress at home; their perspectives shape how students experience inclusion, navigate friendships, and internalize messages about identity and belonging (Hedges et al., 2014). Research also documents perceptual gaps between adolescents and their parents regarding friendships and social participation—gaps that influence goal setting, intervention fit, and judgments of progress (Kuo et al., 2011). Adolescents with ASD may define friendship around shared interests and structured activities, whereas parents often emphasize mutual emotional support and reciprocity (Kuo et al., 2011). When schools do not explicitly surface and reconcile these differing frameworks, students can receive mixed messages about what constitutes "successful" social engagement, undermining confidence and authentic peer connection.

Family perspectives also intersect with identity and the neurodiversity paradigm. Many autistic adolescents view autism as inseparable from identity and seek affirmation for autistic ways of communicating and relating, whereas some parents adopt a more remediation-oriented stance that prioritizes normalization over acceptance (Kapp et al., 2013). These tensions matter for SEL: pressure to conform can increase masking and minority stress, elevating anxiety and depression and eroding a sense of belonging (Botha & Frost, 2020; Botha & Gillespie-Lynch, 2022). Conversely, when caregivers receive clear information about neurodiversity-affirming practices, and when school goals emphasize acceptance alongside skill building, students are

more likely to experience coherence across home and school contexts, which supports emotional regulation and participation (Ahlers et al., 2017; CASEL, 2022).

Evidence from intervention studies underscores families' contributions. In PMI studies, parents frequently report feasibility and social validity, provide contextual information that refines goals, and observe generalization outside school—even when youth do not spontaneously report it (Carter et al., 2019; Gardner et al., 2014). In comprehensive models such as CSESA, educator ratings indicate improved social competence and connectedness, but limited direct measurement of students' belonging suggests that triangulating student, family, and teacher perspectives is essential for understanding true impact (Hume et al., 2022). Family input can also surface co-occurring conditions (e.g., anxiety, ADHD) and executive function needs that shape day-to-day engagement and stress, thereby informing accommodations and progress monitoring (Accardo et al., 2024; Mayes et al., 2017, 2020).

Implications for practice and future research include: (a) embedding structured, ongoing family–school communication that explicitly elicits parent and student definitions of friendship, inclusion, and success (Kuo et al., 2011); (b) offering accessible caregiver learning on neurodiversity-affirming SEL to reduce unintentional pressures to mask and align reinforcement across settings (Botha & Gillespie-Lynch, 2022; Kapp et al., 2013); (c) involving families in the co-design of PMI goals and reviewing data that include student-reported belonging, not only adult ratings (Carter et al., 2019; Hume et al., 2022); and (d) screening for anxiety, depression, and ADHD features that may limit participation, followed by coordinated supports across home and school (Accardo et al., 2024; Mayes et al., 2017, 2020). Centering families in these ways can strengthen consistency, reduce minority stress, and enhance students' sense of belonging by

aligning the messages they receive about who they are and how they are valued within their school communities (Botha & Frost, 2020; CASEL, 2022; Hedges et al., 2014).

Limitations

While this research synthesis provides important contributions to the field, several limitations should be recognized. Although the reviewed research aimed to include high school students, several studies spanned a broader age range, often from middle childhood through adolescence. As a result, findings were sometimes aggregated across developmental stages, which makes it more difficult to isolate outcomes that are specific to adolescents. This limitation is particularly important given that developmental needs and social-emotional challenges can differ substantially between younger children and high school students.

Another limitation lies in the conceptual nature of the project. The study did not involve piloting or directly evaluating an intervention in school settings. Instead, it synthesized existing literature to identify gaps and propose improvement initiatives. While this approach provides an evidence-informed framework, the outcomes described are anticipated rather than empirically measured. Consequently, the findings serve as a foundation for practice and future research rather than evidence of effectiveness.

The evidence base itself presented both strengths and challenges. Drawing from quantitative, qualitative, and mixed-methods, studies allowed for a broad perspective, but it also required careful interpretation across diverse designs, populations, and contexts. Some studies relied on small or specific samples, while others drew from wider populations not limited to high school students. To address this variability, the analysis acknowledged when findings reflected broader or less generalizable samples. Additionally, the recommendations were situated within

established frameworks such as CASEL's SEL model, the neurodiversity paradigm, the social model of disability, and the ecological model. This grounding helped strengthen the conceptual validity of the initiatives proposed in the plan for improvement.

A further limitation is that none of the reviewed studies directly measured neurodiversity-informed practices. In other words, the literature did not include studies that explicitly examined how schools embrace the neurodiversity paradigm or how students experience identity-affirming practices. This gap exists because the research base is still evolving. Most studies measured outcomes such as social skills, peer acceptance, or emotional regulation, but they did so within more traditional frameworks. There were no studies that addressed questions such as: How is neurodiversity perceived in school? Do students feel safe being their authentic selves without masking? For this reason, the neurodiversity paradigm was incorporated as part of the theoretical framework. While literature documents challenges such as isolation, anxiety, masking, and exclusion, it does not yet systematically evaluate solutions through a neurodiversity lens. This project therefore contributed to the field by reframing what is known about social and emotional outcomes in ways that affirm identity and belonging.

Finally, there is a notable absence of longitudinal studies assessing the long-term impacts of SEL interventions on emotional well-being, academic engagement, and sustained belonging. Future research should prioritize longitudinal designs, the integration of student-reported outcomes, and the development of SEL frameworks that center neurodivergent identity, address co-occurring mental health needs, and account for intersectional factors such as gender, race, and socio-economic status. These findings highlight the need for a comprehensive and neurodiversity-affirming approach to SEL. Section 3 presents a targeted improvement plan

designed to address these challenges and promote authentic inclusion for high school students with ASD.

Section 3: Plan for Improvement

This improvement plan aims to provide a neurodiversity-informed, multi-tiered framework for enhancing the SEL outcomes of high school students with ASD in inclusive educational settings. The plan builds on findings presented in Section 2, which highlight a persistent, multifaceted problem: while inclusive education has increased the physical placement of students with ASD in general education classrooms, meaningful inclusion that embeds SEL and well-being remains elusive for many (Hedges et al., 2014; Williams et al., 2019). Students with ASD frequently experience social isolation, bullying, and exclusion despite their physical presence in mainstream schools (Humphrey & Hebron, 2015; Kasari et al., 2011). These challenges directly affect their social competence, emotional well-being, academic engagement, and sense of belonging. Furthermore, co-occurring mental health conditions, such as anxiety, depression, and ADHD, compound these difficulties and often remain unrecognized or unsupported in school-based SEL efforts (Accardo et al., 2024; Botha & Gillespie-Lynch, 2022).

Adding to these challenges is a deficit-based approach within many SEL interventions (Kapp et al., 2013; Sinclair, 2010). These interventions often fail to incorporate the voices and identities of individuals with ASD, as well as the unique ways in which students with ASD experience and interpret SEL (Kapp et al., 2012; Smith & Jones, 2020). Consequently, SEL interventions lack authenticity and relevance, and they may inadvertently contribute to masking behaviors, emotional fatigue, and lowered self-esteem. Moreover, teachers and peers do not possess the necessary training or awareness to support students in ways that affirm neurodiversity and go beyond surface-level participation (Hume et al., 2022; Kraemer et al., 2020).

This plan proposes a comprehensive improvement process built around neurodiversity-informed principles that affirm identity, prioritize student voice, and intentionally bridge the gap between theory and practice. Grounded in the perspectives of students with ASD, parents, educators, and researchers, the plan includes six key improvement initiatives designed to address current practice gaps. Each initiative builds upon existing empirical evidence and offers a framework for transforming inclusive high schools into environments where students with ASD are not only included but fully supported to thrive.

The following table outlines the six key improvement initiatives central to this plan. Each initiative includes a clearly defined objective, a set of targeted key actions, measurable benchmarks, and the anticipated outcomes associated with implementing these changes. Together, these components form a structured approach to improve the SEL experiences and outcomes for high school students with ASD in inclusive educational settings.

Table 7: Improvement Initiatives Implementation Summary

Improvement Initiative	Objective	Key Actions	Benchmarks	Anticipated Outcomes
1. Embed Neurodiversity Education	Normalize and celebrate neurodiversity within SEL and school culture	Integrate neurodiversity topics into SEL lessons Host school-wide awareness events Co-teach with autistic self-advocates	Neurodiversity week implemented 80% of SEL lessons include neurodiversity components	Increased peer empathy and decreased stigma More inclusive classroom dialogue

2. Strengthen Peer-Mediated Interventions (PMIs)	Develop meaningful peer relationships and reduce social isolation	Launch peer networks and support arrangements Train peer mentors using identity-affirming modules	80% of identified mentors trained peer groups meeting 2x/month	Improved social engagement and self-confidence among students with ASD Prosocial gains in peer mentors
3. Support Emotional Regulation and Mental Health	Address minority stress, co-occurring conditions, and emotional exhaustion	Provide autism-informed counseling Create quiet zones Teach regulation strategies in groups	70% of students report access to safe space Reduction in behavioral referrals	Lower anxiety, emotional outbursts, and masking behaviors Improved help-seeking skills
4. Inclusive SEL Skill Building	Redesign SEL content to be inclusive and relevant to students with ASD	Adapt goals and lessons Implement interest-based clubs for skill generalization	Adapted SEL goals in IEPs, 2 generalization opportunities per month	SEL growth aligned with authentic strengths; sustained peer interaction
5. Cultivate Autistic Identity and Self-Advocacy	Build student voice, agency, and pride in identity	Launch advocacy groups Support student-led IEPs Host showcase events	50%+ of students lead part of their IEP 1 showcase/semester	Greater self-determination and participation Improved school belonging and autonomy
6. School-Wide Infrastructure	Ensure long-term fidelity and cultural change	Form inclusion task force Provide coaching and PD Track implementation with APERS	Task force active; 2 fidelity checks/year; >85% goals implemented	Sustainable inclusion culture Consistent staff knowledge Improved program quality

Initiative 1: Embed Neurodiversity Education into SEL Frameworks

Students with ASD often report feeling misunderstood, stigmatized, or marginalized by peers and educators who lack foundational knowledge about autism (Botha et al., 2022; Hedges et al., 2014). These misunderstandings frequently lead to peer rejection, implicit teacher bias, and inconsistent implementation of individualized supports, which can negatively affect students' social-emotional development. One of the most effective ways to address these systemic issues is through neurodiversity education—an intentional, strengths-based approach that frames autism not as a deficit, but as a natural variation in cognitive functioning (Kapp et al., 2020; Shuck et al., 2022). This reframing aligns with the social model of disability, which emphasizes that many challenges faced by students with ASD stem from inaccessible or unsupportive environments rather than intrinsic deficits. Although they share common ground, the social model and the neurodiversity paradigm are not interchangeable. The social model highlights how environmental barriers create disability, while the neurodiversity paradigm extends this perspective by affirming autism as a natural and valuable form of human diversity, acknowledging that disability arises from both individual differences and systemic barriers (Dwyer, 2022). This distinction is particularly important in schools: reducing barriers alone is not enough—educators must also recognize and celebrate neurological differences as integral to identity. Framing autism through a neurodiversity lens shifts the focus from remediation to affirmation, creating the foundation for more inclusive practices that support students' strengths and foster belonging.

The literature reveals that many high school SEL initiatives are designed around neurotypical norms, and they often fail to account for the communication, sensory, and relational

differences experienced by students with ASD (Dean et al., 2020). Without explicit neurodiversity education, these programs risk reinforcing deficit-based narratives and unintentionally encouraging masking behaviors—a phenomenon in which students with ASD suppress or hide aspects of their identity to conform to neurotypical expectations. Masking has been linked to emotional exhaustion, identity confusion, and increased mental health challenges (Botha & Gillespie-Lynch, 2022). Embedding neurodiversity education into SEL frameworks is not only more inclusive but also essential for reducing stigma and supporting student well-being (Dwyer, 2022; Kapp, 2020).

This first improvement initiative begins with the development and implementation of professional development for educators, grounded in a neurodiversity-informed framework. The training will focus on three core areas: (1) understanding autism through a neurodiversity lens, (2) recognizing and addressing ableism and stigma in school settings, and (3) using student-centered practices to support self-advocacy and identity development (Brown et al., 2021; Dwyer, 2022; Shuck et al., 2022).

Educators will engage with authentic autistic voices through panel discussions, first-person narratives, and structured reflections—methods essential for challenging deficit-based assumptions and building empathy. These learning experiences echo Dwyer's (2022) call for inclusive, participatory approaches that position neurodivergent individuals as co-creators of knowledge and practice, rather than passive recipients.

In parallel, neurodiversity education will be extended to students through peer-led workshops, advisory activities, and school-wide awareness campaigns. The initiatives will utilize materials co-developed with students with ASD to ensure authenticity and relevance. Programs

such as *Peer Perspectives* or *Voices of Neurodiversity* will provide platforms for students to share their lived experiences, highlight both shared and diverse perspectives, and develop empathy and connectedness among peers (Kapp et al., 2020; Williams et al., 2019). Such initiatives align with best practices for promoting social inclusion and peer understanding (Humphrey & Lewis, 2008) and reflect recommendations for broadening neurodiversity education beyond classroom instruction to permeate the school culture.

The long-term goal of this initiative is to embed neurodiversity education into the everyday practices and culture of the school, not as a one-time event but as a sustained and evolving commitment. When schools equip both staff and students with the language and understanding needed to affirm neurodiverse identities, they create conditions for psychological safety, belonging, and inclusive participation. Research indicates that when students with ASD feel seen and valued, their engagement, confidence, and willingness to participate in SEL activities significantly improves (Smith & Jones, 2020; Williams et al., 2019).

Evaluation will include staff pre- and post-training surveys (Appendix I), student focus groups, and school climate assessments to track changes in perception, practice, and student experience. The survey gathers feedback on professional learning experiences, school climate changes, peer interactions, and perceptions of inclusion and belonging. Educator responses will help assess shifts in confidence and practice, while student input will measure awareness, acceptance, and sense of belonging. Results will inform ongoing refinement of neurodiversity-affirming practices and support continuous improvement efforts. Success indicators will include increased staff confidence in supporting neurodivergent learners, decreased reports of stigma or exclusion, and improvements in students' sense of belonging and peer relationships. In Year 1,

the initiative aims for 80% of school staff to complete the professional learning series, and for student surveys to reflect a measurable increase in peer understanding and acceptance. These outcomes will serve as a foundation for all subsequent SEL and inclusion initiatives, ensuring that all supports are rooted in affirmation, empathy, and equity.

Summary of Initiative 1

Initiative 1: Embed Neurodiversity Education into SEL Frameworks

Objective: Increase awareness and acceptance of neurodiversity among staff and students.

Actions:

- Develop a professional learning series for educators focused on autism acceptance, the neurodiversity paradigm, and student voice (Botha & Gillespie-Lynch, 2022); Kapp, 2020).
- Integrate student-led panels and stories to humanize autistic experiences and challenge deficit thinking (Smith & Jones, 2020).
- Launch a peer education campaign in health or advisory periods using student-created materials and videos.

Benchmarks:

- 80% of staff complete training in Year 1.
- Student climate surveys show increased knowledge and acceptance.

Measurement:

- Staff pre- and post- training surveys (Appendix I)
- Student focus groups
- School climate assessment

Anticipated Outcomes:

- Reduced stigma, increased peer inclusion, and teacher confidence in applying neurodiversity-informed strategies.

Initiative 2: Strengthen Peer-Mediated Interventions (PMIs)

PMIs are among the most consistently supported practices for increasing the social engagement of students with ASD in inclusive high schools (Carter et al., 2019; Gardner et al.,

2014). These interventions use structured social support from neurotypical peers to promote social reciprocity, foster meaningful relationships, and reduce isolation. Although PMIs have demonstrated significant benefits, their sustainability and effectiveness are often compromised by inconsistent implementation, a lack of neurodiversity-informed training for peer mentors, and limited attention to relationship quality outside of structured sessions (Dean et al., 2020; Owen-DeSchryver et al., 2024).

The findings in Section 2 highlight the potential of peer involvement to drive significant improvements. Structured peer programs, such as Peer Support, Peer Networks, and Peer to Peer, have significantly increased social interaction rates among students with ASD, from as low as 3% in baseline conditions to over 60% during active interventions (Gardner et al., 2014). Additionally, peer mentors benefit from these interventions, gaining empathy, leadership skills, and a deeper understanding of disability and inclusion (Owen-DeSchryver et al., 2024). However, many students with ASD continue to experience social isolation outside of structured interventions, indicating a need to support generalization and long-lasting peer relationships (Carter et al., 2019).

A neurodiversity-informed approach to PMIs expands the focus beyond skill acquisition to include mutual understanding, shared experiences, and respect for differences. Rather than training students with ASD to conform to neurotypical norms, peer programs should promote reciprocal learning that values the unique communication styles, interests, and relational preferences of students with ASD (Botha & Gillespie-Lynch, 2022; Kapp, 2020). This perspective aligns with Dwyer (2022), who emphasizes that meaningful inclusion must be relational and bidirectional, valuing autistic ways of being rather than expecting assimilation.

Implementing this initiative begins with enhancing the design and facilitation of peer-mediated programs (Appendix A). All participating peers will receive training grounded in neurodiversity principles and disability justice (Brown et al., 2021; Shuck et al., 2022). Training modules will cover autism acceptance, inclusive communication strategies, the role of minority stress in shaping autistic experiences, and the importance of creating affirming spaces. Peer mentors will also learn to support students by exploring shared interests, particularly those related to circumscribed interests (Turner-Brown et al., 2011), which can serve as a bridge to connection when acknowledged and embraced.

Programs will be co-facilitated by general and special educators trained in inclusive facilitation strategies. Structured meeting times during advisory periods, lunch breaks, or extracurricular clubs will offer regular opportunities for peer interaction. These settings will emphasize autonomy, consent, and student-led planning to ensure that interactions are genuine and aligned with students' social goals (Weiler et al., 2022).

To ensure the sustainability of peer relationships and generalization of social skills, PMI structures will incorporate inclusive, interest-based clubs that extend beyond formal programming. For instance, students who share interests in technology, gaming, or storytelling might form a club that meets weekly under staff guidance. Such affinity spaces reduce the pressure of conforming to neurotypical norms, allowing students with ASD to participate in ways that feel natural and comfortable (Kapp et al., 2012; Kuo et al., 2011).

This initiative is intentionally designed to recognize and respond to the different, overlapping aspects of identity that students with ASD may hold, such as race, gender, culture, or socio-economic status. As Owen-DeSchryver et al. (2024) noted, many peer mentors come

from a limited demographic background, which can unintentionally reinforce social inequities. Recruitment efforts will focus on increasing diversity to better reflect the broader student body and provide all students with access to relatable, supportive peers.

To evaluate the initiative's success, the school will conduct pre- and post-intervention assessments using social network analysis (Kasari et al., 2011), student self-reports, and fidelity checklists completed by staff facilitators. Benchmarks include a 25% increase in PMI participation among students with ASD, improved ratings on the Goal Attainment Scaling (Hume et al., 2022), and qualitative evidence of greater belonging and reduced isolation.

To evaluate the effectiveness of the strengthened PMIs, students and peer mentors will complete targeted surveys (Appendix J) measuring reciprocity, relationship quality, and sense of belonging. The student survey will capture participants' experiences of peer connection, acceptance, and inclusion, while the peer mentor survey will assess mentors' understanding of neurodiversity, the depth of peer relationships, and perceptions of school inclusivity. Together, these surveys will provide valuable insights into the authenticity and sustainability of peer relationships, informing ongoing improvements to program design and training.

This initiative reframes peer interaction as a site of mutual growth and understanding. The goal is to move these programs from short-term solutions to sustainable systems of inclusion through neurodiversity education. Through this initiative, PMIs have the potential to become one of the most powerful tools for supporting social-emotional development of students with ASD, particularly when peer relationships are built on respect, authenticity, and shared interests.

Summary of Initiative 2

Initiative 2: Strengthen Peer-Mediated Interventions (PMIs)

Objective: Develop authentic peer relationships and reduce social isolation.

Actions:

- Expand structured peer programs (e.g., Peer Support, Peer Networks, Peer to Peer) with trained facilitators (Carter et al., 2019; Gardner et al., 2014).
- Create inclusive extracurricular clubs centered around shared interests, especially circumscribed interests (Turner-Brown et al., 2011).
- Involve neurotypical peers in regular mentorship roles with ongoing training.

Benchmarks:

- 25% increase in student participation in PMIs.
- Weekly peer engagement logs and fidelity checklists.

Measurement:

- Social Network Analysis (SNA) before and after implementation (Kasari et al., 2011).
- Student and peer surveys to measure reciprocity and belonging.

Anticipated outcomes:

- Improved social engagement and self confidence among students with ASD
- Prosocial gains for peer mentors

Initiative 3: Support Emotional Regulation and Mental Health

The social-emotional development of high school students with ASD is significantly shaped by their ability to manage emotions, navigate stress, and build resilience. However, research consistently shows that students with ASD experience heightened levels of anxiety, depression, and emotional dysregulation, often exacerbated by social exclusion, masking demands, and systemic ableism within school environments (Botha & Gillespie-Lynch, 2022; Hammond & Hoffman, 2014). While these emotional challenges are frequently observed by teachers and parents, many students with ASD have difficulty recognizing or articulating their

distress due to limited emotional self-awareness or alexithymia (Semrud-Clikeman et al., 2016; Huggins et al., 2021).

The findings in Section 2 highlight the urgent need for the schools to implement mental health and emotional regulation strategies that are specifically tailored to the experiences of students with ASD. Traditional SEL programs often overlook or inadequately address the co-occurring conditions—such as anxiety, ADHD, and depression—that are prevalent among students with ASD (Accardo et al., 2024; Laugeson et al., 2012). Moreover, interventions grounded in neurotypical norms can inadvertently promote masking and identity suppression, leading to emotional exhaustion, internalized stigma, and decreased self-worth (Botha & Frost, 2020; Han, 2021).

A neurodiversity-informed approach requires that the schools acknowledge and address the cumulative impact of minority stress on the emotional well-being of students with ASD. Minority stress recognizes the chronic social adversity faced by marginalized groups, such as individuals with ASD, due to societal stigma, expectations to conform, and lack of affirming spaces (Botha & Frost, 2020; Cohen et al., 2022). Supporting emotional regulation is directly connected to creating psychologically safe environments where students are accepted as their authentic selves. To address these needs, this initiative proposes the integration of emotional regulation and mental health supports into the daily fabric of school life, with three core components: (1) on-site access to autism-informed mental health services, (2) implementation of targeted group-based interventions, and (3) the creation of masking-reduction supports and identity-affirming spaces.

First, schools must prioritize access to trained professionals who understand autism through a neurodiversity lens. This includes hiring school psychologists or counselors who are explicitly trained in autism and mental health comorbidities and who have experience supporting students with diverse communication and emotional profiles. These professionals will provide regular check-ins for students with identified emotional challenges, offering coping strategies that validate students lived experiences and support their autonomy. As Dwyer (2022) and Brown et al. (2021) emphasize, mental health supports for students with ASD must move beyond behavior control and instead focus on relational safety and co-regulation strategies. These strategies involve adults and peers actively modeling, scaffolding, and sharing emotional regulation skills with students, rather than expecting students to manage emotions on their own. In this context, co-regulation means that professionals support students with ASD by creating calm, predictable interactions, validating their emotions, and helping them navigate stress in real time. Examples include using supportive language, offering structured choices, practicing breathing or grounding techniques together, or simply staying present during moments of dysregulation. The key idea is that emotional regulation develops through relationships and trust, not through control or compliance.

Second, emotional regulation curricula such as Zones of Regulation or the UCLA PEERS emotional regulation modules will be adapted for high school students and delivered in small group settings. These groups will be facilitated by trained staff and co-designed with student input to ensure cultural and neurodiversity responsiveness. Lessons will focus on developing self-awareness, recognizing triggers, building self-advocacy skills, and learning co-regulation strategies that work in real-life contexts. Importantly, these groups will not focus on "fixing"

emotions or suppressing autistic expressions, but rather on helping students understand their unique emotional profiles and develop sustainable coping strategies.

Third, this initiative prioritizes the development of masking-reduction supports and affirming spaces. Many students with ASD report feeling pressured to mask their traits to avoid social punishment or to fit into neurotypical environments—an experience linked to increased anxiety, depression, and burnout (Botha & Gillespie-Lynch, 2022; Han, 2021). To reduce this pressure, the school will create low-stimulation "quiet zones" and identity-affirming student lounges where students can decompress, self-regulate, and be authentically themselves. These spaces will be co-designed with input from students with ASD and reviewed regularly to ensure they meet student needs.

The research also suggests that students with ASD benefit from having trusted adults and mentors with lived experience. As Weiler et al. (2022) found in their study of the Autism Mentorship Program (AMP), relationships with adults with ASD can help students develop emotional confidence and self-concept. The school will explore developing mentorship programs that connect students with adults with ASD from the community or through virtual platforms, providing models of identity-affirming resilience and emotional regulation.

Evaluation metrics for this initiative will include teacher and parent behavior rating scales such as the BASC-3 and BRIEF, administered at regular intervals to assess student progress in emotional regulation. In addition, students will complete self-assessments adapted to their communication profiles, measuring perceived stress, masking, and sense of emotional safety. A 50% reduction in emotional outbursts, increased help-seeking behaviors, and student reports of improved emotional regulation will serve as key success indicators.

This initiative integrates mental health supports within a neurodiversity-affirming framework, challenging traditional approaches that prioritize normalization of autistic behavior over the promotion of well-being. It emphasizes that the emotional experiences of students with ASD are inherently valid and deserving of care. These experiences should be supported through environments that affirm authentic identities rather than being dependent on conformity to external norms.

Summary of Initiative 3

Initiative 3: Support Emotional Regulation and Mental Health

Objective: Address co-occurring anxiety, depression, and emotional exhaustion.

Actions:

- Hire or designate a school-based mental health professional trained in autism and comorbidities (Botha & Frost, 2020).
- Implement group-based emotional regulation curricula (e.g., Zones of Regulation adapted for teens).
- Provide access to masking-reduction supports, including identity-affirming spaces.

Benchmarks:

- Monthly counseling check-ins for students with known emotional challenges.
- 50% reduction in crisis incidents and emotional outbursts.

Measurement:

- Teacher/parent BASC-3 and BRIEF ratings each semester (Semrud-Clikeman et al., 2016).
- Student-reported stress and masking inventories (Botha & Gillespie-Lynch, 2022).

Anticipated outcomes:

- Lower anxiety, emotional outbursts, and masking behaviors
- Improved help-seeking skills

Initiative 4: Inclusive SEL Skill Building

Although many SEL programs aim to support students' social-emotional development, few are intentionally designed to meet the needs of students with ASD in inclusive high school

settings. The findings from Section 2 reveal that current SEL interventions frequently prioritize neurotypical definitions of success and rely on structured social norms that do not reflect the lived experiences of students with ASD (Dean et al., 2020; Kapp et al., 2012). Furthermore, while many students with ASD benefit from direct instruction in communication and problem-solving skills, interventions that lack authenticity or reinforcement in real-world contexts often fail to generalize beyond structured sessions (Dean et al., 2020; Laugeson et at., 2012).

This initiative aims to enhance the relevance, accessibility, and effectiveness of SEL instruction by providing inclusive, neurodiversity-affirming social-emotional learning opportunities. The goal is not to "normalize" autistic behaviors but to equip students with tools for navigating social environments in ways that are both empowering and respectful of their identity (Brown et al., 2021; Dwyer, 2022).

The foundation of this initiative rests on adapting evidence-based SEL interventions, such as the UCLA PEERS program and the ENGAGE peer-mediated model, to better meet the needs of adolescents with ASD (Dean et al., 2020; Laugeson et al., 2012). PEERS provides structured lessons in social communication, friendship-building, and conflict resolution while engaging parents as partners. Its emphasis on real-life social rehearsal and home-based reinforcement has proven effective in increasing social responsiveness and peer relationships. However, as Dean et al. (2020) noted, when such programs are delivered in isolation without peer involvement or contextual generalization, students may experience elevated stress and internalized stigma.

To address these limitations, this initiative incorporates both direct instruction and peer-based generalization strategies. SEL skill-building groups will be co-led by trained educators and, where possible, co-facilitated by peer mentors or adults with ASD. Each group will include

structured lessons on self-advocacy, perspective-taking, managing social anxiety, and flexible thinking, while embedding time for informal discussion, problem-solving, and mutual support.

Importantly, SEL instruction will be adapted to align with autistic communication styles and preferences. For example, instruction will emphasize explicit language, visual supports, and opportunities to script or rehearse challenging conversations. Social goals will be individualized and determined in collaboration with students, allowing for variations in how students define and experience success in friendships (Kuo et al., 2011). As Kapp et al. (2012) suggested, understanding social interaction as a difference rather than a deficit, reframes SEL from a process of correction to one of empowerment.

To ensure generalization, the plan incorporates project-based learning and naturalistic social opportunities into SEL practice. After each instructional cycle, students will participate in small-group lunch clubs or classroom-based collaborative projects where they can apply their skills in authentic contexts. These environments will be scaffolded by teachers and peer mentors who understand the goals of the SEL program and can offer in-the-moment coaching and modeling (Carter et al., 2019).

To assess generalization effectively, multiple forms of data will be collected across settings, time points, and social partners. Teachers and peer mentors will use observation rubrics and reflection logs to document whether students are transferring skills such as perspective-taking, self-advocacy, and emotional regulation into unstructured or semi-structured environments like group projects, advisory periods, or club meetings. Periodic student self-assessments and peer feedback forms will offer additional insight into how students perceive their own growth and the relevance of SEL skills outside of formal instruction. Generalization

will also be monitored through case studies and goal attainment scaling (Hume et al., 2022), allowing the team to track individualized progress and adjust supports as needed. This multi-tiered approach ensures that social-emotional learning is not confined to isolated lessons but meaningfully embedded in the broader school experience.

Moreover, SEL lessons will center on identity-affirming content, integrating topics such as "What does friendship mean to me?", "How can I advocate for what I need in a group?", and "How do I manage when I feel overwhelmed or misunderstood?". This content moves beyond compliance-based instruction and into the realm of emotional agency and self-determination. As highlighted by Smith and Jones (2020), when students are encouraged to reflect on their identity, strengths, and needs, they become more confident in navigating complex social dynamics.

To reinforce this inclusive approach, students will set individual SEL goals (see Appendix B and C) using adapted versions of the Goal Attainment Scale (Hume et al., 2022). These goals will be reviewed regularly with support staff and integrated into IEPs where appropriate. For example, one student might set a goal to initiate a conversation once per week in a shared interest group, while another might focus on identifying emotional cues in conversations with familiar peers.

Assessment will also include observation checklists, student self-reflections, and input from peer mentors. Teachers and school counselors will participate in regular professional learning communities (PLCs) to review student progress and refine strategies for generalization and support. Student voice will be a central element in this process, ensuring that instructional strategies remain responsive, relevant, and respectful.

Through this initiative, SEL instruction becomes a collaborative, affirming, and empowering experience for students with ASD. Rather than imposing neurotypical norms of behavior, it creates space for diverse expressions of connection and communication. As both Dwyer (2022) and Shuck et al. (2022) argued, inclusion must move beyond the physical classroom to include pedagogical practices that affirm neurodivergent ways of being. This initiative embodies that shift, equipping students with the tools they need to engage meaningfully with others, advocate for themselves, and feel confident in who they are.

Summary of Initiative 4

Initiative 4: Inclusive SEL Skill Building

Objective: Provide direct instruction in social-emotional skills through affirming, peer-integrated models.

Actions:

- Deliver social skills interventions like UCLA PEERS or ENGAGE in co-facilitated formats (Dean et al., 2020; Laugeson et al., 2012).
- Pair SEL sessions with real-life generalization opportunities (lunch groups, projects).
- Adapt instruction to support varied definitions of friendship and social success (Kapp et al., 2012; Kuo et al., 2011).

Benchmarks:

- 2 SEL groups per semester, each with 6–8 students.
- Student progress monitoring using individualized SEL goal rubrics.

Measurement:

- Goal Attainment Scaling (Hume et al., 2022).
- Peer observation to assess generalization.

Anticipated outcomes:

- SEL growth aligned with authentic strengths
- Sustained peer interactions

Initiative 5: Cultivate Autistic Identity and Self-Advocacy

At the core of inclusive education is the belief that all students should be empowered to participate fully and meaningfully in their own learning journeys. For students with ASD, self-advocacy is an essential part of this process; however, educational systems emphasize compliance over voice, and normalization over identity (Kapp et al., 2012; Smith & Jones, 2020). This initiative aims to affirm autistic identity and support students in discovering, expressing, and advocating for who they are.

The findings presented in Section 2 indicate a recurring theme: students with ASD often experience disempowerment when they are not included in the development or direction of their educational supports (Hedges et al., 2014). Whether it's the lack of involvement in IEP meetings or limited opportunities to express preferences about friendships and classroom routines, students frequently feel that decisions are made about them rather than with them. Moreover, many experience internalized stigma, confusion about their diagnosis, or pressure to mask their differences to avoid judgment from others (Botha & Frost, 2020; Han, 2021).

To counter these challenges, Initiative 5 prioritizes student voice, neurodivergent identity development, and the creation of structures that elevate autistic perspectives. The first element of this initiative is the establishment of self-advocacy groups for students with ASD. These groups will be modeled after programs like the Autism Mentorship Program (Weiler et al., 2022) and designed as safe, affirming spaces where students can share experiences, develop goals, and build their self-advocacy toolkit.

Group sessions will include lessons and discussions on topics such as "What does it mean to be autistic?", "When and how should I disclose my diagnosis?", "What supports work for

me?", and "How do I advocate respectfully and effectively for what I need?" These conversations are not just about functional skills; they are about helping students understand that their identities are valid, valuable, and worthy of respect (Kapp, 2020; Botha & Gillespie-Lynch, 2022). Lessons will be adapted to reflect intersectional identities and cultural considerations, acknowledging that students may hold multiple marginalized identities that shape their advocacy experiences (Cohen et al., 2022).

Additionally, students will be encouraged to develop personal advocacy plans that align with their educational and social-emotional goals. These may include identifying preferred accommodations, practicing self-disclosure language, and setting boundaries around masking and emotional labor. In this context, emotional labor refers to the effort students put into hiding or managing behaviors and emotions to meet external expectations, a process that can be exhausting and detrimental to their well-being. Staff facilitators will be trained to support students with varying communication styles and self-awareness levels, using visual supports, sentence starters, and role-play to scaffold advocacy development.

The second component of this initiative is the integration of student-led participation in IEP meetings. Using the CSESA transition framework (Hume et al., 2022), students will prepare to take on meaningful roles in their annual meetings, including presenting a personal strengths profile, identifying their current supports, and proposing new goals based on lived experience. This approach helps educators and family members better understand the student's evolving perspective while developing autonomy and accountability. Research shows that when students are empowered to lead their IEP discussions, they demonstrate increased engagement, self-efficacy, and alignment between supports and needs (Test et al., 2009). Furthermore, it disrupts

the deficit framing that often characterizes IEP meetings and replaces it with a more balanced, collaborative process.

To further support identity development, schools will host quarterly "Identity & Interest Showcases" where students with ASD can share their passions, projects, and perspectives with the broader school community. These events may include student artwork, advocacy speeches, multimedia projects, and panel discussions. Showcasing student voices publicly affirms the value of neurodivergent perspectives and builds a culture of acceptance and pride.

Finally, schools will develop partnerships with local organizations and neurodivergent adults to provide mentoring opportunities. Whether through lunchtime conversations, virtual meetups, or guest speaker events, these mentorships offer students a glimpse of what successful, self-determined adulthood can look like for individuals with ASD (Weiler et al., 2022; Shuck et al., 2022).

Success in this initiative will be measured by the number of students actively participating in self-advocacy groups, the percentage of students leading portions of their IEP meetings, and qualitative feedback from students on their sense of agency and identity confidence. Qualitative interviews will be conducted with students both before and after participation, using a combination of scaled items and open-ended questions (see Appendix D) to capture shifts in students' feelings of belonging, self-advocacy skills, and identity pride. Additional indicators will include changes in staff attitudes and increased family engagement in supporting student voice.

Incorporating student-led advocacy into the heart of SEL and transition planning affirms what neurodiversity advocates have long argued: that meaningful inclusion cannot occur without

the empowerment of autistic people to define their own needs, goals, and paths. This initiative moves beyond compliance-based models and toward a future where autistic identity is seen not as a barrier to overcome, but as a valuable source of insight, innovation, and strength.

Summary of Initiative 5

Initiative 5: Cultivate Autistic Identity and Self-Advocacy

Objective: Promote student voice, identity acceptance, and ownership over educational experiences.

Actions:

- Launch self-advocacy groups for students with ASD with a focus on "coming out" support, identity exploration, and shared interests (Smith & Jones, 2020).
- Create student-led IEP preparation workshops using the CSESA transition curriculum.
- Include neurodivergent role models in career days and mentoring.

Benchmarks:

- 80% of students with ASD lead a portion of their IEP meeting within a year.
- Quarterly identity/interest-based student showcases.

Measurement:

- Student-reported self-efficacy scales.
- Qualitative interviews pre/post participation.

Anticipated outcomes:

- Greater self-determination and participation
- Improved school belonging and autonomy

Initiative 6: School-Wide Infrastructure for Sustained Implementation

To transform inclusive high schools into environments that affirm neurodivergent learners, sustained systemic change is essential. While the first five initiatives provide targeted strategies for supporting students with ASD, identity development, and peer engagement, these efforts must be embedded within a supportive infrastructure that ensures long-term success.

Initiative 6 focuses on building the operational and cultural capacity of schools to implement neurodiversity-affirming practices with fidelity, continuity, and shared ownership.

As identified in Section 2, implementation fidelity is a significant challenge in current SEL initiatives. Even effective programs, like the CSESA model, often experience uneven application due to staff turnover, limited professional development, or lack of administrative commitment (Steinbrenner et al., 2020). Teachers frequently report a lack of time, training, and coordination when trying to support students with ASD in meaningful ways (Kraemer et al., 2020). Without a cohesive system to support and monitor these efforts, even the most well-designed interventions struggle to sustain impact.

This initiative begins by establishing a cross-disciplinary Inclusion Task Force within the school. Comprising students with ASD, general and special educators, school counselors, family members, and administrators, the task force will serve as a leadership body responsible for guiding, coordinating, and evaluating the initiatives outlined in this plan. Meetings will be held monthly to review data, identify gaps, and co-create solutions grounded in the lived experiences of students with ASD. Including students with ASD and families in leadership roles ensures accountability and alignment with neurodiversity-affirming values (Botha & Gillespie-Lynch, 2022; Cohen et al., 2022).

Next, schools will conduct a baseline evaluation using the Autism Program Environment Rating Scale for Middle and High Schools (APERS-MHS), developed as part of the CSESA framework (Hume et al., 2022; Steinbrenner et al., 2020). This tool will be used to evaluate current practices across key domains such as social competence, communication, independence, and staff training. The results will inform the creation of a written Inclusion Action Plan, updated

annually, outlining goals, timelines, and resource needs for continued improvement (see Appendix E). To ensure fidelity and continuity, the APERS-MHS will also be administered twice a year, with structured protocols in place for observation, scoring, and data reflection. The biannual use of APERS-MHS supports ongoing program monitoring and serves as a cornerstone for improvement cycles (see Appendix G). Evaluation results will be summarized using a standardized scoring summary and action planning template that identifies strengths, areas for growth, and recommended steps for each domain (see Appendix H). This process allows schools to systematically track improvements, align resources, and maintain focus on inclusive excellence over time.

Professional development is a cornerstone of this initiative. All staff, teachers, support personnel, and administrators, will receive ongoing training on topics such as neurodiversity, identity-affirming practices, trauma-informed supports, and implementation of peer-mediated interventions (see Appendix F). This training will be delivered in a tiered format: an initial two-day summer institute followed by quarterly PLCs and monthly mini sessions embedded into staff meetings throughout the school year. Training will be co-facilitated by educators and autistic advocates whenever possible, ensuring authenticity and relevance (Brown et al., 2021; Shuck et al., 2022).

To maintain high implementation fidelity, schools will establish coaching and mentoring systems. Designated inclusion coaches will support staff in applying new strategies, co-planning SEL lessons, facilitating peer networks, and adapting instruction for diverse learners. Coaches will also lead PLCs where educators collaboratively reflect on data, share successes, and

problem-solve barriers. This embedded support model helps prevent initiative fatigue and builds collective efficacy (Fullan, 2016).

Effective resource allocation is essential to support systemic change. Administrators will ensure that staff have time for planning, collaboration, and implementation. Grant funding or district budgets will support the purchase of materials, training fees, and student stipends for leadership roles. A centralized inclusion hub, digital or physical, will house lesson plans, accommodation guides, communication tools, and celebration materials to support wide-scale adoption (Darling-Hammond et al., 2017).

Finally, data will be used not as a tool of compliance, but as a catalyst for continuous improvement. In addition to APERS-MHS, the school will use implementation fidelity rubrics, student climate surveys, and qualitative interviews with students and families to measure progress. These tools will ensure that decisions remain grounded in the real experiences of those most impacted.

With these structures in place, schools will be equipped to sustain the work of inclusion beyond a single school year. This initiative weaves together leadership, collaboration, accountability, and reflection into a framework that supports the long-term well-being of students with ASD.

Summary of Initiative 6

Initiative 6: School-Wide Infrastructure for Sustained Implementation

Objective: Establish a durable system of support integrating these initiatives across school systems.

Actions:

- Form an Inclusion Task Force including students with ASD, family members, general and special educators, counselors, and admin.

- Use CSESA's APERS-MHS to evaluate and improve current systems (Hume et al., 2022; Kraemer et al., 2020; Steinbrenner et al., 2020).
- Secure funding for ongoing professional development and staff release time.

Benchmarks:

- Biannual evaluation using APERS-MHS (Kraemer et al., 2020).
- Written inclusion action plans submitted annually.

Measurement:

- Implementation fidelity rubrics.
- Staff interviews and progress reports.

Anticipated outcomes:

- Sustainable inclusion culture
- Consistent staff knowledge
- Improved program quality

Conclusion

Taken together, these six initiatives represent a comprehensive, research-informed response to the challenges and opportunities for improvement identified in the literature on inclusive education for students with ASD. Each initiative builds on the others to form a layered system of support, one that is both responsive to individual needs and embedded in broader cultural transformation. As this plan moves into practice, it is essential to reflect on the vision that drives it: a future in which students with ASD feel safe, seen, and supported in every aspect of school life.

This improvement plan was developed to address a critical gap in inclusive education: the lack of neurodiversity-affirming support for high school students with ASD, particularly in SEL. Drawing from the synthesis of current research, this plan identifies both systemic challenges and promising practices that can inform more equitable, inclusive, and effective approaches.

The six interconnected initiatives: (1) embedding neurodiversity education, (2) expanding peer-mediated supports, (3) addressing emotional regulation and mental health, (4) redesigning SEL instruction, (5) elevating autistic identity and voice, and (6) building sustainable infrastructure, collectively reimagine what is possible for students with ASD in inclusive high schools. This improvement plan is grounded in the belief that students with ASD should not be just physically included, they should be empowered to thrive as their authentic selves.

The implementation of this plan requires time, commitment, and collaboration among stakeholders. Administrators play a critical role in driving systemic change by allocating resources, prioritizing inclusive practices, and embedding neurodiversity-affirming strategies into school policies and goals. Educators, families, peers, and, most importantly, students with ASD must work in partnerships to co-create learning environments that honor and respect neurological diversity. When schools make space for neurodivergent ways of thinking, feeling, and connecting, they enrich the educational experience for all students (Botha & Gillespie-Lynch, 2022).

This plan is not a final answer but a step forward toward meaningful inclusion of students with ASD in educational settings. Rather than serving as a checklist, it represents a systemic shift toward a school culture where students with ASD can thrive academically, socially, and emotionally. Each component is grounded in both the lived experiences of students with ASD and the core values of the neurodiversity movement (Botha & Gillespie-Lynch, 2022; Kapp, 2020), offering a blueprint for inclusive schools that prioritize connection, identity, and well-being.

To ensure the plan extends beyond theory and into practice, it is accompanied by a dedicated product for practitioners. This product translates the improvement plan into a practitioner-oriented format that highlights actionable strategies and tools for implementation. The goal is to make this research accessible and usable for educators, school leaders, and support staff who work directly in inclusive high school settings, thereby extending the reach and impact of the capstone.

Section 4: Summary

This doctoral capstone project critically examined the extent to which high school students with ASD receive adequate support for their social-emotional needs within inclusive educational environments. Research consistently demonstrates that these students face profound social-emotional challenges that adversely affect their social competence, emotional well-being, academic engagement, and sense of belonging (Botha & Gillespie-Lynch 2022; Huggies et al., 2021; Humphrey & Lewis, 2008; Lipscomb et al., 2017; Williams et al., 2019). Although inclusive education policies aim to promote access by integrating students with ASD into general education classrooms, many continue to experience persistent social isolation, bullying, and inadequate social-emotional support (Hebron & Humphrey, 2014; Hedges et al., 2014; Kraemer et al., 2020). As a result, students with ASD often struggle with peer relationships, heightened anxiety, and emotional regulation difficulties, which limit their ability to fully participate in school life (Botha & Gillespie-Lynch, 2022; Dean et al., 2020; Kreamer et al., 2020).

These challenges extend beyond high school, as students with ASD face elevated risks during the transition to adulthood, including higher unemployment rates, lower levels of social engagement, and difficulties achieving independent living skills (Anderson et al., 2014; Botha & Foster, 2020; Taylor et al., 2015). Historically, educational systems have prioritized academic achievement at the expense of building SEL skills (Carrington & Graham, 2001; Saggers et al., 2011). The focus on academics and conformity to neurotypical norms leads to increased social anxiety, low self-esteem, and emotional distress among students with ASD (McLaughlin & Rafferty, 2014; Van Steensel & Heeman, 2017). Challenges with interpreting social cues, forming meaningful friendships, and navigating peer relationships further heighten their

vulnerability to social rejection and bullying, often leading to long-term mental health difficulties such as depression, school avoidance, and difficulties in adult transitions (Baines, 2012; Botha & Gillespie-Lynch, 2022; Calder et al., 2013; Hammon & Hoffman, 2014).

Inconsistent teacher preparation and the lack of teacher and peer awareness exacerbate these challenges. While some educators understand the importance of neurodiversity-informed practices, many still lack the comprehensive training or resources needed to create truly inclusive school environments (Hill, 2014; Nicolaidis et al., 2019). Similarly, neurotypical peers often misinterpret or reject differences in communication and social behavior, contributing to the social exclusion of students with ASD (Milton, 2012; Sasson et al., 2017). Misunderstandings between autistic and non-autistic individuals together with differences in perceptions highlight the need for peer education and neurodiversity-affirming inclusive practices (Kap et al., 2012; Semrud-Clickman et al., 2016). Thus, evaluating how well legal mandates such as IDEA and ESSA (2015) translate into meaningful, targeted SEL support remains critical.

Although federal policies such as IDEA and ESSA mandate educational access, they do not specifically ensure that students with ASD receive comprehensive social-emotional support (Kraemer et al., 2020; Rotheram-Fuller et al., 2010). Despite a growing emphasis on SEL as foundational to academic success, few interventions are explicitly designed to accommodate the sensory, cognitive, and communicative profiles of students with ASD (McLaughlin & Rafferty, 2014). Even when evidence-based SEL programs are available, they often fail to systematically meet the social-emotional needs of adolescents with ASD (Botha & Gillespie-Lynch, 2022; Huggins et al., 2021; Williams et al., 2019;).

The emerging neurodiversity movement challenges traditional deficit-based perspectives, framing autism as a natural and valuable variation of human cognition (Kapp, 2020; Singer, 1998). From a neurodiversity-informed lens, many of the social-emotional challenges experienced by students with ASD arise from inaccessible or unsupportive school environments (Botha & Gillespie-Lynch, 2022). This reframing has prompted a growing recognition among educators and policymakers of the importance of incorporating peer education, sensory-friendly adaptations, and strengths-based approaches into school systems (Nicolaidis et al., 2019). Programs that actively engage students with ASD in designing their supports have shown promise for meaningful social inclusion and self-advocacy (Hotez et al., 2018; Gillespie-Lynch et al., 2017). Nonetheless, there remains a significant gap in research evaluating the long-term efficacy of SEL programs specifically tailored for high school students with ASD (Cohen et al., 2022).

This capstone project specifically sought to fill gaps in the literature by investigating how social-emotional challenges influence the school experiences of high school students with ASD—particularly their social skills, emotional health, academic involvement, and sense of belonging in inclusive settings. It synthesized the literature on the effectiveness of SEL interventions, the role of teacher and peer perceptions of neurodiversity in SEL interventions, and students' own views of their SEL experiences and social integration. Finally, the capstone aimed to develop practical recommendations for enhancing social-emotional outcomes through neurodiversity-affirming strategies.

Findings supported that social-emotional challenges significantly impact students with ASD across multiple domains. Students with ASD often encounter difficulties in building and

maintaining peer relationships due to communication differences, restricted interests, and divergent social norms (Kuo et al., 2011; Turner-Brown et al., 2011; Williams et al., 2019). These challenges frequently lead to bullying, peer rejection, and isolation, contributing to heightened anxiety, depression, and emotional exhaustion (Botha & Gillespie-Lynch, 2022; Hammond & Hoffman, 2014). Coupled with executive functioning difficulties, these emotional and social barriers further undermine academic engagement and overall school belonging (Hedges et al., 2014; Kraemer et al., 2020; Mayes et al., 2017).

SEL interventions, particularly PMIs, show promise in improving social competence by structuring peer interactions and reducing isolation (Carter et al., 2019; Gardner et al., 2014; Owen-DeSchryver et al., 2024). However, many interventions lack sustained implementation and comprehensive attention to emotional well-being and mental health support (Dean et al., 2020; Steinbrenner et al., 2020). Comprehensive models like CSESA have demonstrated potential but face challenges in maintaining fidelity and fully aligning with students' individualized needs (Hume et al., 2022).

In addition to structural and implementation challenges, the success of SEL interventions depends on the social context in which they are delivered. Teacher perceptions and peer attitudes emerge as critical factors in shaping the success of SEL supports. Teachers who view autism through a neurodiversity-affirming lens are better equipped to foster authentic inclusion and support emotional well-being (Kapp et al., 2012; Kraemer et al., 2020). In contrast, teachers lacking neurodiversity training may inadvertently contribute to stigma and limit students' social integration (Carter et al., 2019; Semrud-Clikeman et al., 2016). Similarly, while peer attitudes can improve through structured programs like PMIs, negative perceptions often persist outside

formal interventions, necessitating broader peer education efforts (Gardner et al., 2014; Hedges et al., 2014).

Students with ASD perspectives highlight the importance of sustained, authentic support for social engagement. While structured peer support and mentorship programs are generally appreciated, students with ASD frequently report persistent anxiety, stigmatization fears, and barriers to broader social integration (Gardner et al., 2014; Hammond & Hoffman, 2014; Hedges et al., 2014; Weiler et al., 2022). Their conceptions of friendship often diverge from neurotypical norms, emphasizing the importance of aligning SEL efforts with individual preferences and strengths (Kapp et al., 2012; Kuo et al., 2011).

In response to these findings, this project proposed a multi-tiered, neurodiversity-informed improvement plan aimed at transforming inclusive schools into supportive environments for students with ASD. The plan centers on embedding neurodiversity education explicitly within SEL frameworks through professional development, peer-led workshops, and school-wide awareness campaigns. It emphasizes strengthening peer-mediated interventions by expanding structured peer networks, providing mentor training in neurodiversity-affirming practices, and promoting inclusive extracurricular clubs focused on shared interests and relational authenticity. It also addresses emotional regulation and mental health by incorporating autism-informed counseling, creating accessible quiet zones for self-regulation, and implementing group-based interventions targeting anxiety, depression, and emotional exhaustion, with the goal of reducing masking behaviors and alleviating minority stress.

Additionally, the improvement plan calls for inclusive SEL skill-building through direct instruction of social skills adapted to the diverse needs of students with ASD, integrating peer-

facilitated sessions with opportunities for real-world generalization to support sustained social engagement. Cultivating autistic identity and self-advocacy is another core initiative, achieved by establishing self-advocacy groups, promoting student-led IEP participation, and hosting regular showcases affirming autistic strengths and voices. Finally, the plan recommends building a sustainable school-wide infrastructure, including the formation of an inclusion task force, the provision of ongoing professional development, and the establishment of systematic evaluation practices to monitor and refine implementation over time.

The expected outcomes of these initiatives include significant reductions in social isolation and bullying incidents, improved emotional well-being, and increased engagement and academic success for students with ASD. Centering autistic voices and embedding neurodiversity principles into school practices is anticipated to strengthen community cohesion, enhance peer understanding, and expand support networks. Empowering students with ASD through authentic inclusion and self-advocacy are also expected to boost their confidence, resilience, and long-term outcomes in both educational and life domains.

Critical analysis of next steps reveals several recommendations to further strengthen the proposed initiatives. Conducting longitudinal studies will be essential for evaluating the sustainability and long-term impact of neurodiversity-informed SEL practices. In addition, investing in ongoing professional development will ensure that educators are prepared to implement inclusive, student-centered strategies with fidelity. Expanding student participation in the design and refinement of SEL interventions will help maintain authenticity and responsiveness to student needs. Establishing regular feedback mechanisms among students, families, and educators will support continuous improvement. Finally, disseminating best

practices across broader educational communities will encourage systemic transformation and advance the vision of inclusive educational environments where all students can thrive.

Section 5: Product for Practitioners

The practitioner product developed for this capstone project is a professional article titled *Building Authentic Peer Connections: A Neurodiversity-Informed Approach to Peer-Mediated Interventions in High Schools.* The article aims to contribute to both academic discourse and practical application, allowing practitioners from diverse cultural and educational contexts to access and implement targeted interventions.

The article is written in an accessible style and translates findings from the doctoral capstone into actionable strategies that educators and school leaders can apply in secondary classrooms. Its primary focus is on PMIs, a well-established evidence-based practice for supporting social-emotional outcomes of students with ASD. Unlike compliance-based models that emphasize "fixing" students with ASD through scripted social skills training, this article reframes PMIs through a neurodiversity-affirming lens that highlights reciprocal relationships, shared interests, and authentic inclusion. The article provides practitioners with practical guidance on structuring PMI programs, training peer mentors, embedding student voice, and sustaining initiatives within existing school structures such as advisory periods or extracurricular activities.

Rationale for Selecting Peer-Mediated Interventions

This capstone project developed six initiatives for improving SEL outcomes for high school students with ASD. Out of these six initiatives, PMIs were selected as the focus for the practitioner article for three reasons.

First, PMIs directly address the most pressing problem identified in the study: the social isolation and lack of authentic peer relationships experienced by many students with ASD in

inclusive high school settings. While environmental adjustments, teacher training, and curriculum modifications are necessary, the most immediate and observable impact on students' sense of belonging often comes from their peer connections.

Second, PMIs are both highly adaptable and scalable. Schools with varying resources can integrate PMIs into advisory sessions, lunch groups, or interest-based clubs without requiring substantial funding or restructuring. This flexibility makes PMIs an appealing and feasible strategy for practitioners who need evidence-based practices that can be implemented across diverse contexts.

Third, PMIs provide mutual benefits for both neurodivergent and neurotypical students. Peer mentors develop empathy, leadership skills, and a broader understanding of diversity, while students with ASD gain access to authentic, affirming relationships. This dual benefit contributes to a more inclusive and compassionate school culture, aligning with the larger goals of this capstone project.

For these reasons, PMIs were identified as the most impactful initiative to highlight in the practitioner article, as they offer concrete strategies and ready-to-use tools.

Description of the Article

The article offers partial but targeted content from the larger capstone. Rather than reproducing the full study, it emphasizes the practitioner-facing aspects most useful for immediate application in schools. The structure of the article includes:

- Rationale for PMIs in high school settings, including research evidence on social-emotional challenges faced by students with ASD.

- Core principles of neurodiversity-affirming PMIs, shifting from assimilation to reciprocal, student-led engagement.
- Guidance for design and facilitation, including recruiting peer mentors, building activities around shared interests, and training adult facilitators.
- Sustainability strategies, such as embedding PMIs into advisory, electives, and extracurriculars.
- Assessment practices that extend beyond skill acquisition to include belonging, reciprocity, and identity safety.

Importantly, the article includes practitioner tools such as fidelity checklists, training outlines, and student reflection prompts. These resources make the article not only conceptual but also highly practical.

Dissemination Plan

The primary dissemination pathway for this product is submission to the *Journal of Educational Sciences and Psychology* with a target submission date of December. This journal provides an appropriate venue because it bridges research and practice, reaching both scholars and practitioners who are invested in advancing inclusive, evidence-based strategies in education. Its international readership offers the opportunity to share findings beyond a single national context, encouraging dialogue about neurodiversity-affirming approaches across diverse educational systems.

In addition to formal publication, the article will also be shared informally within professional learning communities, faculty meetings, and professional development sessions in the author's local context. These presentations will highlight practical steps for adopting PMIs,

provide opportunities for teacher reflection, and encourage collaboration between general education and special education staff. Dissemination in both formal and informal contexts will maximize the article's reach, ensuring that its strategies contribute to both scholarly conversation and day-to-day classroom practice.

Ultimately, this dissemination plan supports the broader purpose of the capstone: bridging the gap between research and practice to improve social-emotional outcomes for students with ASD in inclusive high school environments.

Anticipated Impact

The anticipated impact of this product is to equip practitioners with a practical, equity-centered strategy for addressing one of the most persistent challenges of inclusion: authentic peer belonging for students with ASD. Emphasizing reciprocity, student voice, and sustainability allows the article to reframe inclusion not as assimilation into neurotypical norms but as the cultivation of environments where diverse ways of relating and communicating are recognized and valued.

In conclusion, I chose to develop a practitioner article because I believe it represents the most direct, scalable, and transformative initiative from my capstone project. A focus on peer-mediated interventions enables the product to improve not only individual student outcomes but also whole-school culture, advancing a vision of inclusion that affirms neurodiversity and promotes a stronger sense of belonging for all students.

Appendices

Appendix A: Sample Peer Mentor Training Modules

Module 1: Understanding Neurodiversity

- Introduction to neurodiversity and the social model of disability
- Exploring autism as a difference, not a deficit
- Perspectives from individuals with ASD (video clips, quotes)

Module 2: Communication and Relationship Building

- Active listening and respectful communication strategies
- Supporting diverse communication styles (scripting, delayed responses)
- Practicing shared interest conversations

Module 3: Identity-Affirming Support

- What is masking and why does it matter?
- How to support peers with ASD without encouraging assimilation
- Recognizing and responding to signs of distress

Module 4: Boundaries, Consent, and Leadership

- Understanding personal space, boundaries, and consent
- Empowering peer mentors as allies, not “fixers”
- Role-playing common scenarios

Appendix B: Adapted SEL Goals for Students with ASD Adapted from Hume et al. (2022)

Goal Bank (Sample)

- I can identify when I need a break and use a strategy to ask for one.
- I can recognize when I’m feeling overwhelmed and choose a tool to help myself.
- I can ask a teacher or peer for clarification when I don’t understand a direction.

- I can express a preference or dislike using my preferred communication method.
- I can join a group activity based on a shared interest.
- I can reflect on a social experience and share what felt good or hard about it.

Each goal can be measured through:

- Student self-report and journaling
- Staff observation and checklists
- Goal Attainment Scaling (see Appendix C)

Appendix C: CSESA Goal Attainment Form (Modified)

Student Name: _____Date: _____

Goal Area	Description of Goal	Expected Outcome (0)	Less Than Expected (-1/-2)	More Than Expected (+1/+2)
Social Interaction	Students initiate a peer conversation once per day.	1 per day	1 per week (-1), none (-2)	2+ per day (+1), spontaneous social invitations (+2)
Emotional Regulation	Students use a break card before escalation.	Uses card in 2 of 3 incidents	1 of 3 (-1), none (-2)	3 of 3 (+1), independently schedules break (+2)

Appendix D: Student Voice & Self-Advocacy Survey (Sample Items)

Instructions: Rate how true each statement is for you. Use a scale from 1 (Not True) to 5 (Very True).

1. I feel comfortable being myself at school.
2. I know how to ask for help when I need it.
3. My teachers understand how I learn best.
4. I feel included in classroom activities.
5. I have at least one adult at school I trust.
6. I can talk about my interests with others.
7. I understand what it means to be autistic.
8. I feel proud of who I am.
9. I help make decisions about my learning or accommodations.
10. I feel safe using my preferred ways of communicating.

Open-ended Questions:

- What helps you feel like you belong at school?
- What would you like your teachers or classmates to understand about you?

Appendix E: Implementation Timeline & Benchmark Tracker

Month	Action Step	Responsible Team	Benchmark	Notes
August	Form Inclusion Task Force	Admin / SPED Lead	Task force formed with student reps	
September	Conduct APERS-MHS baseline evaluation	Inclusion Coach	Evaluation report submitted	

October	Launch professional development for teachers and Peer Mentor Training	SEL Team	80% of mentors trained
November	Begin Self-Advocacy Groups	Counselor / Mentor	Group meets 2x/month
December	Mid-year fidelity check	Task Force	85% of goals on track
March	Student Voice Showcase	Inclusion Team	At least 10 participants
May	End-of-year review and planning	All stakeholders	Report & plan for next year completed

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Appendix F: Professional Development Slide Deck Excerpts

Slide Titles and Content Highlights:

- Slide 1: *Why Neurodiversity Matters*
  "If you've met one autistic person... you've met one autistic person." — Dr. Stephen Shore
- Slide 2: *Understanding the Social Model of Disability*
  Explains the difference between medical and social models with school-based examples.
- Slide 3: *How Ableism Shows Up in Schools*
  Implicit expectations to mask, underestimation of strengths, exclusion from leadership
- Slide 4: *From Compliance to Connection*
  Strategies for relationship-building and co-regulation in the classroom
- Slide 5: *Student Voice and Self-Advocacy*
  Examples of student-led IEPs, goal-setting, and feedback tools

- Slide 6: *Making SEL Inclusive*
  Adapting CASEL competencies using autistic-friendly visuals and language

Each training includes built-in reflection time, breakout discussions, and teacher planning protocols.

Appendix G: Biannual Evaluation Protocol Using APERS-MHS

Adapted from Kraemer et al., 2020

Evaluation Component	Details
Evaluation Frequency	Twice per year (Fall and Spring)
Tool Used	Autism Program Environment Rating Scale – Middle/High School version (APERS-MHS)
Evaluation Methods	Classroom observations, staff interviews, document reviews
Domains Assessed	Learning environment, instructional practices, communication, social competence, transition
Evaluator Qualifications	Trained evaluators with experience in ASD and inclusive education
Use of Results	To guide professional development, inform instructional changes, and track program quality over time

Appendix H: Sample APERS-MHS Scoring Summary and Action Plan

Adapted from Kraemer et al., 2020

APERS Domain	Score (1–5)	Strengths Identified	Areas for Improvement	Recommended Actions
Learning Environment	3	Classroom is structured and visually organized	Sensory accommodations not consistently implemented	Introduce calming corner and noise-canceling headphones
Instructional Practices	4	Use of evidence-based academic supports	Differentiation for varying abilities	Co-plan differentiated tasks and scaffolds
Communication	2	Some visual supports present, but inconsistent	Lack of augmentative communication tools	Provide Augmentative and Alternative Communication (AAC) training for staff
Social Competence	3	Peer interaction opportunities exist	Limited adult facilitation of social skills	Assign peer buddies with teacher prompts
Transition	4	Student portfolios include transition goals	Need for more community-based transition experiences	Schedule job shadowing opportunities

Appendix I: Improvement Initiative 1 Implementation Survey: Embedding Neurodiversity Education in SEL

Section A: Educator Survey

Purpose: To gather staff perspectives on neurodiversity education implementation, professional learning effectiveness, and changes in school culture.

Instructions: Please answer the following questions honestly. Your feedback will help us refine our efforts to build a more inclusive school environment.

1. Professional Learning & Knowledge

1.1 I have completed professional development on neurodiversity and autism-informed practices.

☐ Yes
☐ No
☐ Partially

1.2 As a result of the training, I feel more confident supporting neurodivergent students in my classroom.
☐ Strongly Agree ☐ Agree ☐ Neutral ☐ Disagree ☐ Strongly Disagree

1.3 The training addressed ableism and stigma in meaningful and applicable ways.
☐ Strongly Agree ☐ Agree ☐ Neutral ☐ Disagree ☐ Strongly Disagree

1.4 I regularly incorporate neurodiversity-affirming content into my SEL lessons or advisory.
☐ Always ☐ Often ☐ Sometimes ☐ Rarely ☐ Never

2. School Climate & Practice

2.1 Our school culture affirms and celebrates neurodiversity.
☐ Strongly Agree ☐ Agree ☐ Neutral ☐ Disagree ☐ Strongly Disagree

2.2 I have observed a reduction in stigma or exclusion of neurodivergent students.
☐ Strongly Agree ☐ Agree ☐ Neutral ☐ Disagree ☐ Strongly Disagree

2.3 Student voices, including those of neurodivergent students, are centered in school events and planning.
☐ Strongly Agree ☐ Agree ☐ Neutral ☐ Disagree ☐ Strongly Disagree

2.4 I've noticed more inclusive peer interactions and classroom dialogue since implementation began.
☐ Strongly Agree ☐ Agree ☐ Neutral ☐ Disagree ☐ Strongly Disagree

3. Reflection

3.1 What has been the most impactful aspect of the neurodiversity initiative so far?
Open response

3.2 What additional support or resources would help you continue this work?
Open response

Section B: Student Survey (Grades 9–12)

Purpose: To understand student experiences with neurodiversity education and peer interactions at school.

Instructions: Choose the answer that best reflects your experiences.

1. Understanding & Acceptance

1.1 I've learned about neurodiversity through class lessons, advisory, or school events.
☐ Yes ☐ No ☐ Not Sure

1.2 I understand that neurodiversity means people think, feel, and learn in different ways—and that's okay.
☐ Strongly Agree ☐ Agree ☐ Neutral ☐ Disagree ☐ Strongly Disagree

1.3 Our school helps all students feel included and respected, no matter how they learn.
☐ Strongly Agree ☐ Agree ☐ Neutral ☐ Disagree ☐ Strongly Disagree

1.4 I feel comfortable being myself at school.
☐ Strongly Agree ☐ Agree ☐ Neutral ☐ Disagree ☐ Strongly Disagree

2. Peer Interactions

2.1 I've become more understanding of classmates who think or act differently from me.
☐ Strongly Agree ☐ Agree ☐ Neutral ☐ Disagree ☐ Strongly Disagree

2.2 I see students with and without disabilities interacting and working together at school.
☐ Strongly Agree ☐ Agree ☐ Neutral ☐ Disagree ☐ Strongly Disagree

2.3 I would feel comfortable being partnered with a student who communicates or learns differently.
☐ Strongly Agree ☐ Agree ☐ Neutral ☐ Disagree ☐ Strongly Disagree

3. Voice & Belonging

3.1 Students like me have opportunities to speak up and share our experiences.
☐ Strongly Agree ☐ Agree ☐ Neutral ☐ Disagree ☐ Strongly Disagree

3.2 I feel like I belong at this school.
☐ Strongly Agree ☐ Agree ☐ Neutral ☐ Disagree ☐ Strongly Disagree

4. Optional Reflection

4.1 What's one thing you've learned or experienced related to neurodiversity this year?
Open response

4.2 What could our school do to make all students feel more included and accepted?
Open response

Appendix J : Student and Peer Survey for PMIs

Student Survey: Peer-Mediated Intervention Experience

(for students participating in PMIs)

Instructions: Please answer honestly about your experiences with peer mentoring and friendship opportunities at school.

1. Connection with Peers

1.1 I have at least one peer at school I feel comfortable spending time with.

☐ Strongly Agree ☐ Agree ☐ Neutral ☐ Disagree ☐ Strongly Disagree

1.2 My peer mentor(s) listen to me and respect how I want to interact.
☐ Strongly Agree ☐ Agree ☐ Neutral ☐ Disagree ☐ Strongly Disagree

1.3 I have shared activities or interests with my peer mentor(s).
☐ Strongly Agree ☐ Agree ☐ Neutral ☐ Disagree ☐ Strongly Disagree

2. Sense of Belonging

2.1 I feel included when I am with my peer mentor(s) or peer group.
☐ Strongly Agree ☐ Agree ☐ Neutral ☐ Disagree ☐ Strongly Disagree

2.2 I feel like I am accepted for who I am at school.
☐ Strongly Agree ☐ Agree ☐ Neutral ☐ Disagree ☐ Strongly Disagree

2.3 I feel less alone at school because of my peer connections.
☐ Strongly Agree ☐ Agree ☐ Neutral ☐ Disagree ☐ Strongly Disagree

3. Optional Reflection

3.1 What is one thing you enjoy about being part of the peer program?
Open response

3.2 What could make your experience with peers even better?
Open response

Peer Mentor Survey: Peer-Mediated Intervention Experience

(for peer mentors participating in PMIs)

Instructions: Please reflect on your experience being a peer mentor and how you connect with students in your group.

1. Relationship Building

1.1 I feel that my peer partner(s) and I have built a meaningful connection.
☐ Strongly Agree ☐ Agree ☐ Neutral ☐ Disagree ☐ Strongly Disagree

1.2 I understand and respect the different ways my peer partner(s) communicate or socialize.
☐ Strongly Agree ☐ Agree ☐ Neutral ☐ Disagree ☐ Strongly Disagree

1.3 We have found shared activities, topics, or interests to enjoy together.
☐ Strongly Agree ☐ Agree ☐ Neutral ☐ Disagree ☐ Strongly Disagree

2. Inclusivity and Learning

2.1 Being a peer mentor has helped me better understand neurodiversity and inclusion.

☐ Strongly Agree ☐ Agree ☐ Neutral ☐ Disagree ☐ Strongly Disagree

2.2 I feel that students in our group are valued and respected for who they are.
☐ Strongly Agree ☐ Agree ☐ Neutral ☐ Disagree ☐ Strongly Disagree

2.3 I believe our school is becoming more inclusive because of programs like this.
☐ Strongly Agree ☐ Agree ☐ Neutral ☐ Disagree ☐ Strongly Disagree

3. Optional Reflection

3.1 What is one thing you have learned through this peer mentoring experience?
Open response

3.2 How could we improve the peer program for everyone involved?
Open response

Table 2: Research Literature Matrix

Focus	Study Authors	Stated Purpose of Research	Research Question(s)	Participant	Design	Independent Variable	Dependent Variable	Results
Impact of clinic-based vs peer-mediated social skills interventions	Dean et al., 2020	Compare "skills" (clinic-based) vs "engage" (peer-mediated) interventions on social engagement	How do "skills" and "engage" impact engagement and outcomes?	62 adolescents with ASD, IQ ≥70, in general education 80%+	Randomized Controlled Trial	Type of intervention	Measures of engagement, self-reports, teacher reports	Both improved; "engage" reduced social stress, "skills" increased emotional symptoms
PEERS parent-assisted social skills program	Laugeson et al., 2012	Assess PEERS effectiveness on social skills, responsiveness, interactions	Does PEERS improve social outcomes? Are gains maintained?	28 adolescents, ages 12-17, high-functioning ASD	Randomized Controlled Trial	Participation in PEERS	Social skills, social responsiveness, peer interactions	Significant gains maintained over 14 weeks, higher social skills and peer interaction
Peer networks for high school students with ASD	Gardner et al., 2014	Impact of peer networks on social interactions and skill development	Do peer networks increase social engagement?	2 high school students with ASD + peers	Single-case experimental (ABAB, ABA)	Implementation of peer networks	Frequency and quality of interactions	Increased social engagement; reduced when withdrawn; challenges in fidelity

Social functioning and perception in HFA, NLD, TD children	Semrud-Clikeman et al., 2016	Evaluate differences in social perception and functioning	How do HFA and NLD differ from TD peers?	105 children (HFA, NLD, TD), ages 8.5-16.6	Comparative quantitative study	Diagnostic group (HFA, NLD, TD)	Social perception, executive functioning	HFA had most difficulty; both clinical groups struggled with nonverbal cues
Quality of high school ASD programs	Kraemer et al., 2020	Assess program quality using APERS-MHS	What is overall program quality and demographic influences?	60 high schools, 547 ASD students	Randomized Clinical Trial	Type of program (standard vs modified diploma)	Program quality domains	Modified programs better in transition domains; suburban schools scored higher
Circumscribed interests (CIs) in ASD	Turner-Brown et al., 2011	Examine characteristics and impact of CIs	How do CIs impact functioning?	60 ASD, 63 TD children, ages 6-17	Mixed-methods study	Presence of ASD diagnosis	Functional impairment, CI characteristics	CIs linked to impaired social/adaptive functioning
Medical vs Neurodiversity models	Kapp et al., 2013	Explore perceptions of autism and neurodiversity	How do different groups conceptualize autism?	657 participants (autistic, parents, friends, general public)	Online survey	Relationship to autism	Attitudes toward autism and interventions	Deficit-as-difference model; overlap between models identified

Friendship perceptions and activities in adolescents with ASD	Kuo et al., 2013	Compare adolescent and parent perceptions of friendships	How are friendship qualities perceived and maintained?	91 adolescents with ASD and parents	Survey-based quantitative study	ASD characteristics and demographics	Friendship characteristics and activities	Structured activities important; gender differences in activities
Challenges in high school for students with ASD	Hedges et al., 2014	Identify challenges via stakeholder perspectives	What challenges exist for high school ASD students?	41 stakeholders (students, parents, educators)	Qualitative focus group study	Stakeholder category	Identified challenges	Communication gaps, lack of ASD knowledge, interpersonal difficulties
Outcomes for peer partners in interventions	Owen-DeSchryver et al., 2024	Examine academic and behavioral changes in peer partners	What changes occur in peers after program participation?	204 peer partners in 8 high schools	Longitudinal study	Participation in Peer to Peer program	GPA, attendance, behavior	GPA increased; better attendance; fewer behavioral referrals
Efficacy of CSESA intervention	Hume et al., 2022	Assess CSESA on student and family outcomes	Does CSESA improve program quality and student outcomes?	547 ASD students, diverse backgrounds	Cluster randomized control trial	Participation in CSESA	Program quality, student goal attainment, standardized outcomes	Improved goal attainment and program quality; no significant standardized score gains

Autism Mentorship Program (AMP) outcomes	Weiler et al., 2022	Evaluate AMP feasibility and effects on well-being	Does AMP improve mentee and mentor outcomes?	7 adolescent mentees, 7 adult mentors, 8 parents	Single-group pilot study	Participation in AMP	Self-concept, social-emotional behavior, relationship satisfaction	Improvements in self-concept, social skills; high satisfaction
Feasibility of peer-mediated interventions	Carter et al., 2019	Examine implementation and acceptability of peer interventions	Who participates and how are interventions implemented?	102 high school students with ASD	Exploratory quantitative study	Participation in peer-mediated interventions CSESA schools	Implementation fidelity, educator perceptions	Positive perceptions; challenges in consistent implementation
CSESA comprehensive intervention assessment	Steinbrenner et al., 2020	Evaluate implementation fidelity and student outcomes	Does CSESA improve student educational and social outcomes?	547 students across 60 high schools	Randomized Controlled Trial	CSESA participation	Goal attainment, program quality, standardized outcomes	Improved program quality and goal attainment; no standardized measure difference
Anxiety and depression in adolescents with HFA	Hammond & Hoffman, 2014	Assess comorbid anxiety and depression	Are anxiety and depression elevated in HFA adolescents?	14 adolescents with HFA, parents, teachers	Quantitative study	HFA diagnosis	Anxiety and depression symptoms	Elevated anxiety and depression; discrepancies in self vs informant reports

Academic achievement in ASD and ADHD	Mayes et al., 2020	Prevalence of over- and underachievement	How common is academic over/underachievement in ASD and ADHD?	663 children (164 ASD, 499 ADHD), ages 6-16	Retrospective quantitative study	Diagnosis (ASD vs ADHD)	Achievement relative to IQ	Overachievement rare; underachievement common, especially in writing
Prevalence of dysgraphia in ASD and ADHD	Mayes et al., 2017	Assess dysgraphia across grade levels	How prevalent is dysgraphia, and does it decline with age?	1,034 students with ADHD or ASD, ages 6-16	Cross-sectional quantitative study	Diagnosis (ADHD vs ASD)	Dysgraphia presence	High prevalence; persistence across age; significant impact on academic performance

Table 3: Literature map

RQ1: How do social-emotional challenges impact the social competencies, emotional well-being, academic engagement, and sense of belonging of high school students with ASD in inclusive environments?	RQ2: What is the effectiveness of existing SEL interventions in supporting social competence, emotional well-being, academic engagement, and sense of belonging, and how well do these interventions align with the individualized needs of students with ASD?	RQ3a–c: How do teachers', peers', and students' perceptions and awareness of neurodiversity principles influence inclusion, social integration, and SEL experiences of students with ASD?
Hammond & Hoffman, 2014	Carter et al., 2019 (Peer-Mediated Intervention)	Gardner et al., 2014
Hedges et al., 2014	Dean et al., 2020 (SKILL & ENGAGE)	Hedges et al., 2014
Kapp et al., 2012	Gardner et al., 2014 (Peer Network)	Kapp et al., 2012
Kraemer et al., 2020	Hume et al., 2022 (CSESA Model)	Kraemer et al., 2020
Kuo et al., 2013	Laugeson et al., 2012 (PEERS)	Kuo et al., 2013
Mayes et al., 2017	Owen-DeSchryver et al., 2024 (PMIs)	Owen-DeSchryver et al., 2024
Mayes et al., 2020	Steinbrenner et al., 2020 (CSESA Model)	Semrud-Clikeman et al., 2016
Semrud-Clikeman et al., 2016	Weiler et al., 2022 (Mentoring Intervention)	
Turner-Brown et al., 2011		

Table 4: Social-Emotional Challenges and Their Impact on SEL Outcomes for High School Students with ASD in Inclusive Environments

SEL Outcomes	Common SEL challenges	Key findings	Studies
1. Social Competencies		Social competence is identified as a critical area of need for high school students with ASD, with program quality ratings in this domain falling below the minimally adequate threshold.	Kraemer et al, 2020
	Restricted and Repetitive Behaviors and Interests (RRBIs)	Students with ASD form friendships through overlapping interests rather than traditional social dynamics. Social interactions are shaped by structured activities. Circumscribed interests (CIs) can sometimes make reciprocal relationships difficult. CIs influence social behavior and peer relationships. 88% of students with ASD are affected by this.	Kuo et al., 2011
	Relationship skills	Rigid and repetitive behavior patterns are among the most challenging aspects of autism they face in daily life. CI are described as a double-edged sword: they provide comfort and enjoyment but may also create functional impairments in daily life with a negative impact on making friendships	Turner-Brown et al., 2011; Kapp et al. 2013;
		A focus on shared interests often replaces the social foundations of friendships in adolescents with ASD, further differentiating their social experiences from typically developing peers. They may not understand or navigate social hierarchies, leading to rejection and a lack of social support.	Kapp et al. 2013;
		Lower flexibility in shifting interests and less inclination to involve others in their interests, with all differences reaching statistical significance ($p < .05$).	

	Struggle with social communication and experience difficulty forming relationships.	
Communication Challenge	Difficulty with reciprocal conversations, interpreting social cues, and peer interactions can lead to misunderstandings, social isolation, and limited friendships.	Strahan & Poteat, 2020 Hollin & Pearce, 2019;
Social awareness	The self-awareness of social deficits can contribute to emotional distress, social isolation, and difficulties in forming meaningful relationships. Difficulty in understanding social cues and empathy: Adolescents with autism fail to develop social reorientation (the natural shift from parent-centered to peer-centered social engagement). This prevents them from forming close friendships or romantic relationships, leading to long-term social isolation and anxiety.	Dean et al., 2020; Laugeson et al., 2012
Social Isolation	Higher rates of ***bullying and social exclusion*** due to differences in social behavior, sensory sensitivities, and difficulties navigating peer relationships. Leads to increased social withdrawal, anxiety, and distrust.	Hedges et al., 2014;
Stigmatization from Peers	Neurotypical peers may perceive students with ASD as "different" or "awkward," contributing to exclusion and limited social opportunities. Misunderstandings exacerbate peer connection difficulties. The stigma of being "othered" and labeled as socially deficient can lead to internalized oppression, anxiety, and a self-fulfilling prophecy of social failure.	Botha & Gillespie-Lynch, 2022;

2. Emotional well-being	**Emotional regulations (self-management challenges)**	Parents in the study often focused on the emotional burden of autism, viewing it as something that needed to be addressed through intervention; higher sensitivity to stress and anxiety.	Kapp et al. 2013
		If high school students with ASD rely heavily on CI for emotional regulation, they may struggle with social-emotional adjustment when these interests are not accommodated in inclusive settings.	Turner-Brown et al., 2011
		Adolescents with autism exhibit atypical risk-taking behaviors—some may engage in more impulsive behaviors due to poor cognitive control, while others may display excessive risk aversion, avoiding new experiences that promote independence	
	Emotional Self-Awareness	When compared with peers of the same age, difficulties emerged during adolescence (d=0.63) and increased with age (d=1.16 – 1.58).Negative self-beliefs of individuals with ASD may account for the findings of low self-awareness.These results indicate that emotional self-awareness difficulties in autism may not be innate but may develop alongside social and mental health challenges during adolescence.	Huggins et al. 2021
		difficulty interpreting emotional cues	Semrud-Clikeman et al., 2016
		executive functioning impairments, such as difficulties with working memory and emotional regulation, were significantly correlated with poor social perception	
	Co-occurring Anxiety	62% of females and 37% of males with ASD experience significant anxiety, exacerbated by social stress, fear of judgment, and unpredictable social environments.	Kapp et al., 2013; Accardo et al.,2024
			Ahlers et al., 2017
		The severity of autism symptoms was positively correlated with higher anxiety levels (as reported by parents).	Hammond & Hoffman, 2014

	Low Self-Esteem Depression	Increased risk of depression due to chronic social isolation and peer rejection. Internalization of negative reactions leads to low self-esteem and social withdrawal.	Botha & Frost, 2020 Hammond & Hoffman 2014
	ADHD Co-occurrence	50% of males and 57% of females with ASD also have ADHD, which leads to higher impulsivity, frustration, and difficulty maintaining focus. This can result in emotional outbursts and heightened stress. Underachievement is far more prevalent than overachievement in both ASD and ADHD (connection with academic outcomes)	Accado et al., 2024 Mayes et al., 2017 Mayes et al., 2020
	Emotional Exhaustion & Masking	Many students engage in "masking" to conform to neurotypical social norms, leading to exhaustion, burnout, and worsening mental health.	Botha & Gillespie-Lynch, 2022
3. Academic Engagement	**Limited Participation in General Education and Classroom Activities**	Anxiety, sensory overload, and fear of peer judgment lead to avoidance behaviors, reduced verbal contributions, and lower engagement in group activities. Despite 59% of ASD students not having an intellectual disability, they are underrepresented in general education, limiting access to rigorous academic content. Only 42% of students with ASD spend 80%+ of their time in general education, restricting peer integration and social skill development.	Kraemer et al., 2020;
	Executive Functioning Challenges	Task initiation, organization, and sustained attention difficulties (linked to ADHD) impede academic progress. Structured support and scaffolding are needed.	Kapp, 2013; Kraemer et al., 2020; Hedges et al., 2014
	Motivation & Interest-Based Learning	Interest-based learning (incorporating CIs into lessons) improves engagement, focus, and retention.	Botha & Frost, 2020;

4. Sense of Belonging	**Stigma & Internalized Exclusion**	Many ASD students describe themselves as "weird" or "outsiders" due to bullying, exclusion, and lack of peer acceptance, impacting confidence.	Hedges et al., 2014; Botha & Gillespie-Lynch, 2022
	Neurodiversity & Identity Struggles	Pressure to conform to neurotypical norms leads to identity struggles and emotional stress. Lack of awareness of neurodiversity exacerbates this issue. Autistic individuals tend to see autism as an inseparable part of their identity. Many reported positive emotions about their autism, while others struggled with social stigma. Parents, in contrast, often viewed autism as something to be "treated" rather than an identity to embrace.	Botha & Gillespie-Lynch, 2022; Kapp et al.2013
	Lack of Autism-Friendly Environments	Many schools lack sensory-friendly spaces, social skill interventions, and teacher training, leading to stress, disengagement, and withdrawal.	Kraemer et al., 2020; Botha & Frost, 2020

Table 5: Existing SEL Interventions and Their Effectiveness and Impact on Social-Emotional Challenges of High School Students with ASD

Type of Intervention	Study Authors	Effectiveness	Impact on SEL Outcomes
Clinic-Based (PEERS)	Laugeson et al. (2012)	Improved social responsiveness, motivation, and peer engagement; parent-assisted model reinforced skills.	Reduced social anxiety with parental support but lacked long-term data on anxiety reduction.
Peer-Mediated (ENGAGE)	Dean et al. (2020)	Lower social stress, improved social relationships, better engagement in inclusive settings.	Mitigated social anxiety through peer involvement, fostering real-world social skills application.

Clinic-Based (SKILLS)	Dean et al. (2020)	Improved social engagement but led to increased self-awareness and social stress.	Increased social stress and emotional difficulties due to heightened awareness of social deficits.
Peer Network Interventions	Garder et al. (2014)	Increased social engagement and peer interaction.When the intervention was withdrawn, social interactions and engagement levels dropped significantly.	Through participation in peer groups, students developed communication skills, increased their ability to engage in reciprocal interactions, and improved their sense of belonging
Peer Mediated Intervention	Owen-DeSchryver et al., 2024	Positive academic and behavioral changes were observed in peer partners: GPA, Attendance, Behavior	Peer mediation intervention shows positive effects on peers without disabilities. Implicit benefits - change peer perceptions about students with ASD, reducing stigma and social isolation.
Two Peer Mediated Peer support arrangements Peer networks	Carter et al., 2019	Peer-mediated interventions were implemented with a diverse range of students, including those with high and low cognitive abilities. Students pursuing an alternative diploma were more likely to receive these interventions. Students with higher IQs were less likely to receive peer-mediated interventions	Findings show that students with ASD struggle with forming social connections in inclusive settings, which can impact their sense of belonging. The study does not directly measure emotional well-being or academic engagement, but it does highlight that educators view these interventions as helpful in supporting social competencies and peer interactions.
Center on Secondary Education for Students with Autism (CSESA) a comprehensive school based intervention program	Hume et al., 2022 Steinbrenner et al., 2020	Highly effective interventions identified: ● Peer mediated interventions:Peer Networks and Peer Supports ● Social Competence Intervention-High School (SCI-HS)	In terms of social competence, the study found that CSESA had a significant positive impact on social goal attainment, as measured by the Goal Attainment Scale (GAS). Peer-mediated interventions, such as Peer Networks and Peer Supports, played an essential role in social engagement, while the Social Competence Intervention-High School (SCI-HS) specifically targeted social skill development. With an effect size of 1.52 ($p < .01$), these findings suggest that SEL interventions within CSESA were effective in improving social competence for students with ASD.

			In terms of academic engagement, standardized assessments like the Woodcock-Johnson and Vineland showed no significant improvements in academic performance for students in CSESA schools. Nonetheless, students did achieve significantly higher goal attainment in academic areas (effect size = 1.05, $p < .05$), suggesting that SELL-aligned strategies within CSESA improved engagement with individualized academic goals, though not in ways that translated to standardized test performance.
Autism Mentorship Program (AMP)	Weiler et a., 2022	High satisfaction and engagement among participants. Mentees showed improvements in self-concept, social skills, and a reduction in externalizing behaviors.	The AMP mentoring intervention showed positive effects on social competence, with mentees reporting increased self-concept and social skills and decreased externalizing behaviors (aggression, disruptive behaviors). Emotional well-being improved, with mentees and mentors reporting decreased negative emotions such as anxiety and depression. The study aligns with individualized needs by pairing mentees with mentors who also have ASD, fostering shared lived experiences that neurotypical mentors might not provide. The structured yet flexible nature of the intervention allowed mentees to engage in conversations and activities based on their interests, promoting personalized support.

Table 6: Teachers', Peer's, and Students' Own Perspectives in Creating Inclusive and Neurodiverse-Affirming Learning Environments

Study Authors	Teachers' Perceptions	Peers Perceptions	Students with ASD Perceptions
Gardner et al. (2014)	Facilitators found the peer network intervention to be feasible, effective, and worthwhile. They observed social benefits extending beyond structured meetings, suggesting broader impacts on school experience. One facilitator planned to expand the program due to its success.	Peer partners valued their participation, noting positive changes in their perceptions of students with ASD. They saw their ASD peers as friends by the end of the intervention and reported gains in communication skills and perspective-taking. Many wanted to continue or expand the program.	Students with ASD had mixed but generally positive experiences. Some formed friendships with peer partners, but their perceptions of social skill development varied. While one student reported learning new skills, another was uncertain about personal gains. The intervention supported friendships, but the impact on social skill development differed among participants.
Semrud-Clikeman et al., 2016	Teachers perceived students with ASD as struggling socially and emotionally in the classroom. Their ratings suggest that executive functioning deficits play a crucial role in social difficulties, reinforcing the need for targeted interventions in school settings to support these students' social and emotional development.	Not addressed	Not addressed

Kraemer et al., 2020	emphasize that the quality of inclusion is not solely determined by physical placement in general education classrooms but by the extent to which educators actively create social-learning opportunities and implement structured interventions	Not addressed	Not addressed
Kapp et al. 2012	The study indicates that teacher awareness of neurodiversity could improve social integration for students with ASD by reducing stigma and promoting accommodations that support both academic and social-emotional growth. The study highlights how awareness of neurodiversity leads to more positive conceptions of autism as a natural difference rather than a disorder. If teachers hold a medical model perspective, they may focus more on interventions aimed at "normalizing" behaviors, potentially impacting the inclusivity of classroom environments.In contrast, teachers who adopt a neurodiversity framework may prioritize strengths-based approaches, flexible teaching methods, and acceptance of neurodivergent communication styles (e.g., alternative forms of communication, sensory needs).	The findings indicate that awareness of neurodiversity is linked to more positive emotions about autism and a greater tendency to view it as a valued identity rather than a deficit. If neurodiversity awareness is promoted among peers, students with ASD may experience less stigma and exclusion because their differences are understood rather than pathologized. The study also suggests that negative emotions about autism persist regardless of neurodiversity awareness, which may indicate the need for structured peer education programs to explicitly address stereotypes and promote inclusive attitudes.	The study provides direct insight into how autistic individuals perceive autism—many self-identify as autistic and reject the idea of a cure, aligning with the neurodiversity movement's perspective. Autistic participants endorsed both positive and negative emotions about their condition, suggesting that social-emotional experiences are complex and influenced by external acceptance and support. If high schools adopt SEL programs rooted in neurodiversity principles, autistic students may experience improved self-esteem, stronger peer relationships, and greater social integration.

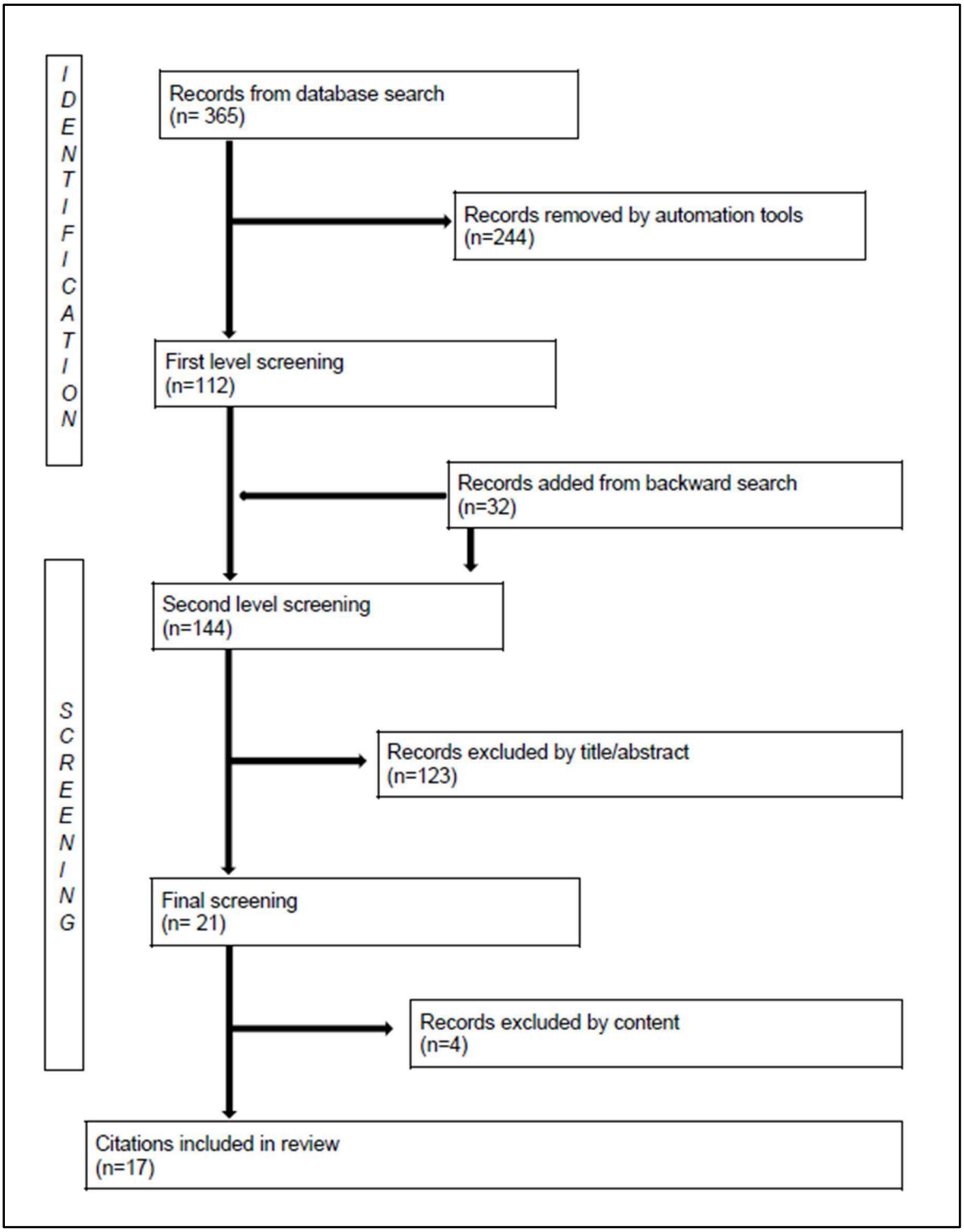
	Not addressed	Not addressed	
Kuo et al., 2013			Students with ASD often perceive their social integration more positively than external observers, reflecting different criteria for defining friendship. Engaging in shared activities, particularly video games, was linked to higher friendship quality, indicating that students with ASD may adopt alternative socialization strategies. However, the limited presence of opposite-gender friendships and the reliance on structured interactions suggest ongoing challenges with broader social-emotional learning and integration into wider peer networks.
Hammond & Hoffman, 2014	Parents and teachers reported significantly higher levels of: Overall anxiety and depression symptoms compared to the normative sample, General anxiety, separation anxiety, and dysthymia (persistent mild depression). Parents and teachers perceived greater internalizing symptoms than the adolescents themselves reported	Not addressed	Adolescents with HFA self-reported elevated levels of: Social anxiety, Separation panic,Anhedonia (lack of pleasure in activities) Adolescents did not consistently self-report high levels of anxiety or depression, raising concerns about the accuracy of self-report measures in this population.

Weiler et a., 2022	Not addressed	Not addressed	Mentees self-reported improvements in social confidence, emotional regulation, and relationship satisfaction. They described feeling more comfortable talking with others and having a clearer sense of social belonging due to their relationships with mentors. Many mentees indicated that they valued having a mentor who shared their ASD experience, suggesting that traditional school-based SEL interventions may not provide the same level of personal connection.

Carter et al., 2019	The study examines educator perceptions of peer-mediated interventions, showing that they view them as beneficial and feasible. The study highlights implementation challenges, such as lack of structured peer training and inconsistent fidelity, which may reflect gaps in teacher understanding of neurodiversity principles.	Peer-mediated interventions increase structured interactions between students with ASD and their peers, suggesting a positive shift in peer perceptions. Findings indicate that peer support arrangements and networks help foster social interactions, implying that peers can be effective social facilitators when given proper guidance. Gaps: The study does not explore peers' own perspectives or their understanding of neurodiversity. There is no assessment of whether peers' attitudes toward students with ASD changed due to these interventions.	The study does not include student perspectives, which is a major gap. It assumes that peer-mediated interventions benefit students with ASD without directly collecting their input on how they experience these interventions.

Figure 2: PRISMA

Diagram for Search 1



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