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A Multi-Tiered and Multi-Dimensional Approach to Intervention in Schools: Recommendations for Children with Sensory Integration and Processing Challenges

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ABSTRACT

This article advocates for a conceptualization of occupational therapy service delivery and intervention for students with sensory integration and processing challenges which improves occupational participation and performance within the educational setting. By offering a full continuum of service delivery options through multi-tiered systems of support, the school-based practitioner can provide services at the appropriate level of programming. Additionally, sensory, regulatory, and relational processes are increasingly recognized as inextricably linked in development and necessary in the provision of services for students with differences in sensory integration and processing. Thus, services for this population must include a multi-tiered approach in offering a complete array of service delivery options, and intervention needs to be inclusive of strategies from three domains: sensory, regulation, and relationship.

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Sensory integration and processing challenges can affect a student's ability to participate and perform essential occupations required in the school setting (Chien, Rodger, Copley, Branjerdporn, & Taggart, 2016; Hertzog, Cermak, & Bar-Shalita, 2019). In some states, laws and regulations have expanded access to occupational therapy in the public schools from a related service to a more proactive role that includes the general education population through the context of multi-tiered systems of support (MTSS) (Every Student Succeeds Act (ESSA), 2015; Individuals with Disability Education Act (IDEA), 2004). Using MTSS and its problem-solving process, the practitioner can be more responsive, supporting students before they are referred to special education. In this way, occupational therapy practitioners can be leaders in implementation – maximizing student achievement and occupational engagement, supporting the whole child, and determining those in need of special education services. However, school-based occupational therapy practitioners require guidance with service provision for students who have disordered sensory integration and processing in two areas.

The first area of needed clarification is how to deliver services across the tiers to students with sensory integration and processing differences. In many schools, a dilemma discussed

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amongst practitioners is that practice has become binary in its decision-making. Some school-based practitioners only advocate for pull-out sensory integration intervention while others embrace inclusion and consultation, both often to the exclusion of the other. This can lead to a lack of individualization and use of the appropriate level of programming for the student with sensory integration and processing differences.

A second unclear area exists regarding how to provide a more comprehensive approach to intervention based on a growing awareness of the interweaving of the domains of sensory, regulation, and relationship. A focus of intervention solely on the sensory domain limits the breadth of the occupational therapy scope of practice, decreases the emphasis on occupation, and fails to acknowledge current understanding of how bidirectional influences intertwine the brain and body (Fogel et al., 2008; Kielhofner, 2008; Lickliter, 2017).

This article argues for a service delivery continuum and approach, within the existing MTSS structure, for students with sensory integration and processing challenges to improve occupational performance and participation within the education setting. Building upon Ayres seminal work (Ayres, 1972), research suggests the school-based occupational therapy practitioner advocate for a multi-tiered (using MTSS), multi-dimensional (addressing the sensory domain and other identified fundamental areas) approach with a more deliberate focus on three foundational domains for this population: sensory integration and processing, regulation, and relationship (Schoen, Miller, et al., 2019; Schoen, Miller, & Flanagan, 2018).

These three domains envelop many theoretical perspectives. Becoming familiar with their inherent principles allows the practitioner to better describe and explain challenges faced by the student as well as integrate multiple approaches to address student needs. The *sensory domain* refers to the centrality of sensory integration and processing to human development as conceptualized by Ayres (1972) in Sensory Integration Theory. Sensory integration and processing is the neurological process of receiving, organizing, and responding to sensory experiences (Ayres, 1972). Strategies that fall under this domain include sensory-based interventions (Bodison & Parham, 2018) as well as sensory integration therapy (Schaaf & Mailloux, 2015). The *regulation domain* is a multidimensional construct that describes the unconscious and conscious process of achieving and maintaining an optimal brain and body state that is responsive to our ever changing internal and external demands (Fonagy & Target, 2002; Perry, 2001; Shanker, 2007). Strategies for the regulation domain are influenced by developmental theories of self-regulation (Fonagy & Target, 2002; Perry, 2001; Shanker, 2007) and co-regulation (Sameroff, 2009; Tronick, 1989), infant mental health which highlights the contextual influence on development, the Developmental, Individual Difference, Relationship-based (DIR) framework where play is recognized as a way of helping emotional regulation (Wieder & Greenspan, 2003), the field of positive psychology which is committed to a strength-based approach (Donaldson, Dollwet, & Rao, 2015), and cognitive approaches that use self-reflection of brain and body states as a means of achieving self-regulation (Kuypers, 2011; Williams & Shellenberger, 1996). The *relationship domain* is characterized by meaningful, attuned, emotional engagement and interaction with significant individuals. Strategies for this domain are drawn from theories such as the DIR framework that focus on attunement and use of affect to address relationship challenges (Weider & Greenspan, 2003), the Intentional Relationship Model which outlines approaches related to clinical relationship building (IRM) (Taylor, 2020), attachment theory that looks at the importance of relationships for felt safety, availability to

learn, and development of self, Polyvagal Theory which highlights the importance of safety, reciprocity and synchronicity within therapeutic relationships via the neurobiology of social engagement (Porges, 2011; Porges & Dana, 2018), and Ayres (1972 & 1985) depiction of therapeutic use of self within the context of sensory integration treatment relationships.

The STAR Frame of Reference is an example of an approach that focuses on the use of strategies from all three domains, viewing development from a dynamic systems perspective (Fogel et al., 2008; Miller, Schoen, & Spielmann, 2018). The STAR Frame of Reference supports the whole child by acknowledging the multitude of interactions between sensory systems and foundational domains, emphasizing the impact of sensory function on health, well-being, and quality of life, and utilizing a variety of evidence-guided interventions (Miller et al., 2018; Schoen, Miller, et al., 2019). As it applies to the school context, the STAR Frame of Reference is an individually tailored, student-centered, evidence-guided approach that integrates the triad of sensory, regulation, and relationship in supporting students' ability to function within the school setting. Importantly, it is the careful, graded, integrated, and targeted application of interventions across the three domains that considers the student's preferences and personal context and focuses on meaningful participation and occupational performance outcomes across all tiers (STAR Institute).

Supporting Sensory, Regulation, and Relationship

The interrelationship of sensory, regulatory, and relational processes and their impact on the development of performance skills is well supported by developmental theories (Mueller & Tronick, 2020; Portilla, Ballard, Adler, Boyce, & Obradović, 2014; Quinn, 2017). This interconnection is easily viewed in the educational setting. Examples of subtype presentations are highlighted below with the recognition that manifestations of sensory integration and processing challenges rarely occur in isolation and most often are a combination of sensory subtype features.

One common illustration of the impact of sensory integration and processing challenges is a student with *sensory under-responsivity*. Sensory under-responsivity refers to a nervous system that fails to register, or be aware of, sensory stimulation (Bundy & Lane, 2020). Research suggests that individuals who experience this form of sensory processing difference require higher intensity, greater quantity, or longer durations of exposure to sensory input at the nervous system level (Schaaf, Miller, Seawell, & O'Keefe, 2003). The result may be a decreased physiologic arousal level, leaving the student less able to respond to contextual and environmental demands (Lane, Reynolds, & Thacker, 2010; Schoen, Miller, Brett-Green, & Nielsen, 2009). For example, a student not aware of sensory information in the physical environment may miss the teacher's directions; a student not aware of sensations from their own body may not recognize the need to use the restroom. They may have low arousal in the classroom, resulting in difficulty staying engaged, often putting their head on their desk or slumping in their chair (Schaaf et al., 2010). Only when the teacher utilizes a high-energy activity, do they appear ready to respond in preparation for learning. Teacher reports often indicate that the students are bright but are not performing well academically. Socially, they can be quiet and withdrawn, and thus, not forming many friendships.

Sensory discrimination represents another sensory subtype presentation. Discrimination involves the registration and modulation of sensory events and – almost simultaneously –

discerning the significance and qualities of sensory stimuli. This subtype represents another presentation for which differences in sensory integration and processing can have a cascading impact on function and participation (Jorquera-Cabrera, Romero-Ayuso, Rodriguez-Gil, & Triviño-Juárez, 2017). Students who register sensation but are unable to identify meaningful components of the sensory experience (especially similarities and differences) present very differently than the previous exemplar. Sensory discrimination supports the ability to identify the spatial, temporal, amplitude, and specific sensory system qualities of a sensory experience (Bundy & Lane, 2020). Children with sensory integration and processing challenges can have discrimination difficulties in one or more sensory domains. For example, a student with tactile discrimination issues may not be able to use tactile information to adjust their pencil grasp or may be unable to sustain the pencil grasp if they are not maintaining visual attention. The student with auditory discrimination challenges may have difficulty interpreting where the voices from their peers are coming from without looking for them. In order to increase the understanding of where their body is in space characteristic of proprioceptive and vestibular discrimination challenges, a student may seek out increased quantities and intensities of input in the form of fidgeting in their chair or running their hand along the wall when walking to the lunchroom. Their peers can get upset when the student with discrimination challenges misjudges personal space while playing tag at recess, or over-stuffs their mouth with food in the lunchroom. These students may need to have directions constantly repeated, or they may consistently require more time than peers to complete tasks which can result in feelings of frustration and embarrassment. They may have difficulty accurately interpreting the meaning and intentions of others based on visual and auditory information (such as body language and emotional tone of voice).

Poor *praxis* is another example of a sensory challenge that can impact the performance of students in the educational setting. Praxis is a neurocognitive process that relies on the integration of body-based and environmental information to support cognitive abilities such as planning, mental manipulation of temporal and spatial aspects, problem solving and physical abilities such as body-level and action-level motor sequences (Lane et al., 2019; May-Benson & Cermak, 2007). It is a goal-directed response, supporting the execution of unfamiliar actions (e.g., non-habitual) necessary to organize one's behavior to meet the demands of everyday life (Ayres, 1985). Students demonstrating praxis challenges (dyspraxia) may have difficulty efficiently completing desk top assignments, following multi-step directions, learning and executing new motor plans for writing and physical education, or successfully engaging in unstructured play interactions with peers. They may need considerable assistance with ADLs, such as managing fasteners or food containers. Poor self-confidence, frustration, and confusion are common for individuals with dyspraxia, resulting in a reduced ability to self-regulate (Izadi-Najafabadi, Ryan, Ghafooripoor, Gill, & Zwicker, 2019; Sylvestre, Nadeau, Charron, Larose, & Lepage, 2013). These students can be perceived as intentionally disruptive to their peers. Behavioral expressions could include "clowning behaviors" (e.g., to compensate for decreased competency), increased talking out of turn, emotional reactivity, or avoidance as they struggle with uncertainty or anger due to a repeated lack of success (Payne, Ward, Turner, Clare Taylor, & Bark, 2013; Zwicker, Harris, & Klassen, 2013). A common coping strategy is to physically isolate themselves during school activities such as recess and lunch.

All of these students may demonstrate low frustration tolerance, high emotional reactivity, and decreased persistence in the face of challenge. In addition, they have likely encountered situations where they were unable to meet academic/school-related expectations, or have experienced some form of social or environmental exclusion – sometimes overtly stigma-based and sometimes indirectly so (O’Dea, Stanley, Coote, & Robinson, 2021; Woods, 2017). These barriers in social participation, play, ADLs, and education (Brindle, Moulding, Bakker, & Nedeljkovic, 2015; Jones, Hanley, & Riby, 2020; Portilla et al., 2014) can significantly affect their ability to successfully engage in occupations in the educational setting.

Robust sensory integration and processing underlies and is interwoven with students’ well-being and is a critical aspect of physical, mental, and emotional health. School-based practitioners are called to support the whole child and assess their occupational profile (American Occupational Therapy Association, 2020). Intervention addressing sensory integration and processing helps the student self-regulate by promoting emotional stability in preparation for social interaction (American Occupational Therapy Association, 2020). Simultaneously, relationships serve as the most effective way to support the dynamic interaction across body systems (Johnston, 2008). Furthermore, building capacity for self-regulation offsets the impact of disordered sensory integration and processing on participation in daily occupations (Shanker & Barker, 2016). Student outcomes are enhanced when the school-based occupational therapy practitioner utilizes evidence-guided intervention not only with support from the sensory domain but also expands the impact of intervention by inclusion of strategies from the regulation and relationship domains as well (Portilla et al., 2014).

Support across the Tiers

Services for students with sensory integration and processing differences can and should be supported by occupational therapy practitioners offering a continuum of service delivery options across all three tiers of MTSS. Following the Occupational Therapy Practice Framework (OTPF; American Occupational Therapy Association, 2020), IDEA early intervening services (IDEA, 2004), and ESSA’s MTSS (Every Student Succeeds Act, 2015), the school-based practitioner focuses on increasing student performance and participation by supporting the whole school through Tier 1, small groups through Tier 2, and individualized intervention through Tier 3. OTPF provides the focus on occupational engagement, IDEA mandates the practitioner to align with the least restrictive environment, and ESSA’s MTSS provides the tiered context in which to offer services. The decision to move to a higher tier or a more intensive service delivery is made via individualized data-driven decision making (AOTA, 2018; Schaaf et al., 2015) and the use of best available evidence, complemented by an understanding of the student’s priorities and targeted outcomes. Indirect service delivery in the natural school environment is explored before removing the student to pull out services within a separate treatment space that supports a focus on underlying client factors (Bazyk & Cahill, 2015; Cahill, 2019; Frolek Clark & Hollenbeck, 2019; Individuals with Disabilities Education Act, 20 U.S.C. § 1400, 2004). By embedding supports at Tier 1 and 2, it is likely that only a small percentage of students with sensory integration and processing challenges will need Tier 3 pull-out direct intervention through

special education. If this level of service delivery is warranted, it is often (or can be) recommended as short-term support.

Tier 1

In Tier 1, the school-based occupational therapy practitioner advocates for best practice and implementation of universal design for learning with a supportive infrastructure that builds capacity and competency. By designing a flexible, choice-filled learning environment that adapts to students and their differences, the practitioner minimizes barriers, provides a socially just milieu, and seeks high-quality experiences for the students with full appreciation for their diversity. Data collection centers around screening tools used in general education such as the Devereux Student Strengths Assessment, which looks at behaviors that relate to resilience, social-emotional competence, and school success (LeBuffe, Shapiro, & Naglieri, 2009). Vulnerabilities identified with tools such as this allow the occupational therapist to look for patterns of challenge and identify the needs of the whole school community.

At a systems level in Tier 1, practitioners initiate an indirect intervention for individuals with differences in sensory integration and processing by implementing school-wide strategies across the triad of sensory, regulation, and relationship domains. The first step in this process is to collaborate with school administrators to help them understand the impact of these differences on participation in the classroom and create investment in making culturally sustaining, systematic changes (as described below) through equitable resource allocation in order to improve outcomes for all. This is followed by offering education and training for all staff about sensory integration and processing to develop a knowledgeable, supportive, and inclusive school climate (Ruttledge & Cathcart, 2019). Bringing awareness to the environment's impact on student participation and deliberate nurturing of healthy sensory integration capacity benefits every child. This includes exploring the match, or potential mismatch, between the school environment and the students' sensory profile, and how this can affect academic performance (Ashburner, Ziviani, & Rodger, 2008; Jones et al., 2020; Piller & Pfeiffer, 2016). Recognition of the importance of identifying each student's unique sensory processing capacity will enable better implementation of modifications of environmental factors. The practitioner supports occupational justice by removing barriers rather than merely categorizing a student as dysfunctional and focusing on the student needing to change (AOTA, 2020; Jones et al., 2020).

The school-based occupational therapy practitioner educates staff about regulation supports targeted to maximize participation. Since regulation encompasses multiple dimensions, strategies might focus on biological, social, emotional, or cognitive mechanisms (Shanker & Barker, 2016). For example, biological supports through movement activities can increase the student's arousal and ability to focus. A bank of activities may be gathered that ties movement to the curriculum for teachers to promote active engagement more readily. Social supports increase motivation and shared joy when classroom environments invite interaction and a sense of community. Emotion-related strategies could include creating a calming space that the teacher can retreat to with a dysregulated student (e.g., who may be having difficulty functioning due to a high-stress level) to help co-regulate (e.g., support that can be offered by the teacher as a surrogate caregiver) (Whiting, 2018).

Relationships are prioritized across the school setting to encourage feelings of safety and interpersonal connection (Whiting & Tekell, 2021). The occupational therapy practitioner helps facilitate the conception of activities for recess and social times to increase inclusion, develop prosocial skills, and promote positive mental health for the entire school community (Bazyk, 2019). In addition, they can help school staff recognize behavior as a communication of underlying needs and design a proactive approach with relational components (Perry, 2009).

Tier 2

In Tier 2, the practitioner partners with the school team (e.g., teachers, support staff) to address the complex demands inherent in the educational context for the student with sensory integration and processing challenges. The occupational therapy practitioner can conduct an occupational analysis through observing performance patterns specifically of students with observed sensory integration and processing challenges in their various school environments and during task completion. This provides a valuable understanding of strengths, interests, barriers to participation and performance (Frolek Clark & Hollenbeck, 2019), the impact of context and environment, and triggers for dysregulation. A systematic process for data collection includes: the participation challenge is identified (e.g., lack of participation in a whole class lesson), a hypothesis of contributing factors is developed (e.g., are there sensory, regulation, and/or relationship challenges), baseline data is taken (e.g., measure frequency of child not participating), and a strategy is suggested (e.g., the addition of a whole-class movement activity before the lesson). In order to make data-driven decisions, systematic and ongoing data collection and progress monitoring is utilized to determine/judge the effectiveness of the applied strategies (Frolek Clark & Handley-More, 2017; Schaaf, 2015). For example, the practitioner notes if a positive change occurred in the performance of a particular challenge/behavior for a set period of time such as four weeks (e.g., continue to measure the frequency of participation behavior), and if not, either tries a new recommendation or decides to move to a higher tier of service delivery (Schaaf & Mailloux, 2015). Measures of change should always reflect participation in the school environment as well as the actualization of the self-organized child, the student's well-being, and their quality of life.

Using a child-centered, strength-based approach, integrating services into the classroom allows the school-based practitioner to leverage the routines and participation focus of the classroom (Bazyk & Cahill, 2015; Frolek Clark & Hollenbeck, 2019). This has the added benefit of offering predictability, which is a recognized feature that impacts how sensory differences affect learning (Jones et al., 2020). Inclusion supports also help students to further relationships with their peers, enhance self-regulation, and model strategies for teachers. Furthermore, the occupational therapy practitioner can provide coaching and consultation, or join problem-solving teams (Cahill, 2019), to collaboratively cultivate recommendations (Miller-Kuhaneck & Watling, 2018).

In Tier 2, the practitioner applies their understanding of sensory integration and processing to modify environments and tasks in addition to increasing students' awareness of their unique sensory profiles. For example, the school-based occupational therapy practitioner could provide smaller workspaces with carrels to increase attention (Jones et al., 2020), adapt tasks by breaking down and demonstrating steps to improve metacognition (Pfeiffer, Frolek-Clark, & Arbesman, 2017), use

biomechanically supportive seating, or create a center so students can try out different sensory experiences and rate them as calming or alerting (Whiting, 2018). The practitioner could also encourage the use of the school playground to facilitate sensory-motor abilities, play, and health.

Multi-dimensional regulation supports offered in Tier 2 include a range of activities focusing on biological, social, and emotional regulation. These supports increase the student's optimal state of function via incorporation of a sense of agency and control, found to be key to reducing the impact of sensory processing differences on learning (Jones et al., 2020). This might involve co-teaching a lesson about reading the body's biological cues as signs of dysregulation (Mahler, 2018), leading a whole class routine of rhythmic patterned activities during transitions to support emotion regulation through an experience of group cohesion (Perry, 2009), and introducing social regulation through collaboration with a small group of students as they develop individualized tools to regulate (Pfeiffer et al., 2017).

Relationship-based strategies in Tier 2 facilitate connections within the classroom between the teacher and student as well as between the student and peers. For example, the practitioner may design an arrival routine with the teacher in which the teacher individually greets each student. Modeling and coaching by the occupational therapy practitioner are an effective way to add small group activities to daily routines, thus promoting social interaction in the classroom through engagement in meaningful endeavors. These strategies may be helpful for regulating arousal in a student with sensory processing differences when a stressful physical environment is not able to be modified.

Tier 3

Depending on the state, providing individualized strategies in Tier 3 may require a full evaluation through a referral to special education. AOTA's Choosing Wisely initiative guides practitioners to complete a full assessment before intervening at Tier 3 for a student with sensory integration and processing challenges (AOTA, 2019). It is important for each practitioner to be familiar with guidelines set forth by their licensure law and state regulatory boards. For the purpose of this discussion, the authors will be aligning with AOTA's recommendation and discussing moving to Tier 3 as most commonly a referral to special education. When delivering services at the Tier 3 level, the therapist is required to justify changes or improvements in child's ability to participate in the classroom. Progress data is collected more frequently, and the intensity and quantity of instruction increase. There is robust and frequent communication amongst each school problem-solving team involved in the student's care, and together they collaborate in data collection. Tier 3 data should reflect achievement of goals, benchmarks, and objectives in the IEP or additionally/possibly in the use of Goal attainment scaling (Mailloux et al., 2007).

Some students are unable to mitigate their participation challenges from their sensory integration and processing differences through Tier 1 and 2 supports alone and may require more individualized supports. If the student is suspected of having an educational disability (e.g., one of the IDEA disability categories such as developmental delay, autism, emotional, or other health impairment) and needing special education services to benefit from their education program, then a full and individualized evaluation would be conducted. While adhering to the least restrictive environment mandate found in IDEA, the service provision

model is decided upon on a case-by-case basis after considering the full array of service delivery options (Individuals with Disabilities Education Act, 20 U.S.C. § 1400, 2004). It is not predetermined that one level of service delivery is the only possibility.

In Tier 3, school-based practitioners are encouraged to consider multifaceted interventions for sensory integration and processing challenges (Reynolds et al., 2017). After a thorough appraisal of data from multiple sources and a comprehensive individualized evaluation, the occupational therapist may suggest to the IEP team that in order to make effective progress, a short-term pull-out direct service, the most restrictive service delivery offering, be provided with ongoing teacher-therapist collaboration (American Occupational Therapy Association, 2018). Service delivery may include a combination of occupational therapy outside the classroom to address underlying sensory motor features interfering with participation, as well as providing environmental modifications and embedding strategies within the natural contexts of the classroom, playground, or lunchroom. The primary goal is to impact the distal outcomes related to an increase in performance-based skills and participation in occupations in the school environment (American Occupational Therapy Association, 2020; Schaaf et al., 2015). Pull-out service delivery is suggested to be offered more than once a week and short-term (less than five months for most students) as directed by current evidence (Schaaf, Dumont, Arbesman, & May-Benson, 2018) and phased out as soon as functional outcomes in the classroom are achieved. This can be accomplished by writing the direct pullout service delivery into the individualized education plan as a burst of intervention that is on a receding schedule, fading to a consult or inclusion model. The practitioner is also reminded that supports from Tier 1 and Tier 2 continue to be available.

Pull-out direct service combines sensory integration, regulation, and relationship supports as do the other tiers (Miller et al., 2018). Uniquely, essential elements of this tier include a play-based intervention that follows the principles of sensory integration as described by Ayres (1972 & 1985). These elements include arousal regulation, connecting with attunement and empathy through intentional therapeutic use of self to create strong relationships and enjoyment, offering challenges at the “just right” level, encouragement of student’s adaptive responses, enhanced sensory experiences, and acknowledgment of the student’s regulation and needs (Miller et al., 2018; Parham et al., 2011; Wieder & Greenspan, 2003). The intervention also aligns with AOTA practice guidelines and evidence-guided practice (Schaaf et al., 2018; Smith Roley, Bissell, & Frolek Clark, 2015). Direct service is paired with dedicated time for consultation with the teacher, which encourages generalization to classroom performance and helps the teacher to: better understand the use of sensory, regulation, and relationship strategies, set goals with the teacher via goal attainment scaling for participation-based desired outcomes, conduct ongoing progress monitoring, and facilitate communication to home.

Next Steps

This article advocates for the application of occupational therapy service delivery across all tiers to support students who have sensory integration and processing challenges while simultaneously addressing the sensory, relational, and regulation domains to increase the student’s success within the school context. The following action steps can accomplish best practice in the delivery of school-based services for this population.

- (1) Engaging in the full array of service delivery options in the school setting, applied with a multi-tiered approach, to support students with sensory integration and processing differences- not deciding that a singular option is the only one allowed in absolute terms. Implementing MTSS enhances the quality and scope of the occupational therapy practitioner's multifaceted supports for this population while honoring the least restrictive environment mandate. Disparities in access to school resources and related services staffing for application of this array of options must be addressed.
- (2) Utilizing a lens, such as the STAR Frame of Reference, focused on occupational performance and the supports or vulnerabilities of the interrelationship of sensory, regulation, and relationship across all tiers in assessment and application of intervention (Miller et al., 2018).
- (3) Attending professional development programs specific to school-based practice and the application of sensory integration, relationship-based, and regulation theories. Advanced training to develop professional reasoning is necessary when offering a continuum of intervention supports in the domains of sensory, regulation, and relationship for children with sensory integration and processing challenges.
- (4) Conducting research to determine the effectiveness of these approaches at each tier. Currently, there is a paucity of literature published on outcomes for the different service delivery options in the schools. Recognized needs exist to study the role of environmental modifications (Bodison & Parham, 2018), teacher education (Miller-Kuhaneck & Watling, 2018), and direct pull-out intervention on increasing participation. Action needs to be taken by school-based therapists to engage in research activities and contribute to the evidence-base regarding outcomes for students with sensory integration and processing challenges in the school context.

These action steps provide school-based occupational therapy practitioners with a clearer path to best support students with disordered sensory integration and processing in the educational context. By engaging in a continuum of care across all tiers and incorporating the elements of relationship and regulation in addition to sensory integration and processing, the practitioner provides a distinct value with holistic, effective support for students that improves and enhances student health, well-being, participation, and engagement in occupation.

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