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Research Article

EARLY SENSORY INTERVENTION OF THE ADAPTIVE BEHAVIOR OF LEARNERS WITH AUTISM SPECTRUM DISORDER

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ABSTRACT

This study aimed to determine the relationship between early sensory interventions—focusing on communication, socialization, and daily living skills—and the adaptive behaviors of autistic learners in the Division of Ozamiz City during the 2024–2025 academic year. Using a survey-correlational design, data were gathered from 60 participants and analyzed through weighted means, standard deviations, and Spearman's Rank-Order Correlation. Findings concluded that teachers were key in facilitating children's development by addressing sensory processing challenges and improving their ability to interpret sensory information. They created engaging environments and provided tailored, sensory-focused activities to support the development of appropriate responses to sensory inputs. Teachers recognized adaptive behaviors—effective communication, social interaction, and independent daily living—as essential skills that help learners navigate social, intellectual, and practical domains. Special education teachers perceived these behaviors as critical for students' engagement, responsibility management, and adjustment to various situations. Teachers who consistently implemented early sensory interventions observed more frequent adaptive behaviors among autistic learners. In contrast, limited intervention use was associated with fewer observable adaptive outcomes.

Keywords: *early sensory intervention, adaptive behavior, autism, communication, socialization, daily living skills, special education*

Introduction

Early sensory intervention is increasingly recognized in education. Educators believe that sensory activities can help children, especially those with autism. Early sensory intervention is a fundamental building block of all developmental skills, and differences in how children on the autism spectrum process sensory information may produce cascading effects on skill acquisition and behavioral development across a range of domains, including core autism characteristics (Baranek, 2002). Based on this premise, sensory-based interventions are proposed to change how children on the autism spectrum process sensory stimuli temporarily or permanently to create downstream therapeutic effects on skill acquisition and aspects of behavior, such as attention and self-regulation (Watling & Hauer, 2015).

On the other hand, adaptive behavior is the performance of an individual in daily activities about personal and social functioning. Adaptive behavior assessment includes tasks carried out routinely by an individual in various domains of daily functioning, such as communication, daily living skills, social interaction, and motor skills (Sparrow et al., 2005). As a construct, the measurement of adaptive behavior has proven helpful in the evaluation of individual self-sufficiency and social functioning concerning a wide range of conditions: developmental disorders, such as autism (Kraijer, 2000) and Down syndrome (Cullen et al., 1981; Dykens et al., 1994), emotional disorders (e.g., Sparrow and Cicchetti 1985, 1987), attentional disorders, such as ADD/ADHD (Roizen et al., 1994; Stein et al., 1995), low birth weight (e.g., Rosenbaum et al. 1995; Taylor et al., 2006), as well as various aspects of academic achievement, including learning disabilities (Hall & Segarra, 2007; Shevell et al., 2005; Webster et al., 2004) and giftedness (Douthitt, 1992).

Children with autism spectrum disorders (ASDs) experience a broad range of impairments that vary in severity (Linderman & Stewart, 1999). According to the Centers for Disease Control and Prevention (2010), approximately 1 in 110 children is diagnosed with ASD. The nature and intensity of symptoms can differ significantly, encompassing challenges in social interaction, repetitive behaviors, sensory processing difficulties, atypical developmental patterns, mood disturbances (such as heightened reactivity or lack of responsiveness), and issues related to attention and safety (Mayes & Calhoun, 1999). These difficulties stem from dysfunctions in sensory and perceptual processing, communication, and neurological functioning, leading to limitations in adaptive behaviors (Watling, Deitz, Kanny, & McLaughlin, 1999). Given the critical role of adaptive behaviors in daily functioning, the significance of exploring how early sensory interventions can positively influence these behaviors, helping children with autism navigate their developmental challenges more effectively.

However, despite the increasing recognition of early sensory interventions in supporting children with autism, there remains a significant gap in understanding their direct impact on adaptive behaviors. Watling and Hauer (2015) averred that sensory-based interventions can enhance attention, self-regulation, and overall skill acquisition. In addition, according to the Centers for Disease Control and Prevention (2010), approximately 1 in 110 children is diagnosed with Autism Spectrum Disorder (ASD). However, studies suggest that up to 60% of these children continue to experience severe deficits in adaptive behavior even with existing interventions. Moreover, children with autism who lack structured sensory interventions exhibit a 30% decrease in social adaptability and daily living skills compared to those receiving targeted therapies (Baranek, 2002). These data postulate the importance of early sensory interventions to the learner's adaptive skills, such as communication, motor abilities, and social interaction, particularly in educational environments where children with ASD often struggle.

With this, the study examined how early sensory interventions could improve the adaptive behavior of children with autism. The focus was on identifying specific sensory strategies significantly impacting daily functioning and social interactions. By analyzing how different sensory interventions were applied and their outcomes on adaptive skills such as communication, socialization, and daily living activities, the study aimed to provide insights into practical approaches for supporting children with autism.

Methods

This study employed a survey-correlational research design to examine the relationship between early sensory interventions and the adaptive behaviors of children with autism in selected special education schools

within the Ozamiz City Division for SY 2024–2025. Thirty purposively selected SPED teachers served as respondents, providing data through a validated and reliable questionnaire that assessed the frequency of sensory interventions and levels of adaptive behavior in communication, socialization, and daily living skills. The study was conducted in SPED centers that actively implemented sensory-based strategies and maintained strong collaboration between teachers and parents. Data were gathered through ethical procedures, ensuring voluntary participation, confidentiality, and informed consent. Weighted mean and standard deviation were used to determine the extent and consistency of sensory intervention practices, while the Spearman Rank Order Correlation tested the relationship between sensory interventions and adaptive behaviors. Adhering to research ethics and the Data Privacy Act of 2012, the study sought to provide evidence-based insights into how structured sensory support enhances the functional independence and adaptive development of learners with autism.

Results and Discussions

Table 1

Summary of the Teachers' Use of Early Sensory Interventions

Descriptors	Mean	SD	Description/Interpretation
Communication	4.61	0.341	Always
Socialization	4.55	0.287	Always
Daily Living Skills	4.55	0.356	Always
Overall Mean & SD	4.57	0.229	Always

AWV-Average Weighted Value, SD-Standard Deviation

The teacher's use of early sensory intervention is summed up in Table 1. The table shows that teachers consistently used early sensory interventions focused on socializing, communication, and everyday life skills. It demonstrates that special education teachers are knowledgeable about interventions that improve autistic children's everyday life activities, socialization, and communication. It suggests that teachers possess the skills necessary to instruct and influence the growth of autistic children. Therefore, it may be concluded that teachers concentrate on promoting a child's development by resolving issues with sensory processing and enhancing their capacity to control and interpret sensory information. It can be concluded further that teachers assist children in developing appropriate reactions to sensory inputs by creating an engaging setting and offering customized, sensory-based activities.

The current study's findings align with the work of Pfeiffer, Koenig, Kinnealey, Sheppard, and Henderson (2021), revealing that early sensory intervention is gaining recognition and application, especially for children with developmental disabilities such as Autism. Nonetheless, although sensory-based interventions are prevalent, the empirical support for their efficacy is inconsistent. Timely intervention is essential for optimizing long-term results, as it has the potential to influence brain development during pivotal stages, resulting in enhancements across multiple domains such as physical abilities, social interactions, and communication proficiency. Similarly, Oh, Jang, Jeon, Kim, Kwon, Cho, and Lee (2024) argued that sensory integration is crucial to a child's development. This encompasses their capacity to cultivate and sustain social-emotional connections alongside developing motor skills, cognitive abilities, adaptive competencies, and additional facets.

However, Pfeiffer et al. (2021) pointed out that although sensory-based approaches are increasingly popular and widely implemented in educational settings, the empirical evidence supporting their long-term effectiveness remains mixed and, in some cases, inconclusive. This raises important questions about the reliability of these interventions when used as standard practice without adequate research-based validation. One significant concern is the tendency to apply these strategies uniformly across diverse learners, which may neglect the highly individualized nature of sensory processing difficulties. Each child, particularly those on the autism spectrum, presents a unique sensory profile that requires careful assessment and individualized intervention. Oh et al. (2024) stressed that meaningful sensory integration is not achieved through generalized

techniques alone but must involve personalized strategies that address a child's sensory sensitivities, thresholds, and regulatory needs. Therefore, while teachers in the present study report frequent and consistent use of sensory-based practices, it is essential to critically examine whether these interventions are grounded in evidence, developmentally appropriate, and adapted to each learner's unique context.

Table 2

Teachers' Assessment of The Adaptive Behavior of Learners with Autism

Descriptors	AWV	SD	Description/ Interpretation
1. The student expresses their needs and wants through words, gestures, or other means. *(Ang estudyante klarong nagapakita sa iyang mga panginahanglan ug gusto pinaagi sa pulong, lihok, o ubang paagi.)*	4.47	0.596	Always
2. The student appropriately responds to verbal directions. *(Ang estudyante sakto nga motubag sa mga berbal nga instruksyon.)*	4.45	0.675	Always
3. The student is able to engage in simple conversations with peers or adults. *(Ang estudyante kabalo mokigsulti sa mga kauban o sa hamtong sa yano nga panaghisgot.)*	4.47	0.596	Always
4. The student uses an appropriate voice, volume, and clear expression when communicating. *(Ang estudyante nagagamit sa husto nga tingog, volume, ug klaro nga pagpahayag sa pakig-communicate.)*	4.35	0.633	Always
5. The student understands and responds to simple non-verbal cues (such as nodding or pointing). *(Ang estudyante nakasabot ug motubag sa yano nga dili berbal nga mga senyas (sama sa pag-uyon sa ulo o pagtudlo).*	4.37	0.610	Always
6. The student participates in group activities or tasks. *(Ang estudyante moapil sa mga kalihokan o buluhaton sa grupo.)*	4.38	0.585	Always
7. The student maintains eye contact during conversation. *(Ang estudyante makatiman sa eye contact panahon sa pakig-estorya.)*	4.40	0.494	Always
8. The student can take turns and share during play or group work. *(Ang estudyante kahibalo maghulat sa iyang turno ug magpaambit panahon sa dula o group work.)*	4.48	0.624	Always
9. The student shows empathy by recognizing and responding to the feelings of others. *(Ang estudyante nagpakita og kalooy pinaagi sa pag-ila ug pagtubag sa pagbati sa uban.)*	4.52	0.624	Always
10. The student follows social manners, such as greeting others properly. *(Ang estudyante mosunod sa sosyal nga pamatasan, sama sa hustong pag-greet sa uban.)*	4.50	0.504	Always
11. The student can perform simple self-care tasks (like handwashing or brushing teeth). *(Ang estudyante makahimo sa mga yano nga kalimpyo sa kaugalingon nga siya ra (sama sa paghugas sa kamot o pagsepilyo sa ngipon).*	4.35	0.577	Always
12. The student knows how to manage and take care of their personal belongings in class. *(Ang estudyante kabalo mokupot ug mohupot sa iyang kaugalingong mga butang sa klase.)*	4.57	0.533	Always
13. The student follows daily routines with minimal reminders. *(Ang estudyante mosunod sa adlaw-adlaw nga rutina bisan gamay ra ang pahinumdom.)*	4.50	0.504	Always
14. The student can perform simple tasks such as packing their bag or cleaning their workspace. *(Ang estudyante makahimo sa yano nga buluhaton sama sa pagpamutos sa iyang bag o paglimpyo sa iyang lugar sa trabaho.)*	4.68	0.504	Always
15. The student demonstrates safety awareness by avoiding dangerous objects	4.57	0.500	Always

or following safety instructions. *(Ang estudyante nagpakita og kahibalo sa kaluwasan, sama sa paglikay sa delikado nga mga butang o pagsunod sa mga instruksyon sa kaluwasan.)*			
Overall Mean & SD	4.47	0.248	Always

AWV-Average Weighted Value, SD-Standard Deviation

The teacher's assessment of the adaptive behaviors of pupils with Autism is shown in Table 2. The everyday, functional abilities people acquire to live freely and engage with others in their surroundings are called adaptive behavior in learners. From basic self-care to intricate social interactions and academic assignments, these abilities are essential for navigating the demands of everyday life. The fifteen (15) phrases that describe the adaptive actions of pupils with Autism are depicted in the table. The table shows that teacher respondents claimed they consistently viewed every item as the autistic pupils displayed it. It demonstrates that teachers saw adaptive behaviors in pupils as functional abilities and actions individuals employ to successfully navigate social, intellectual, and practical spheres in their everyday lives. Special education teachers may have also perceived these abilities as enabling students to engage with their surroundings, handle daily responsibilities, and adjust to novel circumstances.

Mizumori (2025) is supported by the results of the current study, which revealed that teachers have always seen pupils exhibit adaptive behaviors by maintaining friendships, adhering to school regulations, and displaying acceptable emotional reactions in various circumstances. The study also found that autistic learners had practical skills in everyday life tasks and self-care abilities.

Similarly, Brighter Strides (2024) stated that adaptive behavior skills are essential for learners, as they significantly influence their capacity to function independently and effectively in various daily environments, including school, home, and community settings. These skills, which include conceptual, social, and practical dimensions, facilitate individuals' ability to navigate environments, maintain self-care, and engage effectively with others. These skills are crucial for attaining maturity, enhancing independence, and encouraging personal responsibility (Mizumori, 2025).

Despite the favorable ratings, Brighter Strides (2024) emphasized that although adaptive behaviors are crucial for independent living, their development often requires long-term, individualized support, especially in real-world situations outside the school. Teachers' high ratings may unintentionally overlook subtleties in learners' performance across different contexts or the need for continued prompting. Therefore, while the results are encouraging, they must be interpreted with an understanding that adaptive behavior development is complex, nonlinear, and context-dependent, requiring deeper assessment beyond observable classroom behaviors alone.

Table 3

Test of the Relationship Between The Teachers' Use Of Early Sensory Interventions And Their Assessment Of The Adaptive Behavior Of Learners With Autism

Variables		Teachers' Assessment of the Adaptive Behavior of Learners with Autism
Communication	Correlation Coefficient	0.318*
	Sig.(2-tailed)	0.013
	N	60
Socialization	Correlation Coefficient	0.256*
	Sig.(2-tailed)	0.048
	N	60
Daily Living Skills	Correlation Coefficient	0.244*
	Sig.(2-tailed)	0.041
	N	60

Teachers' Use of Early Sensory Interventions	Correlation Coefficient	0.360*
	Sig.(2-tailed)	0.005
	8N	60

**Correlation is significant at the 0.05 level*

Table 3 delineates the correlation between the teacher's implementation of early sensory interventions, emphasizing communication, socialization, and daily living skills, and their evaluations of the adaptive behaviors of autistic learners. The table illustrates a small yet positively low correlation between socialization and daily living skills, particularly in the context of early sensory interventions and the adaptive behavior of learners with Autism. A medium and positive moderate correlation was noted between the adaptive behaviors of autistic learners and the use of communication as a strategy for early sensory intervention. Furthermore, a medium and positively moderate correlation was identified between early sensory interventions and the adaptive behaviors exhibited by learners with Autism. The relationships in question held considerable importance. This demonstrates that teachers who implemented early sensory interventions—encompassing communication, socialization, and daily living skills—were the ones who consistently observed their autistic pupils exhibiting adaptive behaviors. It can also be deduced that teachers who did not observe adaptive behaviors in learners with Autism were those who employed minimal early sensory interventions.

The current findings corroborate the work of Williams, Kirby, Watson, Sideris, Bulluck, and Baranek (2018), indicating that all three early sensory interventions significantly predicted various aspects of adaptive behaviors, with notable differences contingent upon assessment format and diagnostic group. However, the results of the current study contradict those of Worthley et al. (2024). The study results indicated that sensory profiles at one year of age (hyperresponsivity, hyporesponsivity, sensory seeking) were negatively associated with later adaptive behavior, particularly in socialization, at three years of age, irrespective of diagnostic status.

Despite these supportive findings, Worthley et al. (2024) reported that early sensory profiles—specifically hyperresponsivity, hyporesponsivity, and sensory-seeking behaviors observed at age one—were negatively associated with adaptive behavior outcomes by age three, especially in the socialization domain. This suggests that early sensory difficulties may persist and limit the development of adaptive functioning even when interventions are introduced later. Their findings challenge the assumption that sensory strategies alone are sufficient and emphasize the role of broader developmental and contextual factors, such as family dynamics, cognitive delays, and emotional regulation issues. Additionally, Schaaf et al. (2014) highlighted that while sensory integration therapy holds promise, its success largely depends on intervention fidelity, parental involvement, and the appropriateness of sensory strategies. These contradictions underscore the complexity of the relationship between sensory processing and adaptive behavior and highlight the need for a more holistic, individualized approach when designing and implementing sensory-based interventions. Ultimately, while the present study confirms the positive role of early sensory strategies in shaping adaptive behaviors, it also suggests that these interventions should be supported by comprehensive planning, consistent implementation, and continuous evaluation to yield lasting and meaningful results

.

Conclusions

The study findings conclude that teachers prioritize addressing students' diverse learning needs by consistently implementing differentiated instruction activities. Teachers promote student engagement, independence, and academic growth by providing individualized plans, hands-on activities, tiered assignments, and varied learning choices tailored to students' abilities, preferences, and readiness. These strategies reflect the educators' commitment to creating inclusive and student-centered environments where all learners have equitable opportunities to succeed. On the other hand, some instructional strategies—particularly those involving technology integration, flexible grouping, and alternative assessments—were less frequently used. Teachers may have found these approaches challenging due to limited resources, time constraints, or lack of training. Teachers who consistently applied a wide range of differentiated instruction activities were more likely to address learners' unique needs effectively. Also, it can be inferred that teachers who rarely used specific strategies, such as technology-enhanced learning, may have limited opportunities to personalize instruction and maximize student engagement fully.

Recommendations

Based on the study's findings, it is recommended that teachers continue and enhance the use of early sensory interventions that promote adaptive behavior among learners with autism, particularly through activities like tactile boards, visual schedules, rhythmic movement, and textured objects to strengthen communication, socialization, and daily living skills. Individualized and multisensory teaching approaches should be further developed to address specific sensory needs and improve self-care, emotional regulation, and peer interaction. Schools are also encouraged to provide sufficient materials, establish well-equipped sensory-friendly classrooms, support continuous professional development for teachers, and collaborate regularly with occupational therapists to ensure interventions are effectively tailored to each learner's sensory profile.

Conflict of Interests

The author declares that they have no conflicts of interest

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