

# Effect of a Sensory Activity Schedule on the On-Task Behaviors of Children With Autism Spectrum Disorder

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Children with atypical sensory processing may have difficulties completing individual work tasks which impacts performance and participation in school (Mills et al., 2016). Occupational therapy practitioners (OTP) often use interventions that support sensory processing in children with ASD. The intervention used in this study is a sensory activity schedule (SAS). A SAS provides a structured set of sensory activities, purposefully planned based on the individual needs of the student. Research Question: Is the use of a sensory activity schedule (SAS) effective for improving the on-task behaviors of children with Autism Spectrum Disorders (ASD)? A single-subject A-B-A-B reversal design was employed across participants. The study was conducted in the classroom during independent work. Seven participants all with ASD and a mean age of 9.4 years, participated in the study. The OTP observed the child during worktime and documented the type (verbal, physical, or gestural) and frequency of cues. During baseline phases (A), the participants completed tasks at workstations using a schedule; during intervention phases (B), all participants used a SAS built into their schedule. The independent variable was the SAS and dependent variable was on-task behavior. Each child acted as their own control. Data collection occurred across 2 weeks for each participant. A total of six work tasks were observed for each child per baseline (A1 and A2) and intervention phases (B1 and B2). Two methods were used to analyze and interpret data: visual analysis and a two-way repeated measures ANOVA. Time series graphs were analyzed using split-middle analysis and celeration (slope) lines were drawn for each phase. Within-phase means were calculated to measure the level of cues provided in each of the phases. Relative level changes, or the difference in median number of cues provided during the first half of a phase relative to the 2nd half of that phase, were calculated to measure the magnitude of change observed within each of the phases (Engel & Schutt, 2017). Celeration lines were inspected to examine the direction of each within-phase trend. A positive relative level change indicated an accelerating trend or increase in the number of cues provided per phase, while a negative relative level change indicated a decelerating trend or a decrease in the number of cues given. Stability was analyzed for each phase using a stability envelope to determine if 80% of the data fell within  $\pm 25\%$  of either side of the median (Lane & Gast, 2013). To examine group-level effects, a two-way repeated measures ANOVA, with observation periods nested in phases, was used to examine differences in the mean number of cues provided to participants across the four phases. Results indicate that all participants displayed level changes and an overall decrease in the mean number of cues required to remain on-task from Phase A1 to B1. However, there was a high degree of variability in participant data across all phases. There was a statistically significant decrease in the mean number of cues provided to participants between Phase A1 and Phase B1 (Bonferroni-adjusted  $p = .011$ ); These results suggest that child-specific sensory activities may have a positive effect on on-task behaviors during some tasks while having no effect at other times. This study used an individualized SAS during work time to determine the impact of the SAS on on-task behavior. A school is the primary context for children with ASD. Use of traditional SIT in a school context is not feasible, yet the impact of sensory strategies has promise and use is becoming common practice in classrooms worldwide.

## References

- Ashburner, J. K., Ziviani, J. M., & Rodger, S. A. (2008). Sensory processing and classroom emotional, behavioral, and educational outcomes in children with autism spectrum disorder. *American Journal of Occupational Therapy*, 62(5), 564-573. <https://doi.org/10.5014/ajot.62.5.564>
- Mills, C. J., Chapparo, C., & Hinitz, J. (2016). The impact of an in-class sensory activity schedule on task performance of children with autism and intellectual disability: A pilot study. *British Journal of Occupational Therapy*, 79(9), 530-539. <https://doi.org/10.1177%2F0308022616639989>
- Lane, J., & Gast, D. L. (2013). Visual analysis in single-case experimental design studies: Brief review and guidelines. *Neuropsychological Rehabilitation*, 24(3-4), 445-463. <https://doi.org/10.1080/09602011.2013.815636>
- Engel, R.J., & Schutt, R.K. (2017). Single-subject design. In R.J. Engell & R.K. Schutt (Eds.), *The practice of research in social work* (4th ed., pp. 187-218). SAGE Publications.