

# A Literature Review of Social Communication Interventions used With and Without Augmentative and Alternative Communication (AAC) for Preschoolers with Autism Spectrum Disorder (ASD)

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## Background

- *Autism Spectrum Disorder (ASD)* is defined as continuing deficits in social communication and social exchanges in addition to someone exhibiting repetitive behaviors and restricted interests.
- *Augmentative and Alternative Communication (AAC)* is defined as “adaptive assistance for speaking and/or writing because their gestural, spoken, and/or written communication is temporarily or permanently inadequate to meet all of their communication needs” (Beukelman & Mirenda, 2013).
  - Low-tech AAC: An aided mode of communication using *nonelectronic* external equipment.
  - High-tech AAC: An aided mode of communication using *electronic* external equipment.
    - *Speech generating devices (SGD)* are a type of high-tech AAC which can use a grid display or a visual scene display (VSD) to organize symbols.
- *Social Communication Interventions* target the social use of language (e.g., joint attention, non-verbal behaviors, eye-contact, ability to develop peer relationships, showing affection towards others, sustaining and initiating conversations) in individual or group sessions.
- *Communication Partners* are individuals (e.g., parents, teachers, peers) that communicate with the preschooler in a natural environment (e.g., home or school).
- This literature review describes the different social communication interventions used with and without AAC for preschoolers with ASD.

## Interventions used with AAC

- *Picture Exchange Communication System (PECS)*
  - PECS is a low-tech AAC system.
  - PECS teaches preschoolers to exchange picture symbols to request or comment about preferred items instead of gesturing to the items.
  - The process of teaching PECS includes starting with single picture symbols, then choosing between two or more pictures, and then combining pictures to request and comment.
- *Improving Partner Applications of Augmentative Communication Techniques (ImPAACT)*
  - ImPAACT teaches communication partners to facilitate early language and communication with children who use AAC.
  - ImPAACT can be used alongside storybook reading to enhance vocabulary growth, joint-attention, and foster verbal interactions with children who have emergent literacy skills.

## Interventions used without AAC

- *Joint attention, symbolic play, engagement, regulation intervention (JASPER)*
  - JASPER enhances the social development of joint attention and joint engagement between a child with ASD and their communication partner.
  - JASPER is implemented during play sessions with the child.
- *Treatment and Education of Autistic and Related Communication Handicapped Children (TEACCH)*
  - TEACCH is built on the idea that children with ASD are visual learners.
  - TEACCH is an approach where preschool students with ASD were taught in a separate room and setting as their typically developing peers in the school setting.
  - This environment allows teachers to adapt the classroom to enhance student learning and participation.
  - A key component of this approach is parent and teacher involvement in therapy.
- *Family implemented TEACCH for Toddlers (FITT)*
  - FITT is “a parent education and support intervention designed to assist families in better understanding how autism may be impacting their toddler and how to better engage their toddler across the day” (Turner-Brown et al., 2016).
  - FITT provides strategies to enhance receptive language, joint attention, and play skills while using the TEACCH methods.
  - FITT targets the needs between children with ASD and their caregivers in the home setting using a parent-mediated approach.
- *Learning Experiences and Alternative Program (LEAP)*
  - The purpose behind LEAP is to minimize a child with ASD’s characteristics which are causing adverse effects on their academic opportunities.
  - LEAP uses an inclusive environment where students with ASD are taught in the same room and setting as their typically developing peers.
  - This approach is a combination of ABA and early childhood education (ECE) elements.

## Interventions used with or without AAC

- *Aided Language Modeling (ALM)*
  - ALM is a mimic-based system where the communication partner models the target symbols and the child with ASD is meant to copy the selection of symbols.
  - Basic elements of this approach include a communication partner pointing to picture symbols while speaking and providing open opportunities for the child to select the target symbols on the low or high-tech device.
- *Milieu or Naturalistic Teaching*
  - Milieu teaching is used with preschoolers with ASD to teach requesting.
  - Communication partners follow the child’s lead and rely on the therapy environment to initiate social interactions.
- *Applied Behavior Analysis (ABA)*
  - ABA is used to develop preacademic (e.g., sequencing and matching), language (e.g., verbally, and receptively), and play skills in preschoolers with ASD.
  - ABA is often implemented with discrete trial training (DTT) and can be used with PECS.
- *Stay-Play-Talk (SPT)*
  - SPT is taught to peer communication partners used to increase intentional communication.
  - It is broken into three main steps: Stay with your friend, play with your friend, and talk with your friend.

## Conclusion

- The most common setting found across interventions was the school setting which could indicate the need for an increase in generalization of social skills interventions across environments (e.g., home, clinic, school).
- Parents and peers were the most common types of communication partner involved across interventions.
- The studies implementing JASPER, TEACCH, FITT, LEAP, and ABA did not result in a significant improvement in social communication skills (e.g., joint attention, play skills, requesting, sensory and repetitive behaviors).
- The ALM, SPT, and ImPAACT interventions were effective in increasing social communication skills (e.g., the number of conversational exchanges and functional target words learned on grid displays and VSDs).
- Clinicians can use this information to select an appropriate intervention for preschool children with ASD.
- Future research in this area could include determining the impact that diverse types of communication partners (e.g., teacher, parent, or peer) have on interactions with the preschool children with ASD.

## References

1. American Psychiatric Association. (2015). *Neurodevelopmental Disorders: DSM-5® Selections*. American Psychiatric Publishing.
2. American Speech-Language-Hearing Association. (n.d.). *Augmentative and Alternative Communication (Practice Portal)*. Retrieved March 21, 2022, from [www.asha.org/Practice-Portal/Professional-Issues/Augmentative-and-Alternative-Communication/](http://www.asha.org/Practice-Portal/Professional-Issues/Augmentative-and-Alternative-Communication/).
3. Beukelman, D. R., & Mirenda, P. (2013). *Augmentative and alternative communication: Supporting children and adults with complex communication needs*. Vol. 4th ed. P.H. Brookes Pub.
4. Boyd, B. A., Hume, K., McBee, M. T., Alessandri, M., Gutierrez, A., Johnson, L. A., Odum, S. L. (2013). Comparative efficacy of LEAP, TEACCH and non-model-specific special education programs for preschoolers with autism spectrum disorders. *Journal of Autism and Developmental Disorders*, 44(2), 366–380. <https://doi.org/10.1007/s10803-013-1877-9>
5. Bourque, K. S. (2020). Peer-mediated augmentative and alternative communication interventions for young children with autism spectrum disorder and limited to no spoken communication. *Perspectives of the ASHA Special Interest Groups*, 5(3), 602–610. [https://doi.org/10.1044/2020\\_persp-20-10001](https://doi.org/10.1044/2020_persp-20-10001)
6. Bourque, K. S., & Goldstein, H. (2020). Expanding communication modalities and functions for preschoolers with autism spectrum disorder: Secondary analysis of a peer partner speech-generating device intervention. *Journal of Speech, Language, and Hearing Research*, 63(1), 190–205. [https://doi.org/10.1044/2019\\_jslhr-19-00202](https://doi.org/10.1044/2019_jslhr-19-00202)
7. Ganz, J. B., Simpson, R. L., & Mirenda, P. (2019). Overview of AAC for individuals with autism spectrum disorder and complex communication needs. In *Interventions for individuals with autism spectrum disorder and complex communication needs*. Paul H. Brookes Publishing Co.
8. Gevarter, C., & Zamora, C. (2018). Naturalistic speech-generating device interventions for children with complex communication needs: A systematic review of single-subject studies. *American Journal of Speech-Language Pathology*, 27(3), 1073-1090. doi:10.1044/2018\_ajslp-17-0128
9. Hourcade, J., Everhart Pilotte, T., West, E., & Parette, P. (2004). A history of augmentative and alternative communication for individuals with severe and profound disabilities. *Focus on Autism and Other Developmental Disabilities*, 19(4), 235–244. <https://doi.org/10.1177/10883576040190040501>
10. Kasari, C., Sturm, A., & Shih, W. (2018). SMARTer approach to personalizing intervention for children with autism spectrum disorder. *Journal of Speech, Language, and Hearing Research*, 61(11), 2629–2640. [https://doi.org/10.1044/2018\\_jslhr-lrsaut-18-0029](https://doi.org/10.1044/2018_jslhr-lrsaut-18-0029)
11. Kent-Walsh, J., Binger, C., & Hasham, Z. (2010). Effects of parent instruction on the symbolic communication of children using augmentative and alternative communication during storybook reading. *American Journal of Speech-Language Pathology*, 19(2), 97–107. [https://doi.org/10.1044/1058-0360\(2010\)09-0014](https://doi.org/10.1044/1058-0360(2010)09-0014)
12. Thiemann-Bourque, K., Feldmiller, S., Hoffman, L., & Johnsr, S. (2018). Incorporating a peer-mediated approach into speech-generating device intervention: Effects on communication of preschoolers with autism spectrum disorder. *Journal of Speech, Language, and Hearing Research*, 61(8), 2045–2061. [https://doi.org/10.1044/2018\\_jslhr-17-0424](https://doi.org/10.1044/2018_jslhr-17-0424)
13. Turner-Brown, L., Hume, K., Boyd, B. A., & Kainz, K. (2016). Preliminary efficacy of family implemented TEACCH for toddlers: Effects on parents and their toddlers with autism spectrum disorder. *Journal of Autism and Developmental Disorders*, 49(7), 2685–2698. <https://doi.org/10.1007/s10803-016-2812-7>