

Effects of peer-mediated interventions on social communication of children with autism spectrum disorders who utilize augmentative and alternative communication systems

Jillian Scott

Introduction

Autism Spectrum Disorders are characterized by restricted repetitive behaviors, interests, and activities, as well as, deficits in social communication and social interaction (Yeo & Teng, 2015). Social skills deficits such as lack of joint attention, difficulty initiating and maintaining conversations, and lack of social problem-solving abilities are often the first characteristics that are noticed in a child with autism (Yeo & Teng, 2015). Multiple studies have found that simply placing a child with ASD in an inclusive classroom with typically developing peers without providing adequate communication support is not likely to result in successful communication or interactions with peers (Sperry, Nietzel, & Engelhardt-Wells, 2010; Trembath, Balandin, Togher, & Stancliffe, 2009). Less interactions with peers leads to less development in social and play skills in children with autism (Sperry et al., 2010). Due to this correlation, researchers have begun to focus on social interventions that instruct typically developing peers in ways that promote effective interactions with their classmates with autism (Sperry et al., 2010; Trembath et al., 2009).

Peer-mediated interventions are defined as a “a set of focused intervention practices designed to systemically teach typically developing peers ways of successfully engaging children with ASD in positive social interactions” (Sperry et al., 2010, p. 256). Children with autism not only require structured opportunities to communicate with peers, but may also require a functional communication mode to enhance the quality of the interaction (Trembath et al., 2009). Functional communication can be supported through the use of augmentative and alternative communication (AAC) (Trembath et al., 2009).

Approximately 50% of children with ASD do not develop the natural speech needed to meet their daily communication needs (Light, Roberts, DiMarco, & Greiner, 1998). Speech-generating devices (SGD) are a type of AAC that have been found to be beneficial when teaching young children with autism to use AAC (Thiemann-Bourque, McGuff, & Goldstein, 2017). SGDs are “programmable digital devices that provide voice output in the form of digitized or synthesized speech when activated” (Trottier, Kamp, & Mirenda, 2011, p. 26). These devices provide clear and understandable output to communication partners (Trottier et al., 2011). This is important for children with ASD in general education classrooms, so that they are able to interact with typically developing peers and participate in daily activities with these peers (Thiemann-Bourque et al., 2017; Trottier et al., 2011). SGDs have been found to provide a more balanced communication exchange and the easily understood messages facilitate a more natural flow of conversation in comparison to a picture-exchange communication system (Thiemann-Bourque et al., 2017). This poster evaluates the effects of peer-mediated interventions on the social communication of children with ASD who use AAC devices, specifically speech-generating devices.



<http://www.woodlaketechnologies.com/Talara-32-p/zyg400.htm>



<https://mayer-johnson.com/products/gotalk-4>

Relevant Studies	Participants with ASD (Age, Characteristics)	Intervention Approach	Outcome Measures
Thiemann-Bourque et al. (2017)	Two boys and one girl ages 4;5 to 4;7 years Diagnosed with autism, limited to no verbal skills, candidates for AAC	Each child with autism was paired with one typically developing peer. Peer was taught a Stay, Play, and Talk social intervention to implement in a social activity with the child with ASD with the use of the GoTalk 4+ SGD.	Number of spontaneous, unprompted communication acts directed to peers by children with autism, number of spontaneous, unprompted communication acts directed to children with autism by trained peer partners
Strasberger & Ferreri (2014)	Four boys ages 5.8 to 12.11 years Diagnosed with autism, limited to no verbal skills, not currently using an AAC device or were not successfully using the one that they have	Each child with autism was paired with one typically developing peer. Peer was taught how to use the iPod-based SGD and when to provide the desired item to the child with autism using peer assisted communication application (PACA) training.	Data was collected on the three phases of intervention which were based on: independent, prompted 2-step sequence; mands, responses to the question “What do you want?”, and responses to the question “What is your name?”
Trembath et al. (2009)	Three boys ages 3-5 years Diagnosed with autism, use little to no functional spoken words, no experience using AAC	Each child with autism was paired with two typically developing peers. Peers were taught to implement a ‘show, wait, and tell’ peer-mediated naturalistic teaching, with and without a Talara-32 SGD during play sessions.	Number of communicative behaviors per minute were counted for baseline, intervention, and generalization sessions with and without the use of the SGD

Conclusions

The results of the studies examined provide evidence that typically developing children as young as preschool-age can be taught to encourage and support the development of communication skills in children with autism who use AAC devices (Strasberger & Ferreri, 2014; Therrien & Light, 2016; Therrien et al., 2016; Thiemann-Bourque et al., 2017; Trembath et al., 2009; Trottier et al., 2011). Speech-generating device (SGDs) are an effective form of communication to be used in peer-mediated interventions and are more likely to increase the reciprocal communication between peers and children with ASD (Strasberger & Ferreri, 2014; Thiemann-Bourque et al., 2017; Trembath et al., 2009; Trottier et al., 2011).

Future Directions

Future studies should consider the unequal status of the relationship that is developed through some peer-mediated interventions (Therrien & Light, 2016). If the ultimate goal of these interventions is friendship development then future interventions should place a focus on promoting the equal status of the students participating (Therrien & Light, 2016). Future research should aim to replicate the findings in previously published articles in larger populations since many studies are only able to obtain a few participants (Therrien & Light, 2016; Trembath et al., 2009; Trottier et al., 2011). Trembath et al. (2009) also stated that future studies could implement social communication interventions to entire classrooms of peers which would provide substantial support for successful communication in their classmates with autism.

Results

Thiemann-Bourque, McGuff, and Goldstein (2017) found that typically developing preschool-age peers can be successfully taught to use the same SGD device as their classmate with ASD and implement intervention to increase communication exchanges. There was an increase in initiations for all three participants with ASD. Participation in back-and-forth communication exchanges with peers also increased for all three children. Spontaneous communication acts increased for all of the trained peer partners as well. This resulted in overall increases in child engagement.

Trembath et al. (2009) found that during baseline all three participants with autism displayed less than one successful communicative behavior per minute. Peer-mediated naturalistic teaching with and without the use of the speech generating device resulted in immediate statistically significant increases in communicative behaviors for all three children with autism. For two of the three participants, intervention including the SGD was more effective. These two children also started to use the words and messages contained in the device using natural speech. Generalization probes showed slight increases in communicative behaviors for all three participants.

Strasberger and Ferreri (2014) found that all four participants were able to use the SGD for some communicative purpose. Two of the participants were able to meet the criterion to pass the three phases of the PACA training. Three of the four participants, including the two that passed all three phases, met the criteria for the first two phases. One child met the criteria for the revised phase of intervention which included producing one-step mands. Two of the participants generalized and maintained the skills learned from the training to a new environment.

References

Light, J. C., Roberts, B., Dimarco, R., & Greiner, N. (1998). Augmentative and alternative communication to support receptive and expressive communication for people with autism. *Journal of Communication Disorders, 31*(2), 153-180. doi:10.1016/s0021-9924(97)00087-7

Sperry, L., Nietzel, J., & Engelhardt-Wells, K. (2010). Peer-mediated instruction and intervention strategies for students with autism spectrum disorders. *Preventing School Failure, 54*(4), 256-264. doi:10.1080/10459881003800529

Strasberger, S. K., & Ferreri, S. J. (2013). The effects of peer assisted communication application training on the communicative and social behaviors of children with autism. *Journal of Developmental and Physical Disabilities, 26*(5), 513-526. doi:10.1007/s10882-013-9358-9

Therrien, M. C., Light, J., & Pope, L. (2016). Systematic review of the effects of interventions to promote peer interactions for children who use aided AAC. *Augmentative and Alternative Communication, 32*(2), 81-93. doi: 10.3109/07434618.2016.1146331

Therrien, M. C., & Light, J. (2016). Using the iPad to facilitate interaction between preschool children who use AAC and their peers. *Augmentative and Alternative Communication, 32*(3), 163-174. doi:10.1080/07434618.2016.1205133

Thiemann-Bourque, K. S., McGuff, S., & Goldstein, H. (2017). Training peer partners to use a speech-generating device with classmates with autism spectrum disorder: Exploring communication outcomes across preschool contexts. *Journal of Speech Language and Hearing Research, 60*(9), 2648-2662. doi:10.1044/2017_jslhr-l-17-0049

Trembath, D., Balandin, S., Togher, L., & Stancliffe, R. J. (2009). Peer-mediated teaching and augmentative and alternative communication for preschool-aged children with autism. *Journal of Intellectual & Developmental Disability, 34*(2), 173-186. doi:10.1080/13668250902845210

Trottier, N., Kamp, L., & Mirenda, P. (2011). Effects of peer-mediated instruction to teach use of speech-generating devices to students with autism in social game routines. *Augmentative and Alternative Communication, 27*(1), 26-39. doi: 10.3109/07434618.2010.546810

Yeo, K. J., & Teng, K. Y. (2015). Social skills deficits in autism: A study among students with autism spectrum disorder in inclusive classrooms. *Universal Journal of Educational Research, 3*(12), 1001-1007. doi:10.13189/ujer.2015.031208