Autism Spectrum Disorders are characterized by restricted repetitive behaviors, interests, and activities, as well as, deficits in social communication and social interaction (Yoo & 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 (Yoo & 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 as well (Sperry, 2016). 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 “set of focused intervention practices designed to systematically 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 (SGDs) 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 words, no experience using AAC” (Thiemann-Bourque, McGuff, & Goldstein, 2017, p. 3). These devices provide clear and understandable output to communication partners (Trottier et al., 2011). This is important for 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 speech when activated” (Trottier, Kamp, & Mirenda, 2011, p. 26). These devices provide clear and understandable output to communication partners (Trottier et al., 2011).

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). Therrien & Light (2016) 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 classrooms 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 classroom and ASD 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. Simultaneous communication acts increased for all of the trained partners in children with autism (Thiemann-Bourque et al., 2017; Therrien 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).

In 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 a 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 during natural speech. Generalization probes showed slight increases in communicative behaviors for all three participants.

Strasser 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 commands. Two of the participants generalized, and maintained the skills learned from the training to a new environment.

### 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 (Strasser & Ferreri, 2014). Therrien & Light (2016; 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 (Strasser & Ferreri, 2014; Thiemann-Bourque et al., 2017; Trembath et al., 2009; Trottier et al., 2011).