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Acquisition of peer manding and listener responding in young children with autism

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ABSTRACT

Individuals diagnosed with an autism spectrum disorder demonstrate impairments in communication and social interaction. The importance of acquiring those skills, especially as young children, has been well established in the literature. Peer-mediated interventions have recently received much attention; however, its use is contingent upon access to typically developing peers, which is not always the case in all educational settings. Thus, it is often necessary for specific instruction to occur for matched peers when conducting instruction for peer-mediated communication. However, strategies for teaching these skills have not adequately addressed the role of the listener, especially that of a matched peer, within the instructional setting. Listener responding is a required component for teaching this type of behavior, for without it these emerging skills may not produce reinforcement. Once taught, the communicative skills will require reinforcement from peer-listeners if those skills are to be maintained beyond the instructional setting. The current study arranged for young children with autism to play both the speaking and listening roles in the acquisition of peer-mediated communication (i.e., mand) skills, within a multiple baseline design. The study resulted in increases in independent peer manding and listener responding in all three children.

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1. Introduction

Among the deficits observed in individuals diagnosed with autism spectrum disorder (ASD), impairments in communication and social interaction are hallmark features (APA, 2013; Rapin, 1991; World Health Organization, 1992). These impairments are especially evident in social situations such as communication between peers. Since children with autism tend not to be influenced by social contact with others, it is often necessary to explicitly teach functional communication acts (Bondy & Frost, 1994), such as the requesting of needed items, prior to teaching social communication acts such as labeling and conversational skills. Thus, teaching functional communication acts, which are peer mediated, seems a natural first step in terms of social skills training.

In the behavior analytic literature, requests are more technically described as *mands* (Mayer, Sulzer-Azaroff, & Wallace, 2011). Mands are verbal behavior under the control of a condition of either deprivation or aversive stimulation and maintained (or reinforced) by a specific kind of consequence, which is typically specified by the speaker and mediated by a listener. Skinner (1957) described the mand as behavior reinforced by a listener, which he often referred to as "the verbal

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community" as a whole. The importance of establishing these types of skills in learners with autism has been well documented in the literature and directly addresses some of the communication impairments evident in individuals diagnosed with ASD (Lovaas, 1981, 2003; Maurice, Green, & Foxx, 2001; Partington & Sundberg, 1998; Partington, 2006; Sundberg, 2008).

There is an emerging body of literature investigating strategies that address the social skills impairment evident in individuals diagnosed with ASD. One method that has received a great deal of attention, as of late, is peer-mediated intervention (PMI; Bohlander, Orlich, & Varley, 2012). PMI is an intervention strategy in which typically developing peers are taught to act in the role of the interventionist, providing prompting and instruction, or facilitating social interaction (Chan et al., 2009). The success of PMI to teach peer mediated requesting or manding is apparent within the literature (Bohlander et al., 2012).

For example, Morrison, Kamps, Garcia, and Parker (2001) demonstrated the effectiveness of peer-mediated interventions at increasing initiations, requesting, commenting, and sharing in four school-aged children with ASD. Within the study, peer groups were instructed to engaged in board game play and data were collected on multiple variables including requesting, responding, and initiations to peers. Following the introduction of peer-mediated intervention, all four participants diagnosed with ASD demonstrated an increase in initiations, responses to peers, and requesting (Morrison et al., 2001).

Additionally, Trembath, Baladin, Togher, and Stancliffe (2009) investigated the effectiveness of peer-mediated intervention at increasing the communicative behaviors of three preschool aged males diagnosed with ASD. Within the research design, typically developing peers were taught to provide prompts for social interactions during 10-min play sessions. The results indicated that the peer prompting was effective, as a modest increase in communicative behaviors was evident in all three participants. Furthermore, the communicative behaviors generalized to a setting other than the one in which training took place (Trembath et al., 2009).

There are many advantages to PMI including generalization and an increase in inclusion practices (Chan et al., 2009). However, one of the basic tenants for PMI is that the individual must have access to typically developing peers, which is not always the case in early intensive behavior intervention settings, which often take place in self contained educational centers. In these settings, PMI can still be possible; however, special consideration and training must be paid to both peers within the dyad. That is, instruction must be specifically arranged for both peers; the peer acting in the role of the speaker and also the peer-mediator or peer listener.

Within the behavior analytic literature, Zettle and Hayes (1982) explored the role of the listener and argued that listener behavior is a form of rule-governed behavior. Rule-governed behavior involves a verbal antecedent provided by a speaker, which the listener reacts to according to the contingencies arranged by the speaker. However in the case of very young listeners or learners with communicative deficits, if the listeners were to lack the necessary skills to respond, the speaker's mand would go unreinforced or at the very least not produce the contingencies arranged in the speaker's mand. Within early intensive behavior intervention for young children with autism, weak or absent listener repertoires are often observed and are granted explicit inclusion in curricular sequences (Lovaas, 1981, 2003; Maurice et al., 2001; Partington & Sundberg, 1998; Partington, 2006; Sundberg, 2008). However, inclusion of specific instruction for the role of both the speaker and listener during peer-mediated manding has received little attention within the literature.

For example, Paden, Kodak, Fisher, Gawley-Bullington, and Bouxsein (2012) demonstrated the effectiveness of a training procedure that used differential reinforcement and prompting to increase peer mands, for leisure items, using PECS (Picture Exchange Communication System; Bondy & Frost, 1994) in two children with autism. Although the reinforcement and training procedures for the mand training were thoroughly described, the authors note that the lack of data on listener responding was a limitation of the research design (Paden et al., 2012). Additionally, Taylor et al. (2005) examined the effects of withholding snack items in the establishment of peer manding repertoires. The results of their study indicated that the children learned to mand for preferred snack items from peers, and although the authors describe the listener responses, they do not provide data on the rate of independent listener responding (Taylor et al., 2005).

Neglect of the matched peer's (listener) skills is a common occurrence in the available literature (Paden et al., 2012; Pellecchia & Hineline, 2007; Taylor et al., 2005). For the studies referenced, an intact listener repertoire is implied but not formally assessed or taught. Despite this, the matched-peer's adequate performance as listener is a pivotal component for the successful teaching of peer mediated communicative repertoires in children with autism. Without an effective listener repertoire, the mands of their peers would likely not produce reinforcement and their behavior would lack the reciprocity of typical social interaction.

Unlike previous research (e.g., Paden et al., 2012; Pellecchia & Hineline, 2007; Taylor et al., 2005) on peer manding in children with autism, the study reported here focused equally upon the behavior of both speakers and listeners. To investigate listener responding, peers diagnosed with autism were taught to deliver reinforcement accurately when presented with a peer's mand, thus offering an improvement over previously reported procedures that address the speaker–listener dynamic between peers. Additionally, this study used matched peers who were both diagnosed with an autism spectrum disorder. Specifically, the purpose of the current study was to (a) establish peer manding repertoires through an interrupted chain procedure and (b) establish listener responding for three matched-peers diagnosed with an autism spectrum disorder. Generalization of these repertoires with novel peers was also assessed.