Effects of the Mirror Instruction on the Improvement of Generalized Imitation with Visual-Perspective-Taking for Kindergarteners with ASD*

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Abstract

The purpose of this study was to test the effects of the mirror instruction on the participants' right-left visual-perspective-taking while imitating unilateral actions. The study included three kindergarten aged students diagnosed with autism spectrum disorder from a self-contained classroom in a special education school. The dependent variable was the number of correct responses to unilateral actions each participant was required to imitate during the pre and post-intervention probe sessions when they were face to face with the instructor. The independent variable was the implementation of the mirror instruction in which the participants were required to imitate unilateral actions with right-left visual-perspective-taking. A delayed multiple probe across participants design was employed to test the effects of the mirror instruction on the participants' ability to use visual-perspective-taking while imitating actions. Results indicated that the mirror instruction increased correct visual-perspective-taking when the participant imitated unilateral movements.

Key words: applied behavior analysis, generalized imitation, visual-perspective-taking, mirror instruction

I. Introduction

Imitation is a behavior in which an individual visually observes a model and then

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duplicates this model (Catania, 2007; Greer, 2002). Cooper, Heron, and Heward (2007) also demonstrated that imitation is the behavior controlled by any physical movement that serves as a novel model excluding vocal verbal behavior. Any physical movement can function as a model for imitation but the model and the imitative behavior must have some formal similarity. Previous imitation-related studies demonstrated that individuals with ASD and/or other developmental disabilities have difficulty with emitting imitative behaviors (Rogers, Bennetto, McEvoy, & Pennington, 1996; Stone, Ousley, & Littleford, 1997). Especially, individuals with ASD usually shows more difficulties in imitative manual movements, imitative postural movements, oral-facial movements, and object imitative movements than children diagnosed with other developmental disorders and typically developing children (Moreno, 2012; Stone, Ousley, & Littleford, 1997; Rogers, Hepburn, Stackhouse, & Wehner, 2003).

While the act of imitation consists of single, directly taught operants, generalized imitation is a much larger response class with which individuals can emit imitative responses even without direct teaching (Catania, 2007). For example, a child with the generalized imitation capability would demonstrated the ability to imitate novel, untaught behaviors in addition to previously taught imitative behaviors. That is, when an individual has generalized imitation, they can do what the teacher does, even if imitation of a particular action has not been taught (Greer & Ross, 2008). Generalized imitation is considered as a higher order operant which is an essential foundational developmental cusp. The generalized imitation capability would enable a child to learn in a new way that he or she could not before without direct teaching from others and be necessary to accelerate learning. A large body of studies demonstrated that generalized imitation is not a single large response class, but consists of topographically different subclasses which restrict the overall generalization. Baer, Peterson, and Sherman (1967) found that participants with intellectual disability imitated untaught actions only if they were topographically similar to the actions that were previously reinforced during training. Garcia, Baer, and Firestone (1971) demonstrated that when students with developmental delays (e.g., ASD) received reinforcement for three different topographies of imitative responses, imitative responding to untaught actions increased but only within the response topography and did not generalize to untreated response topographies. Young, Krantz, McClannahan, and Poulson (1994) demonstrated that unlearned imitative responses may be limited to the topographical boundaries of each response class that had an instructional history of reinforcement.