Significance of Imitation Skills in Social Skill Training of Children with Autism

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Abstract
Children with Autism Spectrum Disorder are characterized by their significant deficits in Socialization, social communication and the presence of repetitive stereotypic behaviors. These children are found to take very few attempts to engage with others in the immediate social environment and also to respond to incoming social stimuli. A number of research works are on the track in identifying effective intervention strategies to support children with autism in managing and handling their social deficits in day to day life. Imitation skill is found to be an important element in the process of learning for any individual. Imitation also enhances social behaviors apart from serving the basic purpose of language acquisition and functional behaviors. It is said to be the base for any individual to socially interact. Children with autism though lag behind in imitation when compared to the normal peers found to respond to social skill trainings based on imitation skills. The level of imitation skill in early years of life predicts the level of communication and social development in children with autism in the later years. Hence this conceptual paper focus on highlighting the imitation behavior of children with autism and the impact of various imitations based social skill training programs on social behavior of children with autism. Reciprocal imitation training, Video modeling, Still face paradigm and Robotic interventions are some the approaches that is found to be more effective in developing social skills through imitation skills training.

Key Words: Children with autism, Social Skill, Imitation, Intervention method

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Introduction

Autism spectrum disorder is a condition that comes under complex developmental disorders showing "persistent deficits in social communication and social interaction across multiple contexts" and "restricted, repetitive patterns of behavior, interests, or activities." (American Psychiatric Association; 2013) It is known as a "spectrum" disorder because people with ASD can have a number of signs and symptoms. People with ASD may have issues talking with you, or they may not look you in the attention whilst you speak to them. They may additionally have confined interests and repetitive behaviors. They may also spend a number of time putting matters in order, or they'll say the identical sentence again and again. They may also often seem to be in their "very own world." Their pattern of learning, thoughts, and ability to handle problems may vary from high functioning to severely challenged.

Autism has gained the attention of many researchers in the field mental health, psychology, special education and rehabilitation due to its remarkable diagnosis in the past two decades. (APA, 2013; Rice, 2009). In the current scenario an average of one in every fifty-nine children are reported to have the diagnoses of autism (CDC, 2014). Among the various diagnostic features the deficits in social communication and social interaction affects the everyday relationship of children with autism with others especially with their parents and other immediate family members.

Social interactions are common in children with normal developmental histories, such interactions are very less or totally absent in children diagnosed with Autism Spectrum Disorder (ASD)(Dawson et al., 2004). Deficits in social skills in children with autism can be grouped under three categories. Deficits in Social emotional reciprocity, social behaviors that includes nonverbal communication and poor ability in developing, sustaining and understand social relationships. The above-mentioned social skills play an important role in molding an individual’s personality in forming relationship with peers and other, displaying social manners, sharing emotion needs and in caring for others. Imitation is said to be a precursor for social skills since imitation is considered to be a conscious connection between persons involved in it.
Imitation is believed as a skill to duplicate another person’s behavior, follow physical Characteristics and connotations (Sevlever & Gillis, 2010). The earliest characteristic of imitation involving body actions, vocalizations and facial expressions gives a experience of connectedness, mutuality, and a means of verbal exchange with social partners. In general imitation is can be observed in three types. They are object imitation, gestural imitation, oral facial imitation. These types can be further grouped as single or sequential, immediate or deferred and spontaneous or elicited (Sevlever & Gillis, 2010).

Imitation skills develop in the early years of life and provide the basis for learning a wide array of complex behaviors and in developing cognitive, language, social and communication skills (Ingersoll B, 2010). It is evident that children learn language by observing and imitating body and facial features of others (Rogers, Hepburn, Stackhouse, & Wehner, 2003, Stone & Yoder, 2001), learn to engage in reciprocal communication, taking turns and taking alternative roles in conversation (Tomasello, Carpenter, Call, Behne, & Moll, 2005, Nadel, 2002). Research studies had shown concurrent correlations between imitation and unique measures of visual–spatial statistics processing and motor skills (Mostofsky et al., 2006; Vanvuchelen et al., 2007; Salowitz et al., 2013).

McDuffie et al. (2007) also located that imitation in dependent-elicited and spontaneous-instrumental situations had been related to attention-following competencies, whereas overall performance within the naturalistic social condition became associated with reciprocal social interplay, suggesting imitation serves diverse functions in different contexts. Based on the reflections gained from various studies on significance of imitation skills, this review paper aims to bring out the effectiveness of imitation based training on social skill development in children with autism.

**Imitation Skill in Children with Autism**

Imitation is an important element for each child to gain new knowledge and acquire new skills. Normally children start acquiring imitation skills in their early stages of life. This imitation skill is said to serve two purpose ie. Learning function and social function. It also allows socializing except mastering language and sure behaviors and capabilities. Imitating behaviors of parents and
reactions of them are the first social experience a child encounter with. This is how they construct family members with others within the first location. Imitation in children with autism also goes way. It not only allows children with autism to learn new concepts but instead helps them to socialize with people around them including peers, teachers and parents.

Unlike normal children, children with autism show a variety of indifferent behaviors which may restrict their ability to learn from imitation. Social orienting theory also states that due to the deficits in joint attention and imitation children with autism pay less attention to the social stimuli which in turn affects the engagement of immediate others in the environment to interact with them. (Dawson et al., 2004). Poor imitation skill also affects their peer relationship (Ingersoll, 2008)

Previous studies on imitation of children with autism have reported that children with autism show considerable deficits in imitation and these deficits leads to impairment in language, social and communication skills. (Williams, Whiten, & Singh, 2004, Roger & Williams, 2006; Williams, 2008, Cook, & Meryl, 2005). It is also said that the impairment of imitation in children with autism is also found to be a diagnostic criterion for the condition (Lord et al. 2000). These children are also reported to have this deficit in spontaneous imitation, elicited imitation of gestures, actions, oral facial imitation and role reversal imitation. (Carpenter, Tomasello, & Striano, 2005 Smith and Bryson (2007), Roger et. al (2003), Rogers et al. (2008), Vivanti et al. (2008), and Gizzonio et al. (2015)).

On the other hand, findings report that children with autism are more likely to imitate actions with objects that produces sensory effects (Ingersoll, Schreibman, and Tran (2003), meaningful gestures than non-meaningful gestures (Cossu et al. (2012) and Wild et al. (2011)) and in structured elicited and spontaneous instrumental condition than in naturalistic social conditions (Stone et al. 2004).

There are numerous field works and intervention studies that have reported both correlations and impact of imitation skills of children with autism with other areas of language and social development. Concurrent and predictive correlations between imitation and language skills in children with ASD have been reported [e.g., Stone and Yoder (2001), Toth et al. (2007), and Ingersoll and Meyer (2011)].

Ingersoll (2006) and Carpenter et.al (2002) found correlation between object imitation and coordinated joint attention in children with autism in preschool-age. Significant association between the social use of imitation in infancy and the development of social communication skills
were found [e.g., Charman et al. (2000), Paukner et al. (2014), Simpson et al. (2016). Adolescents with autism with good upper and lower facial imitation is found to develop spontaneous speech ((Freitag, Kleser, & Von Gontardf, 2006).

**Effectiveness of Imitation Skill Based Interventions on Social Skills in Children with Autism**

Social skill enhancement through a variety of intervention strategies are emerging in the current scenario to support children with autism to cope up with their difficulties in socialization. Among the varied methods there are few approaches like video modeling, peer tutoring, reciprocal imitation training, Still face paradigm and Robotic interventions that focus on imitation as a key element in improving social skills in children with autism. A brief evident based description on the above methods is as follows.

**Reciprocal Imitation Training**

Reciprocal Imitation Training (RIT) is a remedial program that focuses on natural social interactions. The underlying base of this training is to teach the child to use imitation to get involved in social behaviors by interacting with an adult. In the starting phase of the program the adult imitates the child’s behavior both verbal and nonverbal and in the later part the child is motivated to pay attention to the adult and imitate his/her behavior. Ultimately the child learns to imitate adults as well as learn to engage in social behaviors (Ingersoll, 2008).

Studies including single case studies (Ingersoll, Lewis, & Kroman, 2007; Ingersoll & Schreibman, 2006) and a small randomized controlled trial (n=21) (Ingersoll, 2010) have shown RIT to be effective in developing spontaneous object and gesture imitation in young children with autism. Investigations also confirm that contingent imitation enhances social responses and coordinated joint attention (Escalona, Field, Nadel, & Lundy, 2002; Ingersoll & Schreibman, 2006). Hwang and Hughes (2000) used a similar intervention and found that the children showed increased eye contact, imitation of familiar actions and generalized it to familiar situations. This study also recommended similar intervention to improve socialization and social communication in children with autism.

**Video Modeling**
Video modeling is one among the various teaching methods that uses imitation of videoed content to teach social skills. This method has proven to increase imitation as well as other social behaviors in generalized context (Charlop-Christy et al. 2000; Schwandt et al. 2002; Nikopoulos and Keenan 2003). A meta-analysis was conducted on 23 studies based on effectiveness of Video modeling in children with autism and it was found that the intervention method has highest effect on functional skills followed by social communication and behavior skills ((Bellini and Akullian 2007).

Still-Face Paradigm

The “still face” is an experiment developed by Dr. Ed. Tronic in 1970’s. This is an experiment to show the need for connection in early years of life and how parent’s reaction affects the emotions of the developing baby. In this method the parent / teacher interacts and play with the child for first few minutes and they remain silent for the next few minutes. It was found that the children started to show actions and imitate parents/teachers’ reactions to make them interact with them.

The same concept still face paradigm was used as an intervention for children with autism by Nadel et al. (2000) in four phases. In first phase an unfamiliar person was made to sit still for 3 minutes, in the second phase the person imitates all the behavior of the child with autism including autistic behaviors and again in the third phase the unfamiliar person sits still again. Fourth phase was considered to an interaction face. Results of the study showed an increased social initiation and responsiveness like physical proximity and touching by children with autism (Escalona et al., 2000)

Robotic Interventions

Robotic intervention is a type of training which uses robots to teach social, imitation and other functional skills in children with autism. The robots used are referred as social assistive robots. Robots are said to teach better imitation skills than human by allowing children with autism to interact with robots in game form. (Conti et. al 2015, silva et.al 2009, srinivasan et.al, 2015). Robotic intervention have also proved to improve social communication skills and quality of life in children with autism including joint attention and imitation. (Taheri et. al 2018, Carlos et. al 2016)

Discussion

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The role of imitation in development of social skills and its relationship on various perspective is evident from the above reviews. Children with autism have demonstrated more social and imitative behavior when they are imitated. This highlights the significance of imitation in the process of developing social skills in children with autism. Development of joint attention and imitation serve as a precursor skill developing social skills (Carpenter, Pennington, & Rogers, 2002; Dawson et al., 2004). It is important to consider the overall level of attention of the child to the social stimuli, if poor attention skills are found, it is important to develop joint attention skills before going in for any imitation based interventions. It is also vital to include social function of imitation since many studies have also reported that children with autism show impaired spontaneous use of imitation ((Rogers et. al, 2003).

Though imitation remains an important element of social skill training for children with autism there are few others considerations in planning intervention for children with autism. The first one emphasizes on both early identification and early intervention for children with autism (Koegel, Koegel, Ashbaugh, & Bradshaw, 2014; National Research Council, 2001). Earlier the intervention started better the outcome of intervention strategies and skill development.

Past studies have also recommended for a more structured and regular scheduled intervention inorder to yield more positive results for children with autism (Eikeseth, Smith, Jahr, & Eldevik, 2007).

Conclusion

In spite of varied impact and direction of relationships imitation remains a significant element in the process of learning and socialization. It is essential to address the imitation skill and deficits in children with autism which in turns helps in identifying suitable intervention for developing social skills. Thus, training and improving the social function of imitation in children with autism will assist in promotion of social communication and other functional skills.
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References


