THE POTENTIAL OF USING IMITATION AS LEARNING IN ENHANCING THE SOCIAL BEHAVIOR OF CHILDREN WITH ASD

Oprea-Valentin BUȘU[1], Andreea-Denisa BUȘU[2]

Abstract

A plethora of studies have been conducted with regards to imitation as primary method of learning trough which children acquire new skills. A serious amount of evidence has been brought up in recent years suggesting that 'being imitated' presents social valences and that the imitation of children could be used as a tool of stimulating social engagement in children with Autism Spectrum Disorder. The importance of teaching imitation to children with disabilities has been recognized as early as the 1960s. This article is a literature review exploring the contemporary approaches towards the behavioral consequences of imitation as learning in ASD. The 'being imitated' method promotes progress in terms of social gazes, play skills and proximal social behaviors. This applies more especially to children with lower developmental level but also when the child's mother adopts the strategy.

Key words: *Autism; Imitation as Learning; Social brain; ASD; Being imitated, Behavioral approach; Proximal social behaviours.*

1. Literature review

As Gabriel Tarde (1900, 2010) demonstrated, imitation is one of the fundamental social and psychological laws; in general, man learns and lives by imitation. Starting from this, the decisive positive action of the imitation was revealed in the main activities of childhood (Piaget, 1959) and throughout the social learning (Bandura, 1962). Subsequent imitation was used as a tool in the primary or secondary treatment of various mild illnesses or illnesses (White Jr, Akers, Green, Yates, 1974).

Treating children with ASD by using the imitation method began after 1980 (Allen, 1988). The relationship between "imitative behaviour" and "autistic disorder" (Williams, Whiten & Singh, 2004) has been investigated, "The role of language and communication level when trying to understand developmental trajectories in children with autism spectrum disorders" (Braddock, Bodor, Mueller & Bashinski, 2017) and Imitation Immigration Tool (Kim, Park, Koo, Shin & Johns, Rudling, Råstam, Gillberg & Woo, 2018). Our contribution is to prove that making

[1]Assist., PhD, Teacher Training Department, University of Craiova, Romania, e-mail address: valentin_busu@yahoo.com

[2] Master of Science Counselling and Psychotherapy, Keele University UK, e-mail address: andreeadenisabusu@gmail.com

use of imitation as a tool in early intervention could be beneficial in the development process of social skills on behavioral as well as neurological levels.

2. Children with autism

More often than not, children with autism present severe impairments in terms of social interaction and the ability to communicate which is obvious in areas such as social attention and regulation. Close to a quarter of children with ASD fail to develop spoken communicative language throughout their life (Hus *et al*., 2007). A variety of research pieces dealt with the positive effect of adults imitating children including when referring to play patterns of both autistic (Dawson, Adams, 1984; Dawson, Galpert, 1990) and non-autistic children (Field, 1977). As such, studying the impact of using imitation as means of eliciting and improving social behaviors of children with ASD is critical.

By looking at the subject specific literature, it can be observed that in the situations when the adult was imitating the child, the latter's social responsiveness would gradually increase. Several studies have also explored the way in which imitative interactions in case of children with ASD served as an aid in the process development of various areas. As a result of using imitation, object interactions significantly improved and stereotypical behaviors were minimised (Harris, Handleman, Fong, 1987). Important amount of evidence was also presented with relation to imitation increasing gaze behavior of children with ASD (Tiegerman & Primavera, 1984) but also better language development was registered following imitation (Nadel, 2006; Budica, Busu, Dumitru, Purcaru, 2015).

Another positive aspect of engaging in imitation was pointed out in relation to the connection that it places between the two participants, according to Nadel and Peze, imitation: 'recognized exchange or connection between two persons and thereby creates a feeling of shared understanding between the individuals' (Nadel & Peze, 1993, p. 23). Imitation also proved to be useful for the adults that tended to pay more attention to the social cues when interacting with the child (Field, 1977). The interest in terms of imitation in ASD has increased in the past decades providing the importance that imitation plays in the improvement of the afore mentioned areas of development.

The relation between imitation as learning and the social behavior of children with ASD will be thoroughly addressed throughout the following pages. For a proper exploration of the issue, a rather extensive definition of imitation will be presented at the beginning of the article looking at the different approaches of imitation in the existent literature. Further on, a definition of social communication will be addressed as well with the purpose of then highlighting the connection between imitation and social communication in children with ASD. The link between imitation and social communication will be the focal point of the piece, looking at experimental research projects that made use of the still face paradigm. All of which, having as ultimate purpose the question as to whether or not parents' of children with ASD would benefit from training on how to be imitative. The last section of the article will further address the limitations of the studies in question and draw up the conclusions.

3. Defining Imitation

Because of the importance that the issue of imitation portrays in various disciplines, a singular definition of imitation is rather difficult to express. A number of classifications have been used in order to accurately present the differences between the levels of copying one's behavior.

Usually, copying behaviors are distinguished by using the four categories: stimulus enhancement, emulation, mimicry, and true imitation. In case of stimulus enhancement, the attention is drawn to the activity that is being copied, which might have not been observed in a different instance by the individual. To exemplify, if a child observes his mother eating a piece of cake, he will then realize that the cake is available to consume and he might engage in copying his mother's behavior and have a piece of cake as well. Emulation and stimulus enhancement present a certain degree of similarity, nonetheless, the major distinction between the two is that the accent is played on the goal itself rather than the means of achieving it. In other words, the action is being executed in a different manner. As an example, if a child observes their parent pressing a button in order to make a toy talk, the child might copy the intention, but not the means- trying to press the button with their foot instead of hand (Tomasello, 1990).

Mimicry implies following the exact steps of the act, without having an understanding of the act itself. It is often referred to as an automatic behavior, that happens quite fast without actually being aware of it happening, making it a spontaneous manner of imitation. The imitation of facial expression is usually referred to as mimicry (Rogers, Williams, 2006). A further means of explaining imitation is contagion. Contagion is based upon the idea that certain actions present fixed response reactions. The actions characterized by contagion are on most occasions involuntary which draws upon the fact that the observer does not receive any new information from the specific interaction, but displays an automatic stimulus-response process. Yawning in the case of individuals and animals' mating rituals are described as contagion (Byrne, Russon, 1998). Nonetheless, imitation requires both reproducing the form as well as the intention of the action in question.

4. Defining Social Communication

On a general note, social communicative skills imply the ability of placing the attention between the social partner and a proximal object or event (Mundy, Sigman, 2006). A central issue of social communication is the ability to coordinate the triadic sharing of attention between the child, another person and an object or event. Joint attention is one of the key aspects in the development of social communicative skills and it involves the capacity of perceiving other people as international agents (Tomasello, 1995).

Requesting is a social skill of nonverbal nature used to regulate the other's behavior, one of the most important social communicative skills that involves joint attention on an object. A typical example would be the situation when a child is using gestures in order draw the attention upon a toy that is out of reach and that he wants to use (Mundy *et al*., 1995).

Social communication also refers to social interaction which can be realised with or without the help of objects, one of the most popular forms of social interaction in play situations is turn taking (Heimann *et al*., 2006). The issues in terms of social communication have their basis in impairments with relation to these early, basic social communication functions (Dawson *et al*., 2004). To exemplify, joint attention is one of the first difficulties found in terms of autism (Charman, 2003).

5. Imitation in Relation to Social Communication and Behavior

Provided that the article aims at drawing an accurate picture of the impact of imitation on the social aspects of communication as well as behavior of children with ASD, several studies will be presented and explored in order to determine whether or not imitation can be used as an effective therapeutic tool for them. In a later section, the question as to whether or not parents of children with ASD could benefit from being trained on how to be more imitative will also be addressed.

It can easily be argued that imitation is a rather complex ability which plays an important part in social interaction whether referring to adulthood (Chartrand, van Baaren, 2009; Rosca, 2017) or even early childhood (Meltzoff & Moore, 1994). On a similar note, a variety of research projects of experimental nature explored the way in which individuals tend to act after being imitated, highlighting the participants' prosocial orientation manifested both with relation to the imitator and other people, suggesting that individuals do feel closer to each other after being imitated (Ashton-James *et al*., 2007). A similar argument can be made when referring to infancy as it was demonstrated that 'being imitated' generates an increase in social behaviors. According to the literature children are capable to recognize whether they are being imitated from the age of nine months. As a result, children are being more attentive and even smile more when interacting with the adults that engage in imitation, contrasting to the adults that do not respond to their actions with the help of imitation (Carpenter *et al*., 2013; Colhon, Vlăduțescu. Negrea, 2017). Later on, from 14 up until 18 months of age infants begin to show a more mature form of imitation recognition, responding with 'testing behaviors' such as repeating or varying the actions in order to test the adult's imitation (Nielsen, 2006).

As such, from the very beginning of their developmental process, children do present a tendency towards producing imitation and have the ability of recognising when they are being imitated as well. Both of which are intertwined with the development of abilities like: joint attention, understanding of intentions, social reciprocity, all being of a socio-communicative nature (Nadel, 2002; Tomasello *et al*., 2005). Whether pointing out to imitating or being imitated, they create a rather strong communication system. It has also been pointed out that the reciprocation of imitating behaviors can serve as an aid for children in terms of grasping that they can act like the others and vice versa (Meltzoff, 2007).

As Meltzoff puts it in his 'Like-me' approach, the start off of the social and cognitive development process is represented by the identification and recognition

of being imitated. The 'like me' recognition of others is presumably based on the same neural system as imitation: the mirror neuron system (Marshall, Meltzoff, 2014). Because of the importance it plays in terms of social cognitive development, the process of imitation has been explored in detail especially with relation to children with ASD.

Autism Spectrum Disorder is a neurodevelopmental disorder marked by impairments in terms of social communication as well as a restrictiveness in interests and the presence of stereotyped behaviors (American Psychiatric Association, 2013). Both restrictiveness and the lack of interest in imitation can be easily observed in terms of children with ASD (Vivanti, 2015).

Nonetheless, a number of studies do suggest that in the same way that typically developing children manage to recognize imitation, children with ASD have the ability to do so as well and they also respond in a positive manner to imitation exercised by an adult (Nadel, 2002; Colombi *et al*., 2009; Field *et al*., 2001). It can be drawn from the literature that even though their capacity to imitate is often impaired, presumably, their response to 'being imitated' can actually be preserved. Several interventions for children with ASD imply imitating the client's actions in order to promote social engagement.

6. The still face paradigm

The impact of imitation on children with ASD has been studied on numerous occasions in social play settings. One of these, would be the adapted still face paradigm employed by Nadel and her colleagues which involved children with ASD coming into contact with an adult that they had not previously met for four phases, each lasting three minutes. In phase one, the child would walk into a room which was furnished with a sofa, a table, two chairs and two collections of identical toys. The adult would sit on the sofa without moving for three minutes. During the following phase, the participant would imitate the child's every move, even the aberrant behaviors or their toy play behaviors. Phase number three included the same still face as the first one and the last phase involved spontaneous interaction between the child and the unfamiliar adult (Nadel *et al*, 2000).

By making use of the still face paradigm, the researchers came to the conclusion that out of the six social behaviors discovered during coding: looking at the adult, positive facial expressions, negative facial expressions, positive social gestures, close proximity and touching; five of them increased in terms of occurrence whilst in the second still face phase, after the imitative segment as opposed to the first still-face. Whilst that phase, children expressed a lot more in terms of expectant behaviors like looking at or even touching the complete strangers. As the researcher puts it, children with ASD tend to develop social expectancies whilst the imitation phase. As such, the comparatively more proximity seeking and touching behaviors that were demonstrated were regarded as being positive as they presumably imply the children's effort at starting social interactions themselves (Nadel *et al*, 2000).

Nonetheless, the reason behind the effectiveness of the imitative behavior is not certain, even though it has been previously demonstrated that children with

normal development are also prone to being responsive to imitation (Lublin, Field, 1981).

7. Do parents of children with autism need training to become more imitative?

Both undivided attention and receptiveness to the child are absolutely necessary for an adult to be imitative. During mother-child interactions where imitation was in place, the period spent together often turned more playful and the child would show reciprocation (Field, 1977). According to Nadel and her colleagues, children with ASD display more social expectancies around adults that prove to be more socially expressive. Literature suggests that parents of children with ASD tend to initiate more play situations and command more play acts as opposed to parents of children with typical development (Freeman, Kasari, 2013; Vlăduțescu *et al*., 2015).

On a similar note, another study conducted by Nadel and her colleagues discovered that children do adopt more approach behaviors like looking at and touching the adult such cases. Adults that engage in play more often, and therefore that are more playful might prove to be extremely interesting to the child and lead to forming social expectancies as a result. Playfulness might also become helpful in case of children with ASD in terms of promoting the intention to initiate social contact (Nadel *et al*, 2000; Teodorescu, Călin, Bușu, 2016).

The results of the afore mentioned study were consistent to a more recent one conducted by Field in 2016 which explained the way in which parents of children with ASD showed notably more attention towards directing the play during sessions. Nonetheless, them being playful does not imply that they were as imitative as the adults that imitate the child's every move. The play behavior of parents of children with ASD was analysed as compared to the behavior of a researcher that was purposely being imitative of the child. The aim was to show whether or not the more imitative researcher impacted the child's social and imitative behavior more. The play acts were videotaped in phase one when interacting with one of the parents, and they were to be filmed later on when interacting with a researcher unknown to them who imitated the child's every move. As expected, the child was more imitative in the second play situation, when interacting with the researchers than with their parents. The reciprocity in play situations and the turn taking could potentially be a result of the imitative behavior of the adult (Field, 2017). The differences between the sessions when the adult exercised more imitative behavior as opposed to the session when play acts were based solely on contingently responsive behavior implied that by using a more imitative behavior, the adult might prove more effective in terms of facilitating imitative behavior of the child (Escalona *et al*., 2002).

A more playful attitude towards play acts of adults has also been considered as an effective manner of improving and eliciting social behavior in terms of children with autism (Nadel *et al*., 2007). The data resulted from this report, however suggest that imitative behaviors can prove more effective than playfulness. Provided that the majority of children acquire new skills specifically with the help of imitation; the

potential of imitation to improve social and cognitive skills of children with ASD is undoubtable. Various behavioral techniques have been employed and researched in terms of enhancing the social behavior of children with ASD such as: trial training, making use of stereotypic behaviors to increase play skills, different trial reinforcement of adequate behavior, play scripts video modelling and undergoing reciprocal imitation training as well (Stahmer, Ingersoll, Carter, 2003).

That is to say that engaging in imitation can potentially be rather valuable in terms of the social development of the child with ASD but is it the case that the parents could actually contribute towards helping the child to improve the imitation skills or even teach their child imitation? A small sample study conducted by Ingersoll and Gergans suggested that parents are capable of teaching their children how to imitate in the event they receive appropriate training to do so (Ingersoll & Gergans, 2007). Similar to the results of the afore mentioned study, Slaughter and Ong showed in 2014 by using a more consistent sample that the use of imitation in case of mothers of children with autism had a positive effect on their children's social behavior, relating better to their mothers than to an experimenter (Slaughter, Ong, 2014; Voinea *et al*., 2015).

Bearing in mind the positive influence that using imitation can create upon the social communication and behavior of children with ASD and the fact that parents can be trained in order to become as imitative as needed and further train their children imitation, it is not unfair to suggest that parents might need training to be more imitative. As such, therapists could try and model the parents' imitative behavior in order to use it as a tool in terms of further enhancing children's social and cognitive skills.

8. Limitations

It is rather important to note the limitations of the research projects presented on the length of this article. One of the core limitations is related to the research design as it raises questions in terms of generalizability of the findings, more specifically with relation to the possibility of applying them to different situations (Field, 2017).

Another key factor to point out to is the diversity of ASD that correlates with the issue of the very different and particular experiences of autism in children in the spectrum. What is more, the degrees of severity of ASD also depends from individual to individual. This means that it is rather difficult to find developmental aged matched comparison groups but also it raises the issue of detecting adequate methods of treatment to be compared with imitation therapy. The majority of the studies that were quoted in this article used as term of comparison spontaneous play situations and refrained from using typically developing children, having as participants just children with ASD. Nonetheless, only on rare occasions are children with ASD compared with typically developing children on the issue of imitation. This is not only a question of finding developmental-age matched children. Another problem to take into account is the potentially negative impact that imitation has on typically

developing children, that have a tendency to react negatively to being imitated even at a very young age (Field, 2017).

On another note, there is the possibility of confounding the behavior of the adult engaged in imitation. In the study afore mentioned, the imitative adult did not only behave differently in terms of imitation but also displayed more a more playful behavior (Nadel *et al*., 2008). Also, in comparison with the parents, the strangers showed a less demonstrative and directive approach. There is also a possibility that the imitative adults were different in many other aspects as compared to the parents of children which are yet to be explored. Also, other behaviors that therapists engage in and have not been addressed yet could be contributing to making the children more imitative and consequently enhancing their social behaviors (Field, 2017).

9. Conclusion

The article debuted with providing rather ample definitions of both imitation as well as social communication. The studies presented throughout this paper accurately assess the potential of using imitation as a tool in terms of enhancing the social behavior of children with ASD. The majority of the studies recognized the importance of imitation in the development of various skills of interest. The limitations of the studies were also addressed in order to draw an accurate picture on the issue. The importance played by parents of children with ASD in the process of improving such skills was also highlighted. One study showed that parents of children with ASD are more interested in engaging in play acts than parents of typically developing children. Nonetheless, this does not imply that they are being as imitative as the researchers who are purposely being imitative of the child. The idea that trainings can be put in place in order to make the parents more imitative and playful is also stressed as it has been discovered that parents can be trained to further teach their children imitation which, as pointed out on the length of this article is a core area where children with ASD are often impaired and might need help in improving it.

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