

Comparison of Nonverbal Communication Skills of Children with Autism Spectrum Disorder Who Are in Inclusive Schools and Special Schools

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Abstract—Mastery of nonverbal communication skills is closely related to the independence of children with autism spectrum disorder (ASD). The learning environment also contributes to the mastery of nonverbal communication skills. Inclusive schools and special schools provide different learning environments in mediating the development of communication skills. In this study, a test was conducted to compare the level of mastery of nonverbal communication skills of children with ASD in inclusive schools and in special schools. The sample of this study was 20 high school students, 9 from inclusive schools and 11 from special schools. The finding of this study concludes that ASD children in inclusive schools have better expressive nonverbal communication skills than those in special schools.

Keywords— *autism, nonverbal communication, inclusive schools*

I. INTRODUCTION

Communication is the process of sending messages and understanding messages. One of the barriers for children with autism spectrum disorders is communication. Children with autism spectrum disorders (ASD) are estimated between 25% and d. 30% experienced obstacles or even failed to develop functional communication skill (Brignell et al. 2018). Communication skill is a very decisive part of children's independence in activities of daily life.

The development of language and communication skills go hand in hand, because in communicating using

language. The development of both expressive and receptive language occurs in the context of social interaction. And this is what becomes an endless loop in children with autism spectrum disorders. The lack of children's desire to be involved in social interactions makes the opportunity for language and communication development to be minimal, and vice versa, the limited language and communication skills make children's social interactions becomes very limited. DiStefano's research (2016) concluded that there is a very important relationship between children's social involvement in the development of expressive language. That is, the best intervention for ASD children in developing language and communication is done in the context of social interaction.

Nonverbal communication is a form of information processing in the context of social interaction. Nonverbal communication skills refer to an individual's ability to – accurately – send and receive or understand nonverbal information in the context of managing interpersonal relationships (Nowicki & Duke, 2013). Nonverbal communication includes facial expressions, gestures, and intonation (Boice & Monti, 1982). Messages which are sent and received in nonverbal information are expressions or utterances of communicators' emotions (Scherer, 2003).

Nonverbal communication skill develops mainly in the relationship between parents and children, and the relationship between children and caregivers or adults

in their developmental environment. The ways or patterns of behavior of parents, caregivers, and other people around children in responding to emotional expressions affect the sense of security in children and the formation of emotional bonds between children and parents or caregivers, and this will provide an experience of how interpersonal relationships will develop in the future. future (Carton & Carton. 1998; Schachner et al. 2005).

Nonverbal communication skills in children are formed by observing and following the behavior of parents and caregivers (Eisenberg & Miller 1987; Eisenberg et al. 2010), through modeling (Morris et al. 2007), and mirroring (Coan et al. 2007). Where, when the nonverbal responses shown by parents or caregivers to children are consistent and sensitive, the children will be more tenacious and resilient (Savage-McGlynn et al. 2015), children will be able to regulate their emotional expressions better (Trehub et al. 2010), have better self-control (Carton and Carton 1998), and children will learn how to maintain interpersonal relationships effectively (Nowicki and Duke 2013). Mother's touch, soft voice intonation, and friendly gestures help children to develop self-regulation skill and the ability to establish social relationships (Porges 2001; Seltzer et al. 2010). Thus, the most appropriate nonverbal skill development intervention in the context of interaction, especially between children and their parents during parenting (Cologrove & Havighurst, 2016).

In children with autism spectrum disorders, language development, communication including nonverbal communication skills have a very significant delay. They have great difficulty in understanding gestures, hand signals, eye contact and facial expressions. Referring to the research findings of Chiang & Soong (2008) children with autism spectrum disorders at the age of three years have shown limitations in the ability to give joint attention, especially at high levels, engage in communication and turn-taking skill.

Children with autism spectrum experience delays in language development and communication at a serious level (Chiang & Soong, 2008; Eigsti, et al. 2011). Nonverbal communication skill is the basis for language development and verbal communication. Communication problems in children with autism spectrum are suspected to be due to weak imitation ability (Ingersoll & Gergans, 2016; Alshurman, & Alsreaa, 2015), and the way of language acquisition in children with autism spectrum is different from the way of children with other developmental barriers, most teachers and parents get difficulties to improve nonverbal communication skill (Cadette, 2015).

Interventions to improve nonverbal communication skills recommend two strategies, namely through the development of joint attention skill and through peer mediated learning. Joint attention is understood as behavior about the interaction between two or more

people in an activity. Interventions for the long term in the development of joint attention have an impact on the development of nonverbal communication expressions in children (Vitaskova & Rihova, 2013). The second strategy, namely the development of nonverbal communication skills with peer mediation, has proven to be effective (Alshurman, & Alsreaa, 2015; Attwood, et al. 1988; Reed et al. 2007).

The environment in inclusive schools provides great opportunities for interaction and communication between children with autism spectrum disorders and regular children without special needs. In this context, a mediation process will naturally occur for the development of nonverbal communication skills in children with ASD when they interact and communicate with their peers without special needs. The situation is different from the environment in special schools, where children with ASD interact with children who also have interaction and communication barriers. The difference of natural environment between inclusive schools and special schools is the driving force for this research, to compare whether children with ASD in inclusive schools have better communication skills than children with ASD in special schools.

II. METHOD

This study took purposive samples from two inclusive schools and a special school in Malang City. Overall, the sample in this study was 20 students who were diagnosed with autism spectrum disorder, with details of 9 from vocational high school and 11 from special school. The age range of the research subjects is between 15 to 23 years, with a male gender of 15 or 75%.

The data were collected through a questionnaire filled out by homeroom teachers in the special school and special education teachers in the inclusive school. There are four indicators for receptive nonverbal communication skills, namely: (1) Understanding the sad, angry, or happy facial expressions of the interlocutors; (2) Understanding the hand gesture of an invitation or a call from the interlocutors; (3) Understanding the body language of the interlocutors' head shaking or nodding; (4) Understanding the thumbs-up hand gesture as an expression of appreciation or approval. Expressive nonverbal communication skills are seen in three indicators, namely: (1) Expressing mood through facial expressions, for example sad, angry. or happy; (2) Giving approval or rejection with body language, for example by nodding or shaking the head; (3) Expressing an invitation or refusal through hand signals.

Each indicator is assessed by the teacher with a scoring scale of 1 to 4. A score of 1 means the student is not able to perform the intended behavior. A score of 2 means being able to do with a lot of help. A score of

3 means being able to do with a little help. A score of 4 means being able to do independently and consistently. The teachers' assessment score was then converted into a score with a scale of 100. The data analysis was carried out using Kruskal Wallis' nonparametric statistical analysis with the help of SPSS

III. RESULT

An overview of receptive nonverbal communication skills in children with ASD in a regular school and in a special school is presented in Figure 1. Overall, in the four indicators, it appears that children with ASD in the inclusive school have better skill in understanding nonverbal communication expressions from their interlocutors than children with ASD in the special school. Children with ASD in a special school have very low skills in understanding angry, sad, or happy facial expressions. A total of 54.6% of participants with ASD children in the special school need a lot of help to be able to understand other people's facial expressions.

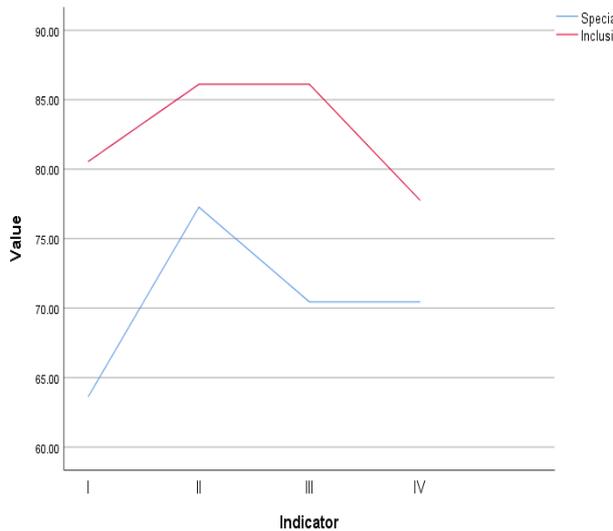


Fig. 1. Receptive Nonverbal Communication Skills

Skills in expressing nonverbal expressions are presented in Figure 2. Research subjects from inclusive schools overall had better nonverbal expressive skills scores than children with ASD from special schools. Of the three indicators of nonverbal expressive skills of children with ASD in regular schools, they are scored by teachers, the highest is the skill to give approval or disapproval by using body language, such as shaking their heads or nodding. On the other hand, the teacher gave a low score in expressing feelings of anger, sadness, or happiness. For children with ASD in special schools, all three assessment indicators are below 75 percent, and the lowest is the ability to refuse or invite using hand signals. From the 11 participants with ASD in special schools, only one child who was assessed by the teacher could express independently and

consistently to refuse or invite using hand signals and the rest they needed help.

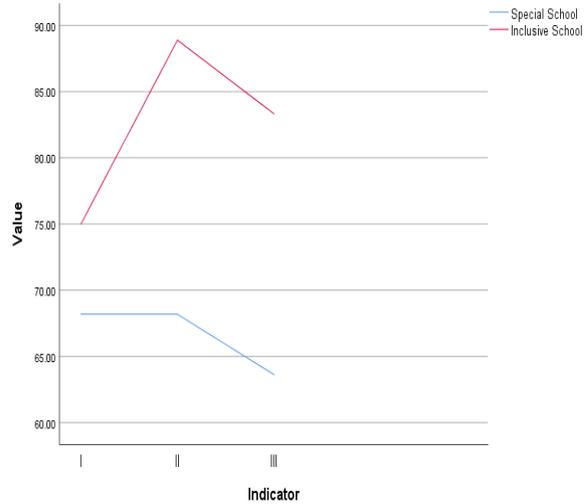


Fig. 2. Expressive Nonverbal Communication Skills

The difference in nonverbal communication skills between children with ASD in inclusive schools and special schools was tested with the Kruskal Wallis Test. Referring to table 1, it is known that the significance value below 0.05, is 0.025 found in nonverbal expressiveness. Thus, it can be concluded that in expressive nonverbal communication skills, there are significant differences between group of children with ASD in inclusive schools and group of children with ASD in special schools. While nonverbal receptive communication skills between the two groups, there was no significant difference.

TABLE I. KRUSKAL WALLIS TEST

	Nonverbal Receptive	Nonverbal Expressive
Kruskal-Wallis H	2.622	5.013
df	1	1
Asymp. Sig.	.105	.025

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IV. DISCUSSION

Based on the findings of this study, it can be concluded that children with ASD in inclusive schools have better nonverbal communication skills than ASD

children in special schools. The significant difference between the two groups lies in expressive nonverbal communication skills. The findings of this study are of course becoming a trigger for further discussion related to the natural environment that can facilitate the development of nonverbal communication skills in children with ASD.

The development of communication and language skills internally is related to: (1) cognitive process, such as the capacity to represent thoughts, and executive functions; (2) interpersonal capacities such as encouragement, willingness, and interest to interact and understand other people (Mundy, et al., 1995). The cognitive capacity of the subjects of this study was not controlled accurately based on the measurement of intelligence. The control is carried out based on the recommendation or judgment from the teacher that the subject is ASD with high function.

Interpersonal capacity is also known as social cognition or called also as theory of mind (ToM). Social cognition or ToM is the work of cognitive function to understand the intricacies of the relationship between individuals and their social environment which is reflected in social behavior (Astington and Edward 2010). This can be seen in the difficulty of ASD children in understanding other people's points of view, and this is the cause of the weak social skills of ASD children (Kihmi, 2014; Mazza et al., 2017). In the subject of this study, it is assumed that both groups have real barriers related to social cognition.

In the learning process, nonverbal communication skills in children are generally formed by observing and following the behavior of those around them (Eisenberg et al. 2010), through modeling (Morris et al. 2007), and mirroring (Coan et al. 2007). This is a problem in ASD children because they are weak in imitation skills (Ingersoll & Gergans, 2016; Alshurman, & Alsreaa, 2015). However, providing a rich learning environment in interaction and communication will provide more opportunities for children to develop their personal capacity for communication. Skills in nonverbal communication grow and develop in the context of problem solving in interaction and communication (Mundy, et al., 1995).

Thus, the explanation that can be given to support the findings of this study is that inclusive schools provide a richer learning environment for interaction and communication. The learning environment in inclusive schools where children with ASD interact and communicate with children without special needs provides opportunities for them to do problem solving in interaction and communication, including the development of nonverbal communication skills. In line with this, the research of McFadden et al. (2014); Alshurman and Alsreaa (2015), concluded the importance of the role of peers in mediating or as peer tutoring in the development of nonverbal communication skills.

The results of the same study were also carried out by Fisher & Mayer (2002). They concluded that the social development of children with severe disabilities who were in inclusive classes was significantly higher than when they were in special classes or self-contained groups. They noted the importance of an accommodative program to run when children with severe disabilities are in inclusive classes. This finding is also in line with research conducted by Hunt & Goetz (1997); Fisher (1999) that one of the benefits of inclusive education for children with severe disabilities is the development of social relationships and friendships between children with special needs and children without special needs.

The limitations of this study are the limited number of samples, and the level of education is only in senior high schools. This means that the findings of this study will have stronger data support if the number of samples taken represents a wider population and involves proportionally elementary and junior high school levels.

V. CONCLUSION

The existence of significant differences in expressive nonverbal communication skills in children with ASD in inclusive schools and in special schools provides a perspective that the learning environment plays a role in facilitating the development of communication skills. Communication skills can grow and develop well in a learning environment that provides many opportunities for children to solve communication and interaction problems. The learning environment in inclusive schools naturally provides this opportunity much wider than the learning environment in special schools.

Future research can explore more deeply what peer mediation and facilitation look like in the development of communication skills in a natural setting. This will open the way for the development of programs to empower peers as mediators of communication development for ASD children.

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