The ABA Method Assisted by Picture Card Media to Improve the Speaking Ability of Group B Children with Autism

A'isyah Nirna Wati[1]*, Luh Ayu Tirtayani[2]   ID

[1,2] Early Childhood Education Study Program, Universitas Pendidikan Ganesha, Singaraja, Indonesia

A B S T R A K

Pilihan pengobatan untuk ASD termasuk Analisis Perilaku Terapan (ABA) berdasarkan teori pembelajaran dan pengkondisian operan. Kartu bergambar merupakan media yang efektif digunakan sebagai media identifikasi objek untuk anak-anak autism. Penelitian ini bertujuan untuk menganalisis pengaruh Penerapan Metode ABA berbantuan Media Kartu Bergambar terhadap kemampuan berbicara anak didik penyandang autisme. Jenis penelitian ini adalah desain eksperimen kasus tunggal (single-case experimental design) yang dilaksanakan dalam tiga fase yaitu fase baseline (A1), fase intervensi (B) dan fase baseline (A2). Subjek dalam penelitian ini adalah dua anak kelompok B. Pengumpulan data penelitian tentang kemampuan berbicara anak didik penyandang autisme menggunakan metode observasi dan wawancara dengan instrumen lembar observasi checklist. Data hasil penelitian dianalisis menggunakan metode analisis statistic deskriptif dan penyajian data dipaparkan secara visual (visual inspection) dalam bentuk grafik. Hasil analisis data menunjukkan bahwa terjadi penurunan frekuensi kemampuan berbicara dan meningkatnya frekuensi kemampuan berbicara dari fase baseline (A1) dengan rerata 6 menjadi 14.18 pada fase intervensi (B) dan meningkat lagi frekuensi kemampuan berbicara anak didik penyandang autisme pada saat intervensi pendekatan ABA dengan berbantuan media kartu bergambar dalam pembelajaran dihentikan (A2) dengan rerata 18.7. Berdasarkan hasil penelitian tersebut dapat disimpulkan bahwa pendekatan metode ABA dengan berbantuan media kartu bergambar dalam pembelajarana terhadap kemampuan berbicara anak didik penyandang autisme Kelompok B.

A B S T R A C T

Treatment options for ASD include Applied Behavior Analysis (ABA) based on learning theory and operant conditioning. Picture cards are an effective medium for object identification for autistic children. This study aims to analyze the effect of the Application of the ABA Method assisted by Picture Card Media on the speaking abilities of students with autism. This type of research is a single-case experimental design which was carried out in three phases, namely the baseline phase (A1), the intervention phase (B) and the baseline phase (A2). The subjects in this study were two children of group B. The collection of research data on the speaking ability of students with autism used observation and interview methods with an observation checklist sheet instrument. Research data were analyzed using descriptive statistical analysis methods and data presentation was presented visually (visual inspection) in graphical form. The results of data analysis showed that there was a decrease in the frequency of speaking ability and an increase in the frequency of speaking ability from the baseline phase (A1) with an average of 6 to 14.18 in the intervention phase (B) and an increase in the frequency of speaking skills of students with autism during the ABA approach intervention with the help of media picture cards in learning stopped (A2) with an average of 18.7. Based on the results of this study it can be concluded that the ABA method approach with the help of picture card media in learning the speaking skills of students with autism Group B.

 Corresponding author
*E-mail addresses: nirnawati88@gmail.com (A'isyah Nirna Wati)

1. INTRODUCTION

Education is the basic need of every human being to ensure the continuity of life so that it is more dignified in the future. Therefore, the government has an obligation to improve the quality of the education system (Hamidaturrohmah & Mulyani, 2020; Holiah, 2022). Of all the rights that must be obtained by the community, the right to accessibility is one of the rights that has even become an unavoidable thing. Starting from the provision of public transportation facilities to community services as a whole. Accessibility itself, if briefly described, is access or ease of a subject in carrying out or obtaining the fulfillment of rights in society. The right to accessibility is more attached to persons with disabilities who generally find it difficult to get equality in carrying out work in their living environment (Fikri et al., 2021; Istifarroh & Nugroho, 2019; Risna Resnawaty, 2017). In the process of teaching and learning a teacher is required to be able to provide an understanding of children with autism, because children with autism have deficiencies in terms of communication and socializing. In interacting with someone, the first thing that must be understood is their language, because language is human communication in establishing relationships with others (Dani, 2018; Sahin et al., 2018; Sproston et al., 2017). Implementation of systematic learning, and individually can make it easier for children with autism to capture every learning process. Learning media that are in accordance with the characteristics and needs of children with autism are also very necessary, teachers have a very important role in the learning process so that teachers must master teaching materials, learning strategies and be able to develop teaching methods and the use of learning media will also help make it easier for teachers to deliver material to students. autism child (Febtriko et al., 2019; Hakiman et al., 2021).

Communication skills for children with autism spectrum disorder are very important, without these abilities the child becomes stressed so that he shows negative behavior, the child cannot convey his wishes so that his behavior seems negative (Dorji, 2015; Mahanani, 2020). This is the same as the presentation of previous research which said that speech or language development disorders in children with autism often frustrate them because of communication problems (Nurcholis & Istiningsih, 2021; Sari et al., 2019). Limitations in capturing other people's messages and difficulties in responding or answering conversations as well as limitations in expressing desires often make them depressed (Arnold & Reed, 2019; Guo et al., 2021). For children with autism spectrum disorder, communication becomes very difficult. The communication and language of a child with autism spectrum is very different from other children his age. Children with autism spectrum disorders experience difficulties in communicating because they only experience obstacles in their language development, while language is the main medium of communication (Sahin et al., 2018; Zhang et al., 2018). If language development experiences obstacles, communication skills will be hampered. The possibility of the emergence of obstacles can be caused because children who become communicators are children with special needs, who experience obstacles in the development of behavior such as the ability to speak (Ratnasari & Zubaidah, 2019; Sembiring et al., 2021). Children with autism spectrum disorders have difficulties in communicating and understanding both verbal and non-verbal communication. In addition, they have difficulty conveying messages and receiving messages (Arnold & Reed, 2019; Happé & Frith, 2014).

The Applied Behavior Analysis (ABA) method is a method developed by Prof. Dr. Ivar O Lovaas from the University of California Los Angeles, whose success is known and has begun to be recommended for treating children with autism spectrum disorders (Dewi & Retnoningtyas, 2019; Suryani & Dewi, 2018). The ABA method is based on the theory of "operant conditioning". The basis of Skinner's own theory is the control of behavior through the manipulation of rewards and punishments. A variety of treatment approaches have been advanced to improve advanced to improve the social and communicative behavior of children of Autism Spectrum Disorder (ASD) (Kincaid et al., 2017; Mahoney, 2019). Treatment options for ASD include Applied Behavior Analysis (ABA) based on theories of learning and operant conditioning. Various intervention approaches have been developed to improve the social behavior and communication of children with Autistic Spectrum Disorder (ASD). Intervention options for children with autism spectrum disorders are Applied Behavior Analysis (ABA) based on Lovas' learning and conditioning theory (Arnold & Reed, 2016; Dewi & Retnoningtyas, 2019).

The purpose of the Lovaas method or commonly known as ABA therapy in treating children with autism is to reduce inappropriate or excessive behavior, teach children good (positive) behavior so they can be accepted in their surroundings. Bad behavior is replaced with better behavior. So that children increasingly understand various things around them, children can catch up in aspects of development. With ABA therapy, it can minimize the failure of children with autism and maximize children's success, can socialize with other people, both in terms of active two-way communication skills, pursuing academic material, minimizing or eliminating inappropriate behavior and can help in the language development of children with autism (Dewi & Retnoningtyas, 2019; Rahayu & Mayasari, 2018).

Picture cards are effective learning cards that have two sides with one side containing pictures, text or symbols and the other side being definitions, captions, answers or descriptions that help remind or direct

students to something related to the picture. on the card. Picture cards usually measure 8 x 12 cm, 25 x 30 cm or can be adjusted according to the size of the class you are dealing with (Pradana & Gerhni, 2019; Safitri & Ratulangi, 2018; Susantini, 2021). Picture cards are visual media of a certain size in the form of cards. The size is adjusted to the needs, but relatively not too big. Picture cards are often also called picture cards, because each card contains an image either in the form of a photo or animated illustration. Picture cards are often used as an object identification medium for children. In its development, picture cards have made many changes by combining letters or numbers associated with the alphabet on objects that are the main objects on picture cards. Data picture card media is used to train children to recognize letters, spell and enrich vocabulary as well as instructions and stimulation for children (Sanusi et al., 2020; Supriatna & Ediyanto, 2021). Departing from this explanation, to optimize the function of picture cards, the author is interested in developing animal character-based picture cards in improving the ability to recognize letters. Animal characters were chosen to make it easier for autistic students to imagine and connect animal characters with letter shapes such as the letter (c) depicted with a circular worm in the shape of (c). The letter (j) is depicted with a giraffe neck giraffe. The choice of animal characters is because animals are the easiest characters to remember and their forms are more often found in various characters such as dolls, cartoons, stickers to everyday life (Sanusi et al., 2020; Wen et al., 2020). According to previous research, picture cards consist of devices grouped according to type or class, for example groups of pictures of food, fruits, vegetables, household appliances, transportation equipment, and clothing (Anggreni et al., 2017; Mahanani, 2020). Picture cards are several sets of cards such as word numbers, etc. The characteristics of picture cards are pictures accompanied by words as a description. From the explanation above regarding the types of picture card media, not only that, teachers can also make their own picture cards to suit the needs of students or the environment when teaching. Based on this, the purpose of this study aims to analyze the effect of applying the ABA method assisted by picture card media on the speaking abilities of students with autism.

2. METHOD

In research with a single case (single case design), researchers use the A-B-A design. The single case design study with the A-B-A design also aims to obtain data before the subject receives treatment or intervention, while receiving treatment and after being given treatment, then to see whether there is any effect that occurs as a result of the treatment given, SSR refers to the research strategy developed to document changes. In general, the A-B-A design can be described in Table 1.

Table 1. Basic Design Procedures A-B-A

Target Behavior	Baseline (A-1)	Intervensi (B)	Baseline (A-2)
		Time	

Based on Table 1, it is known that Baseline (A1) is the condition of the subject before receiving treatment where the subject is treated naturally without repeated treatment. Intervention (B) is a condition when an intervention has been given and the target behavior is measured under these conditions. The goal is to see the behavior that occurs during the given treatment. Intervention is given with the Negative Reinforcement Procedure. Measurement and data collection is carried out for a certain period until the data becomes stable. Baseline (A-2) is the repetition of conditions as an evaluation of the effect of applying the applied behavior analysis method assisted by picture card media in learning on the speaking ability of students with autism. In the intervention design stage, the subject is conditioned during learning activities and the time used in one meeting is 60 minutes during learning activities in class. Recording of the appearance of the application of the applied behavior analysis method assisted by picture card media is carried out tally on an observation sheet with a behavior checklist. Observations were also made to determine the readiness and involvement of participants in learning activities and daily interactions in the classroom. In each measurement two observers were involved who were not involved in class activities. The involvement of more than one observer aims to reduce the subjectivity of the observations. The formula used to calculate the Iterobserver Agreement (IA) is as follows. Based on calculations, the overall interobserver agreement (IA) in this study was 100%. 1A baseline phase is 100% and 1A intervention phase is 100%. Based on the reference research reliability criteria with a minimum percentage of 80, this measurement can be declared reliable. The instrument grid was developed by the researcher based on the achievement level of the child's social emotional development and must include the indicators to be assessed. The instrument grid is needed as a guide in formulating instrument items. The instrument grid is presented in Table 2.

Table 2. Testing of Research Instruments on the Speaking Ability of Group B Students with Autism

No.	Observed Behavior Indicators	Doable		Frequency
		Yes	No	
1	Children are able to speak and say words and sentences to communicate			
2	Children are able to imitate the sounds of language			
3	Children are able to answer questions			
4	Tempo communication speed when talking fast			
5	Tempo speed of communication when talking is slow			
6	Expressing feelings according to existing conditions (happy-sad-enthusiastic, etc.)			

After the data in this study was collected, then data analysis was carried out. In this study, visual analysis (visual inspection) was used, namely by interpreting the measurement results using graphics accurately and meaningfully, within and between the conditions involved. Under-condition analysis is analyzing data changes under one condition, for example in baseline conditions or intervention conditions. The components analyzed include the length of the condition involving simple descriptive statistics of the mean, median and mode. While the analysis between conditions is to analyze changes in data between baseline conditions and intervention conditions. The components analyzed include the number of variables, changes in trends and their effects, changes in stability, changes in levels and percentage of overlap. This visual analysis also involves simple descriptive statistics such as mean, median and mode.

3. RESULT AND DISCUSSION

Result

Visual analysis of each research condition is listed in the graph. The data analyzed in this study is to improve speaking skills. This research is a study with a single case (single case design). Researchers use the A-B-A design. The objects studied were people with autism using the Applied Behavioral Analysis approach to the speaking abilities of children with autism with the help of picture cards. Data from observations (measurements) of the frequency of behavior of students with autism in subject 1 is shown in Table 3.
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Table 3. Data on Measurement Results of the Speaking Ability of Students with Autism (Subject 1)

Phase	Observation	Frequency of Speaking Ability of Children with Autism		Average
		Observer 1	Observer 2	
Baseline (A1)	1	6	4	5
	2	6	6	6
	3	5	5	5
	4	5	6	6.5
	5	7	6	6.5
Intervensi (B)	6	10	11	10.5
	7	12	12	12
	8	12	12	12
	9	14	13	13.5
	10	15	14	14.5
	11	16	17	16.5
	12	16	17	16.5
	13	17	17	17
	14	17	18	17.5
Baseline (A2)	15	17	18	17.5
	16	18	19	18.5
	17	19	19	19

Phase	Observation	Frequency of Speaking Ability of Children with Autism		Average
		Observer 1	Observer 2	
	18	20	20	20

Based on Table 3, it can be seen that the speaking ability of children with autism has increased from the baseline phase (A1), the intervention phase and the baseline phase (A2). Analysis within and between conditions of measurement of subject 1 in graphical form is shown in Figure 1.
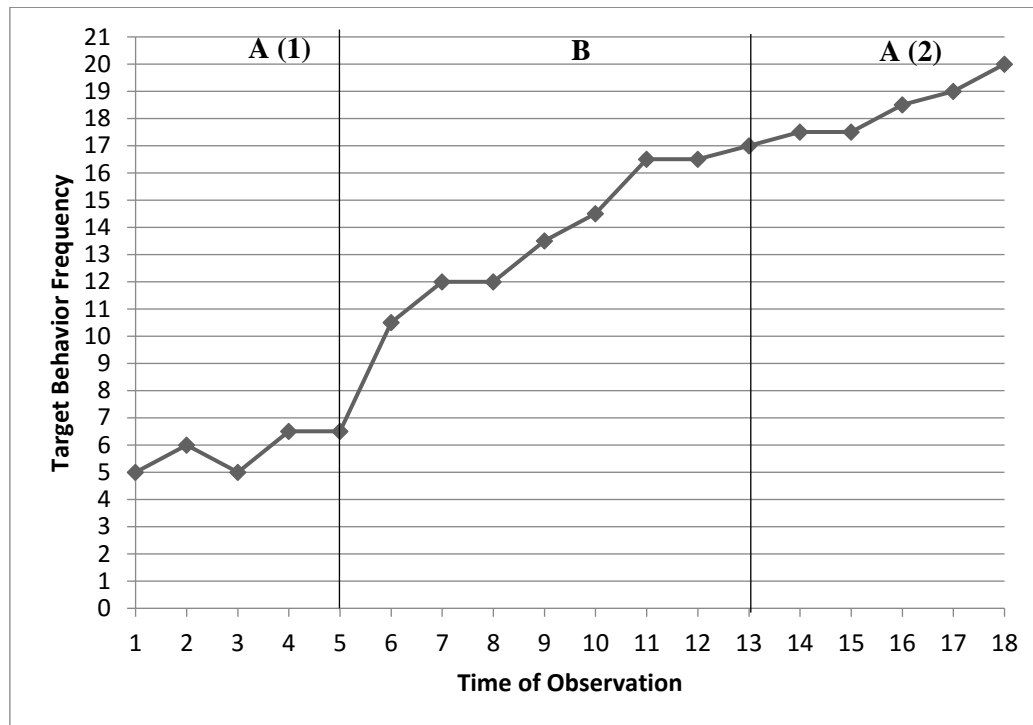

Figure 1. Visual Analysis of the Speaking Ability of Group B Students with Autism

Based on Figure 1, the ability to speak, in this case indicated by the symptoms of the child not being able to speak and say words and sentences to communicate, was raised by the child with a fairly high frequency in the baseline phase (A1). This is indicated by the average speaking ability which is only 4 although there is a tendency to improve by 1.5 points. The frequency of the target behavior in this phase is in the range of 5 to 6.5. In the intervention phase (B), the child's speaking ability which in this case is indicated by the symptom of the child being able to imitate the sound of language when applying the ABA method assisted by picture card media. This is indicated by the average speaking ability of children with autism of 14.5, where the increase in the first day of program implementation was 1.5 points. Even though in the 11th to 12th observations there was no increase in the frequency of the child's speaking ability, the child's speaking ability in subject 1 showed an indication of improvement by 6.5 points in 8 days of applying the technique. Changes were increasingly visible after the intervention was stopped. It can be seen in the baseline phase (A2), where the speaking ability of children with autism is increasing with an average of 18.5. And there is an increase in the 17.5-20 range. Then the data from observations (measurements) of the frequency of behavior of students with autism subject 2 are shown in Table 4.

Table 4. Data on the Results of Measurements on Speaking Ability of Students with Autism Subject 2

Phase	Observation	Frequency of Speaking Ability of Children with Autism		Average
		Observer 1	Observer 2	
Baseline (A1)	1	5	5	5
	2	5	6	5.5
	3	6	6	6
	4	5	6	6.5
	5	7	6	6.5

Phase	Observation	Frequency of Speaking Ability of Children with Autism		Average
		Observer 1	Observer 2	
	6	10	10	10
	7	11	11	11
	8	12	12	12
Intervensi	9	13	13	13
(B)	10	15	14	14.5
	11	16	16	16
	12	16	17	16.5
	13	17	17	17
	14	17	18	17.5
Baseline	15	18	18	18
(A2)	16	18	19	18.5
	17	19	19	19
	18	20	20	20

Table 4 shows an increase in the speaking ability of children with autism from the baseline phase (A1), the intervention phase and the baseline phase (A2). Visual analysis of each research condition is listed in a graph as shown in Figure 2.
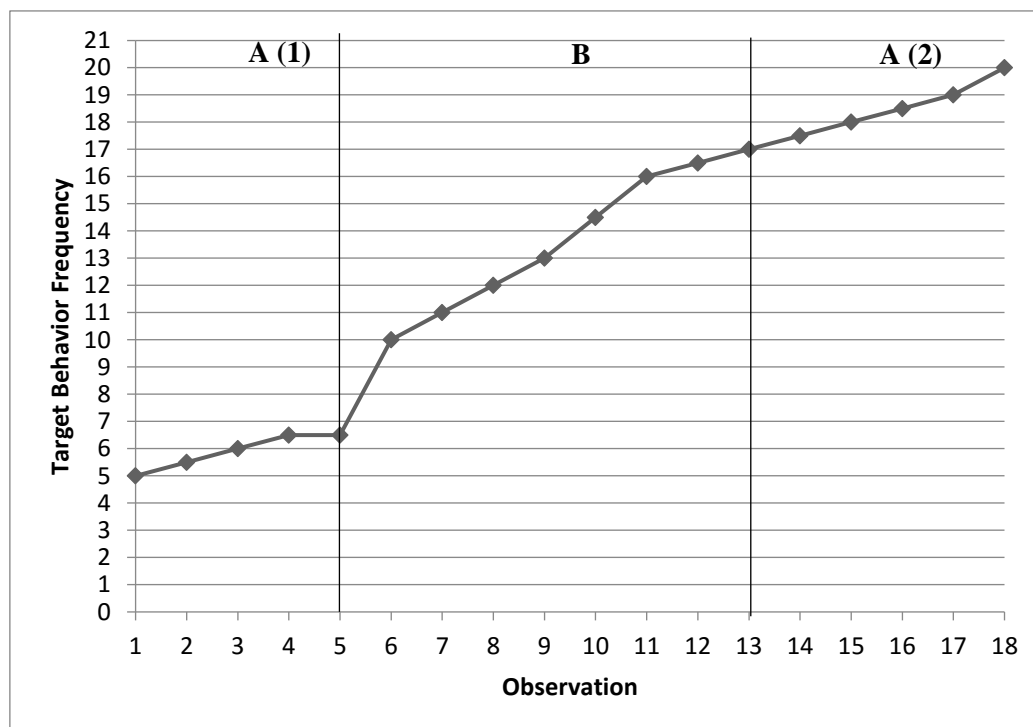

Figure 2. Visual Analysis of the Speaking Ability of Students with Autism Subject 2

Based on Figure 2 the ability to speak, in this case shown by the symptoms of the child not being able to speak and say words and sentences to communicate, the child appears with a fairly high frequency in the baseline phase (A1). This is indicated by the average speaking ability which is only 5.9 although there is a tendency to improve by 1.5 points. The frequency of the target behavior in this phase is in the range of 5 to 6.5. In the intervention phase (B), the child's speaking ability which in this case is indicated by the symptom of the child being able to imitate the sound of language when applying the ABA method assisted by picture card media. This is indicated by the average speaking ability of children with autism of 13.6 where the increase in the first day of program implementation was 7 points. The child's speaking ability in subject 2 showed an indication of improvement by 7 points in 8 days of applying the technique. Changes were increasingly visible after the intervention was stopped. It can be seen in the baseline phase (A2), where the speaking ability of children with autism is increasing with an average of 18.6. And there is an increase in the 17.5-20 range.

Discussion

Subject 1 increased the speaking ability of children with autism from the baseline phase (A1), the intervention phase and the baseline phase (A2). Analysis within and between conditions of measurement of the research subjects showed that the ability to speak, in this case indicated by the symptom of the child not being able to speak and say words and sentences to communicate was raised by children with a fairly high frequency in the baseline phase (A1). This is indicated by the average speaking ability which is only 4 although there is a tendency to improve by 1.5 points. The frequency of the target behavior in this phase is in the range of 5 to 6.5. In the intervention phase (B), the child's speaking ability which in this case is indicated by the symptom of the child being able to imitate the sound of language when applying the ABA method assisted by picture card media. This is indicated by the average speaking ability of children with autism of 14.5, where the increase in the first day of program implementation was 1.5 points. Even though in the 11th to 12th observations there was no increase in the frequency of the child's speaking ability, the child's speaking ability in subject 1 showed an indication of improvement by 6.5 points in 8 days of applying the technique. Changes were increasingly visible after the intervention was stopped. It can be seen in the baseline phase (A2), where the speaking ability of children with autism is increasing with an average of 18.5. And there is an increase in the 17.5-20 range. Subject 2 increased the speaking ability of children with autism from the baseline phase (A1), the intervention phase and the baseline phase (A2). Analysis within and between conditions of measurement of the research subjects showed that the ability to speak, in this case indicated by the symptom of the child not being able to speak and say words and sentences to communicate was raised by children with a fairly high frequency in the baseline phase (A1). This is indicated by the average speaking ability which is only 5.9 although there is a tendency to improve by 1.5 points. The frequency of target behavior in this phase is in the range of 5 to 6.5. In the intervention phase (B), the child's speaking ability which in this case is indicated by the symptom of the child being able to imitate the sound of language when applying the ABA method assisted by picture card media. This is indicated by the average speaking ability of children with autism of 13.6 where the increase on the first day of program implementation was 7 points. The child's speaking ability in subject 2 showed an indication of improvement by 7 points in 8 days of applying the technique. Changes were increasingly visible after the intervention was stopped. It can be seen in the baseline phase (A2), where the speaking ability of children with autism is increasing with an average of 18.6. And there is an increase in the 17.5-20 range.

This study aims to determine the effect of an applied behavioral analysis-based approach with the aid of picture cards to improve the speaking skills of children with autism. The measurement results showed that there was a significant difference in the frequency of the ABA method approach for children with autism as indicated by the increase in children's speaking ability after receiving the ABA method approach with the help of picture card media. Based on these results, an alternative hypothesis which states that there is an influence of the ABA method approach with the help of picture card media to improve the speaking ability of children with autism is accepted in this study. These significant results show that the speaking ability of children with autism increases gradually with positive reinforcement which can improve children's speaking ability in the classroom (Arnold & Reed, 2016; LeBarton et al., 2013). In the case of educational settings, the speaking ability of children with autism is due to the lack of interaction between parents and other adults with children with autism. The lack of use of a variety of images when implementing learning in the classroom results in less improvement in the speaking ability of children with autism (Febiola & Yulsyofriend, 2020; Wen et al., 2020). In the baseline phase, even though the intervention had not been applied to children with autism as research subjects, there were changes in speaking skills that tended to improve. This is caused because the learning principles in children with autism demand that there is always a better improvement (Hambly & Fombonne, 2012; Zhang et al., 2018). The application of the ABA method approach assisted by picture card media is carried out every day in the classroom as a form of habituation of behavior towards children with autism. The classroom environment is actively involved in the habituation process so that this becomes a support for the success of the ABA method approach assisted by picture card media. In this intervention phase, there is stability in the frequency of speaking ability of children with autism, even though during the observation there was no progress due to children with autism still often repeating the words of their interlocutors in class (Hakiman et al., 2021; Padmadewi & Artini, 2017; Sahin et al., 2018). However, these symptoms appeared at short intervals (5 minutes) at the start of core activities. The type of research that is in accordance with this research is data collection research using the ABA (Applied Behavior Analysis) qualitative method with observational research instruments, interviews, and documentation studies as complementary methods (Suryani & Dewi, 2018). The results of the study show that the use of the ABA (Applied Behavior Analysis) method is effective in improving the ability of children with autism to learn to know who they are, learn about their reasoning skills (academic), as well as learn about their daily life activities at the Putra Al-Mufti Foundation in 2015/2015 2016. The

second study was conducted to see how the barriers experienced by children with autism in language to communicate, caused their vocabulary to speak to be limited (Mahanani, 2020). Media as a tool is needed to support learning programs in improving the skills of children with autism. This study aims to describe the speaking skills of children with autism by using picture word cards. The speaking skills of children with autism after being given picture word card media make their speaking skills in articulation clearer, the rhythm is according to people speaking in general, the intonation is according to the song of the sentence, and the choice of words is according to the meaning of the sentence (Schuetze et al., 2019; Suryani & Dewi, 2018). Based on the findings obtained, this research can be used as a reference for designing fun learning for children with autism with the aim of optimally improving the speaking ability of children with autism. It is suggested to teachers to be more skilled in developing learning innovations by applying various strategies, approaches, or methods that are able to overcome the lack of speaking skills of children with autism and increase motivation and enthusiasm in participating in learning activities for children with autism. In addition, teachers are more creative in providing facilities in the form of learning media and provide greater opportunities for students to create a fun and meaningful learning process for students. Then it is suggested to the school principal to be able to use this research as a support for teacher learning resources in enriching the use of techniques and methods used by schools so that schools are able to improve speaking skills in children with autism in schools. And then other researchers so that the results of this study are used as a reference to carry out further research related to improving speech skills in children with autism.

4. CONCLUSION

Based on the results of the analysis and discussion, it was concluded that the application of the Applied Behavioral Analysis method with the help of picture cards media had on the speaking ability of children with autism. This is indicated by the increasing ability to speak in children with autism. An approach based on the Applied Behavioral Analysis method can be used in the case of children with autism with symptoms of the child repeating the other person's sentence and is applied as learning in class.

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