Article

Using Image Cards to Develop Vocabulary in Grade 1 Autistic Students at SLB Bintang Harapan, Bandung

https://doi.org/10.31004/jele.v10i5.1341

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A B S T R A C T

Autism is a neurodevelopmental disorder that arises during early development and directly affects communication patterns and social interactions, often resulting in vocabulary deficits. One strategy to address these challenges is the use of picture cards, which serve as a visual aid to support children with autism spectrum disorders (ASD) in pronouncing vocabulary. This study was conducted to evaluate the effectiveness of picture cards in improving the ability of students with ASD to pronounce new vocabulary. The research employed an experimental design using a Single Subject Research (SSR) approach with an A-B-A design. The subject of the study was a Grade 1 student with ASD enrolled at SDLB Bintang Harapan. The study focused on the student as the primary recipient of the intervention, and data were collected across three phases: baseline-1, intervention, and baseline-2. During the initial baseline phase (baseline-1), four measurements were taken, resulting in a stable mean score of 43.33%. This phase showed a minor improvement of 6.66% in level change. In the intervention phase (B), which consisted of eight sessions, the student's performance demonstrated a consistent upward trend, with a mean score of 71.66% and a level change of +26%. In the final phase (baseline-2), further improvement was observed, with an average score of 74.99%, an upward trend, and a level increase of +13.40%. The results indicate that the application of picture cards was successful in enhancing the student's ability to pronounce new vocabulary. The intervention not only improved accuracy in vocabulary pronunciation but also demonstrated the potential of visual aids to support language development in children with ASD. Overall, this study provides evidence that picture cards can be an effective tool for fostering vocabulary mastery in students with autism spectrum disorders.

Keywords: *Autism, Picture Cards, Vocabulary*

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INTRODUCTION

According to DSM V (2013), children with autism are children who experience mental disorders characterized by the appearance of symptoms at an early age, accompanied by limited patterns of communication and social interaction. Individuals also exhibit limited behaviour and repetitive actions. In Anderson's research (2017), children with autism are characterized by a delay in language development, and they also have difficulties in social interaction. Meanwhile, according to (Kim et al., 2013), children with autism are not unable to speak or hear, but they experience difficulties in understanding what others say. This can occur because there are problems with the sound processing system in the brain's mechanism for speaking. Based on this, verbal communication that is usually conveyed when someone speaks does not involve the 'brain processing system' as in typical general development stages. The communication barriers faced by autistic students are caused by reduced activity in certain brain regions, such as language ability, which is influenced by activity in various brain areas including the temporal lobe, which processes auditory information; the Broca's area, which regulates language production; the cerebellum, which supports motor coordination; and the supplementary motor area, which plays a role in planning speech movements, storing vocabulary, and regulating the muscle movements required for speaking. Furthermore, according to Pratiwi, M. R., Mardiana, L., & Yusriana, A. (2019), children with autism are at

risk of difficulties in verbal and nonverbal communication, which is a primary characteristic of autism. They often do not respond well to conversations, appearing as if they have hearing impairments.

This disorder includes deviant language skills and weak memory and cognitive processes in understanding information. The actual condition in the field shows that a child with the initials RJL has difficulty pronouncing words, has a limited vocabulary, and does not interact in a two-way manner, resulting in difficulties for parents and teachers in communicating verbally with the child. This difficulty also has an impact on general speaking skills.

The child can only utter one or two words, while others speak in broken sentences or without clear structure. Additionally, the child tends to use repetitive language. According to research by Sulistiana Dewi (2022), distinguishing autism from expressive language disorders and social communication disorders requires observing characteristics such as repetitive behaviour and limited interests. Meanwhile, children with phonological disorders or selective mutism do not experience developmental delays from an early age and are still able to communicate in certain situations.

Children with phonological disorders or selective mutism do not show early developmental barriers and are still able to communicate in certain conditions. On the other hand, individuals with autism generally lack interest in communication interactions. This makes the communication process one-sided, where children are more receivers or repeaters rather than active participants in conversations. In practice, this makes communication feel stiff and unnatural.

Many teachers and parents complain about how difficult it is to build meaningful reciprocal conversations with these children, as they tend to withdraw or speak only when absolutely necessary. It is important to have a programmer or media to improve the verbal abilities of these children so that they can expand their vocabulary.

In line with this, according to Soedjito in Labib (2016: 13), vocabulary is an element of language that includes the words belonging to a speaker or writer, terms in a particular discipline, and a list of words explained briefly like a dictionary. Basic vocabulary refers to words that are fixed, rarely change, and are hardly influenced by foreign language borrowings. This type of vocabulary includes words such as body part names, kinship terms, pronouns, numbers, verbs, states, and universal objects. To enhance the vocabulary of autistic children, teachers need to use media as a supporting tool to help achieve educational goals optimally. The focus of this case study is on visual media, which is media conveyed through visual elements without involving sound or touch, such as pictures or photos. Sudjana and Rivai (2013) explain that picture cards are two-dimensional media in the form of pictures accompanied by words or sentences that can explain certain concepts or material. Meanwhile, according to Hamalik (2015), picture cards are the most commonly used media in learning because they are easy to understand, widely available, and easy to obtain. This media is often used because it can provide more comprehensive explanations compared to similar types of media. One of the challenges faced by autistic students is communication. According to Mulyana (2023:69), communication is a process of sharing meaning through verbal and non-verbal behaviour involving two or more people, with the aim of achieving mutual understanding between the parties involved in the communication process. In communicating with autistic children, a rich vocabulary is necessary. The use of media is one of the effective strategic approaches in helping develop vocabulary in children with autism. According to Munadi (2013:7), learning media can be considered effective because it functions as a tool that helps teachers deliver material in a planned manner, allowing children to obtain optimal learning experiences. Among various learning media, visual media plays an important role because it is effective in facilitating vocabulary development, especially for children with autism. The use of picture cards is motivated by the limited vocabulary of children with autism, making it difficult for them to speak and interact with others. Therefore, in addressing the challenges faced by children with autism, special attention and tools are needed to facilitate communication.

From the explanation above, picture cards are a medium consisting of images accompanied by text or explanations of a subject matter to make it easier to understand. Picture cards play an important role in the learning process. According to Levie & Lentz in Arsyad (2016), the use of visual media such as picture cards can serve to stimulate interest, clarify ideas, and visualise information that is likely to be easily forgotten if not accompanied by illustrations, as well as make learning more enjoyable. Recent research by Puspitaningtyas (2019) explains that the use of picture cards with the Applied Behaviour Analysis (ABA) approach has proven effective in helping to improve the skills or abilities of individuals in various aspects of vocabulary development in autistic children by up to 60% within three months of intervention, with three learning sessions per week.

METHOD

In conducting this research, the researcher applied a quantitative approach with an experimental design to obtain data that could be measured systematically and objectively as the main technique in data collection and analysis. According to Creswell (2020:14), an experimental research method is used to determine the impact of a treatment on research results by controlling external factors that may affect the validity of the results obtained. The researcher chose an individual experiment or Single Subject Research (SSR) with an A-B-A design model to measure the effectiveness of the intervention through three systematic stages on one research subject. This design involves three systematic stages of data collection. These three stages are as follows:

Phase A-1 or the first baseline aims to identify the initial level of vocabulary mastery of the subjects before being given treatment using picture cards as an intervention.
In phase B (Treatment), an intervention was carried out on the subjects with the aim of improving vocabulary recognition.

The media used were picture cards, and the intervention was carried out for 45 minutes at each meeting. c. In phase A-2 (Baseline 2), the subjects' ability to recognise vocabulary was re-observed as a form of post-treatment evaluation using the picture cards that had been previously provided.

This analysis There are two data analysis techniques used in this study, including: 1) Intra-condition analysis, which includes the duration of the condition, the direction of data trends, data stability, data trace patterns, value ranges, and level differences; 2) Inter-condition analysis, which evaluates the number of variables changed, changes in trend direction and their impact, shifts in stability levels, differences in levels between conditions, and the degree of data overlap that occurs. The A-B design was used in this study, which includes stage A as the baseline to observe the initial condition of the child, and stage B as the intervention implemented over a certain period until the data obtained showed stability according to Sunanto, Takeuchi, & Nakata (2015).

FINDINGS AND DISCUSSION

The results of this study used one subject with the initials RJL, a 7-year-old boy in the first grade of SDLB Bintang Harapan. The following are the results of the subject with the initials RJL. This series of research was divided into three phases, namely baseline-1 (A1), intervention phase (B), and baseline-2 (A2). Phase A1 aimed to obtain initial data on the child's vocabulary mastery before receiving treatment using picture cards, with no intervention during this phase. The subject underwent four test sessions until the child's ability showed stable conditions. The next phase was intervention (B), where the subject received treatment using 15 picture cards for 45 minutes per session.

After the data in the treatment phase was declared stable, the study continued to the baseline-2 (A2) stage, which was conducted in 4 sessions. All data collected from the baseline-1 (A1), intervention (B), and baseline-2 (A2) phases were visualised in the following graph as a form of presentation of the research results:

Table 1. Data at Baseline 1

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Baseline (A1)	Sesi	Number of Verbal Vocabulary	Persentase
	1	6	40 %
	2	6	40 %
	3	7	46.6%
	4	7	46.6%

Based on the Baseline (A1) phase data, the development of the subjects' verbal vocabulary was observed over four sessions. In the first and second sessions, the subjects uttered 6 words, reaching 40%. In the third session, the ability increased to 7 words with a percentage of 46.6%. In the fourth session, the subjects remained at the same number. Overall, the Baseline phase showed the subjects' vocabulary ability between 40-46.6%, with a total increase of 66.6%. This data is important for measuring the effectiveness of subsequent interventions.

Table 2. Data on Intervention (B)

Intervensi (B)	Sesi	Number of Verbal Vocabulary	Persentase
	1	10	66.6%
	2	9	60%
	3	11	73.3%
	4	11	73.3%
	5	11	73.3%
	6	11	73.3%
	7	11	73.3%
	8	12	80%

Intervention (B) was conducted in 8 sessions. Each session was evaluated based on the number of words mastered. The first session showed 10 vocabulary words reaching a percentage of 66.6%, but decreased in the second session to 9 vocabulary words reaching a percentage of 60%. Starting from the third session, there was an increase to 11 vocabulary words reaching a percentage of 73.3%, which remained consistent over the next five sessions. In the final session, the number of vocabulary words remained at 11, with the achievement percentage increasing to 80%.

Table 3. Data at Baseline 2 (A2)

Baseline (A2)	Sesi	Number of Verbal Vocabulary	Persentase
	1	10	66.6%
	2	11	73.3%
	3	12	80%
	4	12	80%

Based on baseline 2 (A2) data, there was an improvement in the subjects' verbal vocabulary skills during the four observation sessions. In the first session, the subjects mastered 10 words with a percentage of 66.6%. The second session increased to 11 words, reaching a percentage of 73.3%, and the third session reached 12 words with a percentage of 80%. The fourth session remained at 12 words with a percentage of 80%. The subjects showed consistent improvement until session 3.
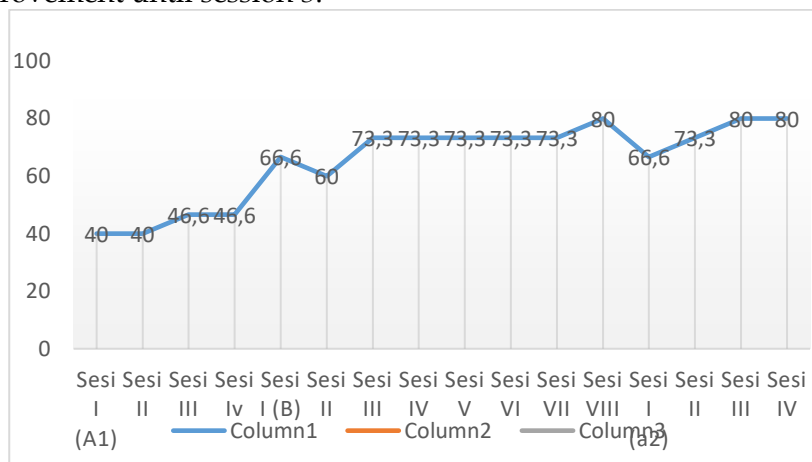
Graph 1. Subjects' ability to recognise vocabulary using picture cards

An overview of the results of the analysis per condition can be found in the following table, which summarises the data systematically.

Table 4. Recapitulation of Analysis Findings

| Kondisi | Analysis in Condition | | |
	A₁	B	A₂
Time Range for Each Condition	4	8	4
Direction of Data Change			
Level of Data Pattern Consistency	Stabil	Variabel	Stabil
Level of Data Pattern Consistency	(+)	(+)	(+)
Data Development Pattern	Stabil	Variabel	Stabil
	40.00 %- 46.66 %	66.66% - 80.00%	66.6% - 80.00%
Level Change	40.00 %- 46.66 %= (+6.66)	66.6% - 80.00% = (+13.4)	66.6% - 80.00% = (+13.4)

Children's ability to recognise letter vocabulary using picture cards in the comparison of results in the initial phase (baseline-1) and intervention showed an increase of 26.66%, indicating positive progress in the subjects' abilities. In the intervention to baseline-2, there was a decrease but an increase of 20.0% compared to baseline 1. The percentage of data overlap between phase A1 and B, as well as from B to A2, was recorded at 0%, indicating that the intervention with picture cards was effective in improving the vocabulary of children with autism. A summary of the results of the comparison between conditions can be seen in the table below.

Table 5. Recapitulation of Inter-Condition

Inter-Condition Analysis		
Number of Modified Variables	B/A₁ A₂/B	A₂/B
Data Movement Patterns and Consequences Change	1	1
Level of stability and variation in values	(+) (+)	(+) (+)
Shift in data value levels	stable to stable	stable to stable
Percentage of Overlapping Data Values	66.6 %- 40.00% = +16.6%	66.66 -80 = -13.4%
Presentase Tumpang Tindih Antar Nilai Data	0 (0 : 8 x 100%)	0 (0: 4 x 100%)

Discussion

The information collected during the initial stage (Baseline A1) visualises the development of the subjects' verbal vocabulary during the four observation sessions. In the initial stage, namely sessions one and two, the research subjects demonstrated consistent ability by being able to utter 6 verbal words out of the total expected, thus achieving a percentage of 40% in both sessions. This indicates that the subjects' initial ability to use verbal words was still at a relatively low level. Entering the third session, there was an increase in the subjects' ability. The number of verbal vocabulary words that could be uttered increased to 7 words, so that the success rate rose to 46.6%. This increase indicates development in the subjects' verbal abilities. In the fourth session, the subjects' abilities remained stable at the same level as in the third session, namely being able to utter 7 verbal vocabulary words with a

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percentage of 46.6%. This consistency indicates that the subjects have reached a certain level of ability in the baseline phase. Overall, the Baseline phase (A1) describes the subjects' basic abilities with a range of 40-46.6%, with an estimated slight upward trend (+) where there was an increase of 6.66% from the initial to the final session during the baseline phase, with four stable data points and an average value of 43.33%.

This data will serve as an important reference for measuring the effectiveness of the intervention to be provided in the next phase. b. The intervention (B) was conducted in 8 sessions with a focus on improving the subjects' verbal vocabulary skills.

Each session was evaluated based on the number of verbal words mastered and the percentage of achievement of the set target. In the first session, the subjects demonstrated initial ability by mastering 10 verbal words, equivalent to 66.6% of the target. There was a decline in the second session, where achievement decreased to 9 verbal words with a percentage of 60%, indicating fluctuations in the initial learning process. Starting from the third session, there was a significant increase where the subject successfully achieved 11 verbal vocabulary words, or 73.3%. This achievement remained consistent over five consecutive sessions (sessions 3 to 7), indicating stabilisation of ability and good learning. In the final session, there was an increase where, although the number of vocabulary words remained at 11, the achievement percentage increased to 80%. This indicates an increase in vocabulary mastery. After eight sessions of intervention, stable data was obtained with an average of 71.66% and an upward trend, accompanied by a level change of +26%. In this intervention phase, the use of picture cards showed an increase in vocabulary ability in autistic children compared to the baseline-1 phase. After the data in the intervention phase (B) was declared stable, the study continued to the baseline-2 phase (A2).

In the second baseline stage (A2), there was an improvement in the subjects' verbal vocabulary skills during four observation sessions. In the first session, the subjects were able to master 10 verbal vocabulary words with an achievement percentage of 66.6%. This ability improved in the second session, where the number of verbal vocabulary words mastered increased to 11 words with a percentage of 73.3%. Development continued in the third session, with the subjects mastering 12 verbal vocabulary words with an achievement rate of 80%. In the fourth session, the subjects' ability remained stable at the same level, namely 12 verbal vocabulary words with a percentage of 80%. Overall, the data showed a consistent increase from session 1 to session 3, with an increase of 13.4% (from 66.6% to 80%). Although there was no further increase in session 4, the subjects' ability remained at the optimal level achieved in the previous session. This indicates that the subject has achieved a stable level of verbal vocabulary mastery at 80%. The average result in the baseline-2 phase reached 74.99%, with an upward trend and a level of change of +13.40%. From the analysis of the conditions, it can be seen that the trend between baseline-1 and intervention changed from flat to upward, accompanied by an increase of 13.40%.

This condition shows that there was progress in the ability of the children given picture cards because it clarified the meaning of many words. Furthermore, when entering the implementation session of the method in this study, all those involved, in this case the classroom teacher, worked together with the children. The learning steps conducted in the first session did not include picture cards. During the intervention phase, instructions and picture cards were provided, followed by instructions for the children to name the vocabulary words up to phase eight of the intervention. Based on the analysis conducted, specifically the two data analyses in the conditions and the analysis of data between conditions using the A-B-A design model described earlier, the children began to show an improvement in word formation. This is in line with the research by (Akib & Perkasa, 2022). The use of picture cards is motivated by the limited vocabulary of children with autism, making it difficult for them to communicate or speak with family members or other people. Since communication is an essential aspect of life for everyone, including children with autism spectrum disorder who face challenges in this area, they require supportive tools to help overcome their communication difficulties.

CONCLUSIONS

From the results and discussion as well as the trials above, it can be concluded that picture cards are a solution for autistic children in learning vocabulary and increasing their vocabulary, accompanied by guidance from teachers to train autistic children in speaking, which cannot be separated from a comprehensive assessment to determine the appropriate use of supporting learning media. In the observation conducted on two subjects, RJL, the observation results for the first subject, RJL, were obtained during the initial phase or baseline (A1), where the observation was conducted over four days. The child's ability on the first day was recorded at 40.00% and increased to 46.66% on the fourth day. Furthermore, during the intervention phase (B), which lasted for eight sessions, the use of picture cards showed fluctuations in the child's ability, but overall there was a significant increase. In the eighth session, the child's ability reached 80.00%. Meanwhile, in the baseline-2 phase (A2), although there was a slight decline, the development of ability still showed an increase in mentioning and obtaining words from conditions (A1). This means that after the intervention was carried out on the subjects, there was an increase due to the use of picture cards in mentioning the words obtained. Therefore, the use of picture cards is effective in improving the ability to mention words obtained correctly for children with autism..

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