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The Effect of Aided Language Stimulation (ALS) Strategy in Improving Expressive Language of Children with Cerebral Palsy

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Abstract: Cerebral Palsy children have difficulty in terms of language skills and expressing their desires. The barrier is called the expressive language barrier. Expressive language barriers are characterized by speech delays that do not even develop, so they have difficulty interacting and communicating with their environment. Based on the explanation, it is important to research the use of an aided language stimulation strategy. The purpose of this study was to see the effect of the aided language stimulation strategy on increasing the expressive language of children with cerebral palsy. This study uses a quantitative approach with a single-subject research type with an A-B-A research design. The research subjects in this study were a boy and a girl in second grade with cerebral palsy. The information collection techniques use action tests. The information is processed and analyzed using descriptive statistical analysis of conditions and between conditions, then presented in the form of a table and graph. Based on the research result, showed that there was an effect of aided language stimulation strategy on the subject's expressive language development. This can be seen from the baseline results of the two subjects, namely subject R at baseline-1 was 30%, in the intervention phase (B) was 48.75%, and at baseline-2 was 58.75%. The results for subject N at baseline-1 was 20%, intervention phase (B) was 40.62%, and at baseline-2 phase was 52.5%.

Keywords: cerebral palsy; expressive language; aided language stimulation strategies.

INTRODUCTION

Cerebral Palsy is a condition of stunted growth and development in children caused by brain paralysis. The paralysis of the brain causes several disturbances including uncontrolled muscle movements, poor balance, abnormal movement patterns, and communication disorders (Brunner & Suddarth, 2018; Yuniarti & Subasno, 2022; Riswari et al., 2022). The results of analysis of WHO world data in 2000, the incidence of children with cerebral palsy increased quite a lot, reaching 0.6-0.7 out of 1000 births worldwide. The prevalence of the birth rate of children with cerebral palsy in America reaches 1,000 births in two days and every year there are 25,000 children with cerebral palsy disorders, therefore it is estimated that from 6.4 billion estimated population in 2016 there are 500,000 cases of children with cerebral palsy with several categories, namely the moderate or severe category reached 2.9% and around 2.5 thousand were included in the severe category (Braun, 2016).

Cerebral Palsy is an incurable or permanent condition that causes brain damage resulting in disturbances in several aspects, even some children with cerebral palsy have accompanying disorders or also known as comorbidities (CDC, 2016; Soemarna et al., 2023; Yuniarti & Subasno, 2022). One of the disorders in children with cerebral palsy is language disorders, children with cerebral palsy experience language disorders caused by permanent brain damage resulting in cognitive impairment (Widati, 2010). Expressive language disorders in children with Cerebral Palsy are also affected by cognitive impairment due to damage to the brain, causing disturbances in children's cognition, around 62% of children with cerebral palsy experience disturbances, namely cognitive impairment resulting in children having difficulty understanding how to express desires or understand information and express feelings (Gabis, 2015).

Language is a very important thing that must be owned by humans, because language is a tool in communicating with each other. Language skills will determine a child's ability to express thoughts, feelings, and actions taken in their environment (Yayah, 2018). Language ability provides benefits for children, the benefits obtained are that in communicating children will be able to understand what other people convey and children will easily convey information to others such as conveying what they want and like, and children will easily express their desires so that their needs can be fulfilled (Yuwono, 2012). Expressive language is the child's ability to produce words that have meaning (Ahmadi & Supriyono, 2008). Expressive language is the ability possessed by children to express what they want so this ability must be stimulated so that it will be easier for children to develop expressive language skills in expressing their desires and feelings (Moesclichatoen, 2004).

Based on the results of observations on the expressive communication of children with Cerebral Palsy which was carried out at SLB BC YPNI Pameungpeuk Bandung Regency, it shows that children have expressive language barriers, to develop expressive language skills these children need a strategy in learning that can help develop children's expressive language. The strategy applied in this research is the assisted language stimulation strategy. According to Dada & Alant (in Aprioza & Masitoh, 2019), it can be concluded that Aided Language Stimulation is a strategy carried out by imitating language through speaking simultaneously by pointing at symbols simultaneously, this method is an intervention to improve children's expressive communication.

Research conducted to improve children's expressive language uses the Aided Language Stimulation strategy. Several previous studies are relevant and used as references in this study, including research by Aprioza & Masitoh (2019) entitled "Aided Language Stimulation Method of Expressive Communication of Children with the Autistic Spectrum". The research subject was 1 child who had an autistic spectrum grade 1 at SLB Dewi Sartika Sidoarjo, in the results of his research there was an influence on the child's expressive communication, his expressive communication increased after implementing the Aided Language Stimulation strategy. The second research is research by Laher (2018) entitled "The effect of frequency of assisted language stimulation on the receptive vocabulary acquisition in children with complex communication needs and intellectual disabilities". The subjects in this study were 6 children with cognitive impairments or children with intellectual disabilities. The results of his research show that there is an effect of increasing receptive language after using the ALS strategy.

The purpose of this study is to obtain an overview of how the aided language strategy influences, in addition to knowing how expressive language skills are before and after using the assisted language stimulation strategy.

METHOD

Subject

The subjects used in this study were children with cerebral palsy with the initials R, male. R is a child who is in grade 2 at SLB BC (Special School for Deaf and Intellectual Disabilities) YPNI Pameungpeuk, Bandung Regency. The second subject is a cerebral palsy child with the initials N, female sex who is in grade 2 SDLB at SLB BC YPNI Pameungpeuk Bandung Regency with the type of obstacle, namely cerebral palsy with expressive language disorders.

Instrument

Research involves measurement activities, so research requires good measuring instruments. Measuring instruments in research are called research instruments, and research instruments are measuring tools used to measure natural and social phenomena observed by researchers. This phenomenon is specifically called a research variable (Sugiyono, 2019). The types of instruments used in this research are action test instruments along with documentation of research activities. In this study, the researchers focused on observing children's expressive language skills before and after using the assisted language stimulation strategy. The theory underlying the preparation of this non-verbal expressive language research instrument is the theory of assisted language stimulation strategy. The goal of using the assisted language stimulation strategy is that the subject is expected to be able to perform expressive language communication by pointing to the images in the assisted language stimulation strategy. The implementation of using the assisted language strategy in the context of ADL (Activity Daily Living) is as follows:

1. Researchers begin to provide stimulus to establish communication.
2. The researcher begins to direct the subject to point at the picture if he wants to answer the researcher's questions.
3. The researcher begins to reflect by asking about the feelings that the subject is feeling by giving instructions for the subject to point at the emoji image.
4. The researcher begins to enter into the context of communication regarding the ADL (Activity Daily Living) subject.
5. The researcher asks questions and the subject answers by pointing at the picture that matches the subject's answer. For example: the researcher asks: "R did you eat rice or porridge?" it is hoped that the subject can answer questions by pointing to one of the existing pictures as an answer to the researcher's question.

Procedure

The research approach used in the study entitled "The Influence of Aided Language Stimulation (ALS) Strategy in Improving the Expressive Language of Children with Cerebral Palsy" is a quantitative approach, because this study measures the observed symptoms and data collection is carried out using instruments that have been compiled based on variable indicators. studied which aims to see the effect of using the ALS strategy. The researcher used a quantitative research method because he wanted to prove the effect of the Aided Language Stimulation (ALS) strategy in increasing the expressive language of children with cerebral palsy by using an expressive language action test kit and using the final data record as a percentage.

This study uses a quantitative research approach and the research method used is an experimental method with a Single Subject Research (SSR) design. The reason researchers use experimental research methods is because researchers want to see whether the independent variables affect the dependent variable or not. The experimental research method is a quantitative research method that helps to understand the effect of the independent variable (treatment/treatment) on the dependent variable (outcome) under controlled conditions (Sugiyono, 2019). The research design used is Single Subject Research (SSR). According to Tawney and Gas (1984), Single-subject research is an experimental study conducted to understand how much an intervention has repeatedly affected the subject within a certain period. (Sunanto, Takeuchi, & Nakata, 2005).

The data collection technique used in this study is using action tests. The action test is the implementation of tasks carried out by deed or performance (Latisma, 2011). The purpose of using the action test in this study was to measure the level of expressive language

skills of children with cerebral palsy through the action test pointing to pictures as symbols to communicate using expressive language nonverbally.

Researchers used action tests from the baseline-1 (A1) phase, Intervention (B) to baseline-2 (A2) to obtain data in the form of initial expressive language ability scores prior to intervention using the Aided Language Stimulation (ALS) strategy and obtaining data on how the ability scores after being given an intervention in the form of an Aided Language Stimulation (ALS) strategy. After carrying out these three phases data can be collected regarding the initial ability score, ability score during the intervention, and ability score after the intervention is given.

The single-subject research design used in this study was the ABA design, which was divided into three conditions, namely (A1) the initial state of the subject, B the intervention condition, and (A2) the condition after the intervention. The researcher will implement the ABA design which is explained as follows:

1. A-1 (baseline), which is a condition of the subject's initial ability. In this phase, the child's expressive language skills are in a natural state without treatment or intervention. At this stage, the researcher will observe how the child's initial expressions naturally, and see what the participants' initial abilities are like. In stage A1, observation and data collection are carried out repeatedly.
2. B (Intervention) is the stage where the status of the research object is given during the intervention in the form of an aided language stimulation strategy to improve the subject's expressive language skills. After the initial ability is known, the researcher will intervene using this strategy. So the intervention is carried out after the initial observation or after phase A-1 (baseline).
3. A2 (baseline) is the observation period without intervention. This stage is carried out after the intervention begins. This stage is used as a measure of success and evaluation of researchers whether there is an influence on the subject's expressive language skills after being given an intervention or not.

Data analysis technique

This study uses descriptive statistical techniques. Sugiyono (2019) gave an opinion regarding statistical techniques that descriptive statistics are statistics that are used to analyze data by describing or illustrating the collected data, the aim is not to draw conclusions or generalize to the public.

Researchers use descriptive statistical analysis to clearly understand the impact of the intervention on the behavior or development that you want to change in a certain period. The form of data presentation is processed using graphics, as expressed by Susanto, et al., (2005: 29) that when using a single discipline to analyze research data in the field of behavior modification, presents a large amount of graphical data, especially line graphs.

FINDING AND DISCUSSION

Finding

This study was conducted with an A-B-A design consisting of 3 conditions in children with cerebral palsy. explained by Zulyus & Anggita (2019) that children with cerebral palsy are sensorimotor disturbances (movement patterns and attitudes) due to damage to the newly developing and non-progressive brain, often accompanied by disturbances of sensation, perception, cognition, communication, and behavior, by epilepsy and secondary musculoskeletal problems. ALS itself is often used to stimulate autistic children, this is shown by Ishlakhiyah (2022) who says that among the five types of stimulation given to autistic children, the stimulus that is most often given is expressive

language skills. as well as the use of pictorial media in the stimulus process for children with cerebral palsy and giving pleasure and interest to children (Nursita, Hamid, & Nurhidayah, 2020).

At baseline 1 (A-1) the researcher conducted 4 sessions of research until the condition of the subject's expressive language ability was stable, at this baseline the expressive language ability of the child was the initial ability before being given an intervention, in the intervention phase (B) the subject was given intervention in the form of assisted language stimulation strategy, in this phase during the intervention the subject's expressive language ability was observed to see how the subject's expressive language ability was given the intervention, then baseline 2 (A2) where in this phase the subject was not given intervention, but this phase is the phase where the researcher saw whether there was an effect after being given an intervention in the form of a spoken language stimulation strategy help or not. The results of observations at baseline 1 (A-1), B, and baseline 2 (A2) are raw scores, meaning that these scores have not been processed based on data analysis techniques. In research conducted by Kenila et al. (2022). They found that the use of picture card media can improve expressive language communication. The use of supporting media can improve children's expressive language skills (Rochmahwati & Pamungkas, 2016). Using the media encourages children to be skilled at speaking (Mujahidah, Damayanti, & Afiif, 2021).

Data collection in the baseline phase 1 (A-1) was carried out in 4 sessions with a time of 30 minutes each, the intervention was carried out in 8 sessions with a time of 30 minutes each and the baseline-2 phase (A2) was carried out in 4 sessions with 30 minutes each. session. Each subject session is given several questions that must be answered by the child by pointing to the picture related to the answer. Data is recorded by placing a tick in the table whether the subject is capable or unable according to the abilities shown by the subject. The results of the recording are then observed and calculated for each session. Following are the results of recording the expressive language abilities of subjects R and N in the baseline 1 (A-1), Intervention, and baseline-2 (A2) phases.

Table 1. Results of Baseline 1 (A1), Intervention (B), Baseline-2 (A2) R & N Subject Measurements

Subject	Aspect	Baseline 1				Intervention (B)								Baseline-2			
		1	**2**	**3**	**4**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**1**	**2**	**3**	**4**
R	Expressive Language	30 %	30 %	30 %	30 %	45 %	45 %	45 %	45 %	50 %	50 %	50 %	60 %	55 %	60 %	60 %	60 %
N	Expressive Language	20 %	20 %	20 %	20 %	30 %	40 %	40 %	40 %	40 %	40 %	45 %	40 %	50 %	50 %	55 %	55 %

The table above shows the results of the recapitulation of measurements from baseline-1 (A1) for 4 sessions, intervention (B) for 8 sessions, and baseline-2 (A2) for 4 sessions from two subjects. From the table above it can be seen that the initial ability at baseline 1 (A-1) shows that the subject's expressive language skills are lacking. After being given an intervention in the form of an assisted language stimulation strategy, expressive language skills have increased and at the baseline-2 (A2) stage it is stable. Below you can see the presentation of the data in graphical form as follows:

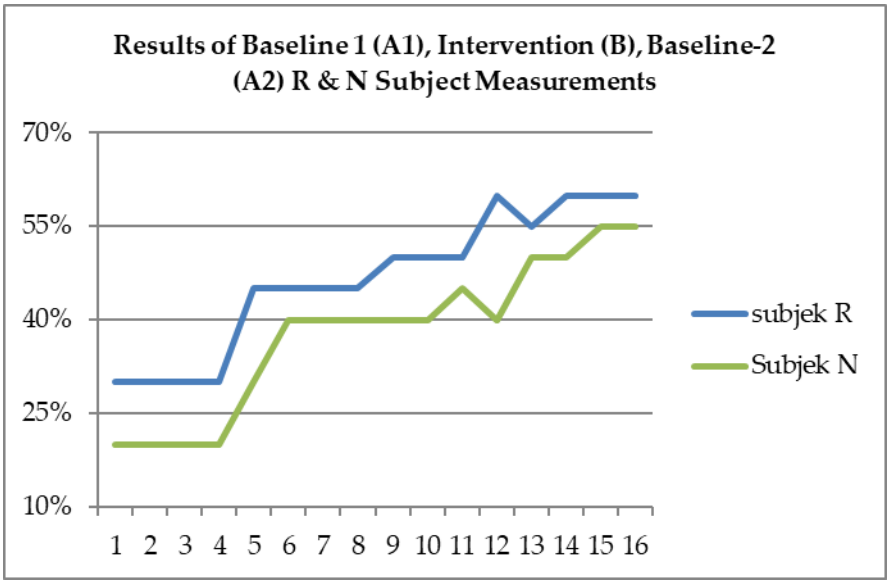

Figure 1. Results of Baseline 1 (A1), Intervention (B), Baseline-2 (A2) R & N Subject Measurements

Based on the findings of problems at SLB BC YPNI Pameungpeuk subjects with cerebral palsy experience expressive language barriers. This was also proven during the research that the two subjects experienced expressive language barriers, this was seen from the low results of acquisition of ability data in the baseline phase A-1 (A1), namely subject R 30% and subject N 20%. One of the disorders of children with cerebral palsy is language disorders, children with cerebral palsy have disorders in their language caused by permanent brain damage resulting in cognitive impairment (Widati, 2010).

Discussion

Based on this theory, therefore, to develop children's expressive language skills, it is necessary to have a strategy in learning that can help develop children's expressive language. The strategy applied in this study is the Aided Language Stimulation strategy. According to Dada & Alant (in Aprioza & Masitoh, 2019) that:

"Aided Language Stimulation (ALS) is an intervention strategy in which a communication partner models the use of an AAC system when interacting with clients during ongoing communication to increase expressive language abilities and is effective in increasing symbol comprehension and symbol production"

Based on the opinion above, it can be concluded that Aided Language Stimulation is a strategy that is carried out by imitating language by speaking simultaneously by pointing at symbols simultaneously. This method is an intervention to improve children's expressive communication. Through this strategy, children will be guided to improve vocabulary understanding so that it will be easier for children to speak expressively, increasing understanding of symbols through visuals and words that are spoken simultaneously by researchers.

Based on the acquisition of the average score of the data above, it can be concluded that the assisted language stimulation strategy has an influence on the expressive language skills of children with cerebral palsy. There is a statement according to Gossesns, Crane, & Elder (in Petty & Barge, 2014) whose translation explains that the assisted language stimulation strategy is a strategy that helps to improve abilities in understanding language, understanding symbols, and also the ability to improve one's expressive language. In addition, according to (Dada & Alant, in Peterson et al., 2017) it can be concluded that there

are advantages of assisted language stimulation strategies, namely in increasing vocabulary understanding, teaching symbol meanings, the ability to increase understanding of symbol meanings, and models of using symbols to communicate. In this study, the strategy of assisted language stimulation was applied to improve the expressive language skills of children with cerebral palsy at SLB BC YPNI Pameungpeuk with the results showing that there was an increase in the expressive language skills of children with cerebral palsy.

CONCLUSION

The conclusion from this study is that there is an effect of using assisted language stimulation strategies on increasing the expressive language skills of children with cerebral palsy. This is indicated by an increase in the expressive language ability scores of the two subjects. Subject R's expressive language skills increased, namely from the baseline-1 phase (A-1) getting an average value of 30%, the intervention phase (B) getting a percentage of 48.75% and in the baseline-2 phase (A2) getting a percentage of 58, 75%. In addition, subject N's expressive language skills also increased, namely from the baseline-1 phase (A-1) to get a percentage of 20%, in the intervention phase (B) to get a percentage of 40.62% and the baseline-2 phase (A-2) get a percentage of 52.5%. Based on these results it can be concluded that there is an effect of using assisted language stimulation strategies on the development of expressive language in cerebral palsy subjects.

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