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PICTURE EXCHANGE COMMUNICATION SYSTEM (PECS) TO ENHANCE THE EXPRESSIVE LANGUAGE SKILLS OF CHILDREN WITH DEVELOPMENTAL LANGUANGE DISORDERS

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A B S T R A C T

Expressive language disorder is a child's inability to express the words and sentences they want to say in accordance with the proper language order. As a result, the subject has no friends at school, has difficulty communicating, is unable to articulate his wishes, and in the end often fights with his friends. This study aims to determine the role of Picture Exchange Communication System (PECS) in improving expressive language skills in children with expressive language disorders. The subject is a boy aged 3 years 6 months who was diagnosed with expressive language disorder. This study applies an experimental methodology and a single subject research design. PECS was given to children for 6 meeting sessions. The result of this study were analyzed using descriptive analysis which showed an increase in the subject's expressive language skills after the intervention.

Keywords : Language development disorder; Expressive language skills; Picture Exchange Communication System (PECS)

A. Introduction

Language is an essential communication tool for humans. Language enables humans to convey their thoughts and feelings to others, allowing for social connection. Language ability is defined as a person's ability to communicate ideas or concepts to others (Azizi, Wibosono, & Salikin, 2023). The growth of language in humans starts at birth and continues throughout childhood (Houwen, Visser, Putten, & Vlaskamp, 2016). Language skill in childhood is one aspect that impacts cognitive growth (Muntamah & Yoenanto, 2023). The majority of children can use language with ease by the time they are five years old (Licata-Dandel et al., 2021; Van Lith et al., 2021; Wildová & Kropáčková, 2015 in Yuniari & Sudarmawan, 2022). Nonetheless, certain young children who are still in the growth and development stage have trouble with several sounds, words, and sentences (Yuniari & Sudarmawan, 2022). As a result, language challenges refer to the fact that not all children can convey language proficiently and according to their developmental stage.

According to Lanza and Flahive (2012), children can typically put together sentences with four or more words by the time they are four years old and their speech can be understood by others with a clarity level of 75–90%. Furthermore, children at this age should be proficient in the sounds of the following letters: p, m, h, n, w, b, k, g, d, f, and y. They should also have a vocabulary of 1,600 words. In terms of pragmatics, children should be able to follow three-step directions without using signs, ask for items with reasoning, invite others to play orally and discuss their fantasies. When given questions, four-year-old children can often respond to 5W1H, what-if, quantity, and function of an object. Preschool-aged children with language difficulties show several symptoms, including increasing obvious delays, difficulty interacting with peers or others, limited food preferences, limited

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vocabulary and short speech, and unclear pronunciation when speaking (Owens, Farinella, & Metz, 2015).

According to a field study conducted by researchers on one of the children in Yogyakarta Kindergarten, children with language disorders tended to be silent in class and always played alone, and they had difficulty expressing their desires in a single clear sentence or broken sentences. The first complaint was made by the teacher, who stated that when the child was questioned about studying or other activities, the replies were one-on-one and the topic of discussion frequently shifted; this had been going on for one semester. Similarly, mothers said that their children were timid and rarely spoke when at home. When questioned, they frequently display their activity rather than speaking. Apart from that, when children speak, they can only pronounce one or two words. The letters used are occasionally incorrect, such as "s" becoming "c". The symptoms that researchers found are usually found in children who experience expressive language disorders (Kaplan & Sadock, 2010).

According to the American Psychiatric Association (2022), children who struggle to acquire a language are classified as having language disorders. Language disorders are characterized by problems with language that interfere with day-to-day functioning and have a bad prognosis (Gillam et al., 2021). More males than girls suffer from expressive language disorder, which is mostly a childhood condition (American Psychiatric Association, 2000). According to Johnson & Beitchman (2005) and Santrock (2011), this syndrome is defined as the inability of the children to verbally communicate ideas and feelings, even though his chronological age should permit him to do so. Although unable to communicate, a child with expressive language impairment can grasp language to a considerable extent (Johnson & Beitchman, 2005). Put differently, children struggle with word recall and putting words together in sentences to convey their ideas (Spilliotoulou, 2009; Syalviana, Mustary, & Rezawidya, 2021).

Although each child's symptoms are distinctive, children with expressive language disorder may exhibit the following symptoms: children suffering from expressive language disorder can comprehend what is being spoken. They are unable to explain the narrative of the movie they just watched, though, and they don't say anything. Instead, they give blank stares. Due to their inability to interact or participate in cooperative or pretend play with their peers, they may also struggle to make friends (Carson, Klee, Lee, Williams, & Perry, 1998). They may be able to construct short, straightforward phrases with a restricted vocabulary. If the children are enrolled in school, challenges with spelling, written composition, note-taking, oral involvement, and written composition may also arise (Carson, Klee, Lee, Williams, & Perry, 1998).

According to Kaplan & Sadock (2010), the disease emerges in severe forms before the age of three years old. Before early adolescence, when language often becomes complex, less severe types could not emerge. A significant impairment in the age-appropriate development of expressive language, leading to verbal or sign language usage that is obviously below the level predicted, given the child's nonverbal intellectual capacity, is the primary feature of children with expressive language disorder. The child's language comprehension (deciphering) abilities are generally intact. The problem appears itself about 18 months of age when the child is unable to utter words spontaneously or even copy single syllables or sounds. Even basic words like "mama" and "dada" are not in the child's active language, and the child expresses his wishes through his body. The child keeps eye contact, looks eager to talk, and gets along well with the mother. Children seldom repeat words from their vocabulary. The majority of children can comprehend basic instructions and point to everyday

items while uttering their names by the time they are 18 months old. When the kid eventually starts speaking, it is obvious that they have a language deficiency. Their articulation is often immature, and they make a variety of inconsistent articulation mistakes, particularly when it comes to sounds like th, r, s, z, y, and l that are frequently omitted or substituted with other sounds.

To assist them overcome their difficulties, children with expressive language disorders require appropriate treatment, commonly referred to as intervention. Intervention may be defined as a methodical, planned action based on the findings of an evaluation that is intended to improve, prevent a condition from getting worse, or serve as a preventative or curative measure for an individual, a group of individuals, or society (HIMPSI, 2010). According to others, it is best to "wait and see," and children who maintain their difficulties after the ages of 4 or 5 should be allowed to receive language intervention (Johnson & Beitchman, 2005). As a result, the Picture Exchange Communication System (PECS) an approach to teaching communication using verbal symbols, is the focus of intervention for children with expressive language disorders (Breitfelder, 2008).

Andrew Bondy and Lori Frost created the Picture Exchange Communication System (PECS) in 1985 and it was first made available for purchase in the US in 1994. The six steps of PECS are as follows: the first involves initiating communication, while the second involves utilizing graphics to expand. The message on the photo card is then chosen in the third stage. The introduction of sentence forms on image cards occurs in the fourth phase. According to Arfi and Ardianingsih (2021) the subject is taught to answer simple questions in the fifth phase and to remark in the sixth phase. Using PECS does not entail losing up on a kid who is nonverbal; rather, it means that the language spoken aloud may be easily comprehended with the use of drawings or symbols. Children are exposed to non-verbal symbols in the early stages of utilizing PECS, but by the time they reach the end, they are encouraged to talk. Thus far, there have been no adverse effects associated with the usage of PECS (Charlop et al, 2002).

This is according to the study by Fatwikiningsih (2014) who discovered that PECS intervention was effective in enhancing children with attention deficit disorder and hyperactivity's receptive and expressive language. Similarly, Yusuf, Mutdasir, and Hanum's (2016) study at the Cinta Mandiri Foundation school in the Muara Dua District of Lhokseumawe City demonstrated the impact of visual therapy (PECS) on the development of expressive language abilities in autistic children. Therefore, the purpose of this study is to ascertain whether or not children with language impairments may improve their expressive language abilities by using the Picture Exchange Communication System (PECS).

B. Methods

This study applies an experimental methodology and a single-subject research design (single-case research). An investigation of the impact of a therapy (intervention) on a single case is known as a single-case experimental design. A single case might consist of several participants in a single group or only one subject (N=1) that is being researched (Latipun, 2008). Three years and six months old boys were the study's subjects. The subject with the initials T is a Yogyakarta private school student in the KB class. Reversal design research methodology was employed, with evaluations serving as baseline (A1), intervention (B), and follow-up (A2). After that, descriptive analysis was used to process the study findings.

Parents and teachers have completed informed consent forms authorizing the psychological service procedure before the evaluation or intervention starts. In addition to psychological testing

(WPPSI, Denver II), observation and interviews were used in the evaluation process. The full IQ score is 90, which indicates the intelligence level is average. His performance IQ is 103 (normal), while his verbal IQ is 80 (below average). The score gap between verbal IQ vs performance IQ is 23 points. This may indicate that subject having lack of verbal reasoning and comprehension. In the Denver II exam that his verbal abilities were either delayed or out of line for a child of his age.

According to evaluations conducted by teachers and parents, the subject was only able to say "ayah" and "bunda" when he started to speak at the age of 15 months. The subject is a child who doesn't often share stories. Though the language may be imprecise, he will respond to questions and adults will be able to decipher what he is saying without the need for the subject to speak well. He will just show when telling a tale is tough, and the subject usually speaks two to three grammatically incorrect words. Additionally, the subject frequently substitutes several letter sounds in his speech and only repeats words that he understands. He consistently substitutes "C" for "S" while saying his name, and this also holds for several other nouns. In addition, he frequently alters letters and occasionally omits ones that he finds challenging, such as "r". Even when subjects have higher or more competent receptive abilities, they typically have lower verbal expression abilities. This means that an intervention program that encourages verbal language expression is necessary for the subject.

The Picture Exchange Communication System (PECS) approach developed by Andrew Bondy and Lori Frost (1994) was employed in the intervention offered to the subjects. This study is divided into three phases: (1) preparation, which involves reading up on pertinent theories related to the intervention techniques offered, gathering and approving intervention materials, and measuring baseline conditions to identify the underlying causes of the subjects' issues; and (2) implementation, which entails delivering the intervention in six sessions lasting an hour each. Researchers use PECS to carry out interventions at home and in schools. These interventions take the shape of daily occurrences or activities that are enjoyed and performed frequently. Therefore, it can serve as a medium for indirect instruction for parents and educators to help kids become more expressive language. To teach the target language skills, researchers first establish rapport with the subject through communication. Next, they use pictures to enhance communication, select messages for picture cards, introduce sentence structures in picture cards, instruct subjects on how to respond to basic questions, and lastly instruct the subject in commented language. (3) Upon completion of the study, record final conditions and measurements (baseline), examine and discuss research data, draw inferences from the data, and offer suggestions based on the research findings.

C. Result and Discussion

Result

Three primary issues were identified through the measurement of the subject's initial condition (baseline), which will also be the focus of this intervention. These issues include the subject's inability to greet the teacher and his classmates in class, his inability to use simple language to express his desire to borrow a friend's toy in class, and his inability to use simple language to express rejection when he does not like the food that the teacher is serving.

After establishing the subject's baseline, as previously mentioned, the researcher performed a functional analysis to determine the degree to which the subject's behavior affected his day-to-day activities. The consequence found that the subject had no friends at school, struggled to communicate, was unable to articulate his desires, and ultimately got into a lot of arguments with his friends.

Table 1. Result of The Intervention

	Language expressive skills		
Day	**Before Intervention**	**During Intervention**	**After Intervention**
1	The subject hasn't been able to say hello to his friends and teacher in the classroom.	The subject has been able to say hello to the teacher and his friends in class by shouting their names.	The subject can say hello to his teacher and call on friends by calling their names, but occasionally the initial stimulus needs to be provided.
2	The subject hasn't been able to use clear, concise terms to express his intention to borrow his friend's toy in the classroom.	In class, the subject was able to express his wish to borrow his friend's toy by asking, "Can I borrow your toy?"	The subject has been able to ask to borrow his friend's toy in class by saying, "Can I borrow your toy?" However, on occasion, the subject has to be reminded once more before he can take the object.
3	When the subject did not enjoy the meal that the teacher had given, he was unable to convey his disapproval in short words.	When the subject didn't like the meal the teacher was serving, he was able to express rejection with the straightforward phrase "I don't want it."	When the subject doesn't like the food that the teacher is serving, he can communicate his opposition with the short phrase "I don't want it," but occasionally he needs to be informed once again.

The subject improved both during and after the intervention was put into place, as the table above demonstrates. This is evident from day one when the subject was never observed wishing the teacher and his friend a happy hello before the commencement of the intervention. Nevertheless, the subjects started to be able to say hello and call the names of professors and friends both during and after the intervention. However, there are instances when the subject has to be prodded to smile and say hello to others.

The subject showed improvement on the second day of the intervention as well. This is demonstrated by the fact that, before the intervention, the subject frequently takes a friend's toy without their consent, which frequently results in arguments between the subject and the person who owns the object. However, during and after the intervention, the subject started to be able to ask to borrow a friend's toy by stating, "Can I borrow the toy?" in short, well-constructed words. Even yet, there are situations when the subject still needs stimulation to communicate a wish to borrow a toy from a friend.

Subject improved throughout the intervention on the third day as well. This is demonstrated by the fact that, before the intervention, the subject typically shakes his head when the teacher offers lunch or snacks. The subject was able to apply clear, concise words both during and after the intervention, stating "I don't want" in response to the teacher's food offerings. In certain cases, however, the subject still needs a stimulus to be able to refuse the snack or meal that the teacher is providing.

Another rise happened throughout the intervention; the subject was never again observed playing alone after the second day. Previously, he had always played alone. The subject was also seen using sentences that the examiner had never heard during the assessment process. Furthermore, the

teacher mentioned that the subject's appearance that day was different from normal—typically, the subject was always observed playing by themselves and tended to be quiet. Even though the language he used was not particularly clear, he was nonetheless able to play with his friends that day. Apart from that, the subject never studies in class with his pals, however on that particular day, the subject participated in class activities.

Aside from that, the intervention resulted in several additional changes. For example, the subject would typically put his hand up to shield his toy from his friend when his friend tried to borrow it. But when his friend took his toy and invited him that day, the subject let him declare he could come. Furthermore, even though he needed more stimulation before he could ask for the food his friend had brought, the subject started to be able to apply short, well-constructed words. Similarly, the moment the subject's teacher handed him a snack, he said the teacher's name in well-chosen terms. Despite using a few ambiguous statements, the subject looked to be enjoying himself while playing with his friends on that particular day. Aside from that, the subject rarely studies in class with his friends; nonetheless, on that particular day, the subject participated in class discussions while making jokes with his peers.

Discussion

A method for teaching communication using non-verbal symbols is the Picture Exchange Communication System (PECS) (Bondy & Frost, 1994; Breitfeld, 2008). This method seeks to assist kids in comprehending functions and honing their communication abilities while also encouraging them to express interactive communication on their own (Khoiriyah, 2020). Following six intervention sessions, the subject showed improvement in his verbal language expression, was able to greet and play with his peers, and could even vocally refuse something from someone else. However, sometimes you need to be reminded with more stimulus to be consistent. These results are in line with other research that shows that PECS can improve children's expressive language abilities (Fatwikiningsih, 2014; Wiwahani, 2017; Mirnawati & Amka, 2018; Khoiriyah, 2020).

The subject's average cognitive abilities (WPPSI scale) affects how well this intervention works. Aside from that, the subject appears to desire to participate and play with his peers in terms of social development. The only thing impeding this ambition is language ability. Following the implementation of the intervention, the subject expressed a desire to reunite with his friends. Furthermore, current studies demonstrate that PECS is beneficial for kids with other linguistic impairments in addition to autism. Moreover, this technique may be used for individuals of any age (Virgile, 2011).

The effect of parents and teachers, who participate in the intervention process to make it more ideal and who may watch the use of PECS when playing with children, is also responsible for the success of this intervention. Participation in the intervention enables parents and educators to encourage children to regularly and expressively, even if it is not the primary goal of the program. This is consistent with the assertion made by Khoiriyah (2020) that parents and helpers (teachers) can also use PECS.

PECS is an intervention that can assist educators and parents in collaborating to help kids develop their effective communication abilities, but it will need effort and dedication on both sides. Despite being mostly utilized in homes or classrooms, PECS may be made more user-friendly for application in different contexts (Virgile, 2011).

Parents and instructors participated in the intervention by actively asking questions, even though they were not directly involved in it. They also claimed that they continued to use the techniques they had learned in their daily lives. In addition, the intervention process broadens parents' and educators' understanding of parenting and education. Following the intervention, parents get a better understanding of the illnesses their children are experiencing and recognize the need for ongoing support and monitoring. According to Breiner et al (2016) parents who possess knowledge and comprehension of their child's issues may foster better quality connections and interactions, as well as parental engagement in optimum parenting.

The way that parents and instructors invite their kids to talk appears to indicate that there has been a shift in the way that they behave and educate their kids. Parents and teachers more often heed children's requests when they ask for something in simple, good language. They also ask more questions to provoke children to tell stories, both before sleeping, studying, and while playing. For children to learn, high-quality parent-teacher and child interactions are essential. These interactions can be maintained and extended by labeling objects nearby, asking what, where, and why, inviting children to talk, and responding to and maintaining conversations (Breiner et al., 2016; Tamis-LeMonda et al., 2019; Rachmadanti, Haryanta & Susetyo, 2023).

The limitation of this research is that teachers and parents have not been the main targets for intervention. Parental involvement in practicing PECS during the intervention implemented by researchers can influence the increase in children's expressive language abilities. However, it was not optimal because there was no direct supervision from researchers.

D. Conclusion

There has been an increase in the subject's capacity to use short, clear phrases to decline food offered by the teacher, welcome teachers and friends, and borrow toys from friends, as evidenced by adjustments made before and after the intervention. The participant was no longer seen playing by themselves over the three days of the evaluation. In addition, the teacher mentioned that if the student was questioned, they may reveal a great deal. In general, the subject can only respond to one of the teacher's questions during their meeting. Though occasionally the subject's sentences are not very clear and there are still a lot of words lacking, the teacher claims that the subject is now able to respond to many questions from the teacher and even appears to be narrating a tale. Similarly, the subject may now address his teacher and friends by name, something he never did before while they were in conversation. Then, even though the subject appeared to be enjoying himself while studying, he began to participate with his friends while they were sharing stories with him, including their plans to play together after the break. The subject appeared to improve when he was at home as well; according to his mother, he was able to comfortably welcome family members and restaurant staff. However, the subject's mother admitted that when she tried to provide stimulus, she sometimes felt annoyed because of her impatient nature. So he admitted that he didn't provide enough stimulus for the subject.

According to the results of the observations and interviews, people occasionally tend to forget to utilize clear, concise language. Thus, the subject was still spotted utilizing symbols on several occasions, such as saying "hey" to a friend, stealing their toy while grinning, and declining meals, invites, and requests for things by just nodding or making body language. Nevertheless, the subject is going to reiterate it in a clear, concise form if prompted again. For the subject to consistently

become accustomed to using the basic sentences that have been taught, more stimuli must be provided.

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