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Development of a Family-Based Early Intervention Program to Improve Consonant Letter Articulation Skills in Children with Articulation Barriers

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ABSTRACT

This study aims to develop a family-based early intervention program for children with articulation barriers who attend inclusive schools. The method used in this research is descriptive qualitative to develop a family-based early intervention program. The subject in this study is a 6-year-old child who has barriers in his articulation ability. The subject currently attends a kindergarten in Bandung, West Java, Indonesia. The result of this study is a family-based early intervention program to train articulation skills in children. This research is expected to be a reference for various parties, such as parents, teachers, and special education teachers in developing articulation skills owned by children with articulation barriers.

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1. INTRODUCTION

Language is a coding system that enables conceptualization, reasoning, and understanding, while speech is one means of expressing language through a combination of sounds. Language ability is one of the important aspects of child development. This is because language is a means of communication between a person and other people around him. Language skills are divided into two, namely expressive language and receptive language. Receptive language is the "input" of language or the ability to understand and comprehend spoken language that children hear or read. Expressive language is the "output" of language or the ability to express wants and needs through verbal or nonverbal communication. Expressive language and communication then include spoken, and written language, as well as earlier communication skills, such as physicality, and gestures (Crais et al., 2009; Ellawadi & Weismer, 2014; Miller & Lossia, 2013; Longard et al., 2017).

Language barriers are very likely to occur in children, both expressive and receptive barriers. Language impairments can involve phonology, morphology, syntax, content (semantics), and language function in communication (pragmatics), or any combination (Wallace et al., 2015). When a child has a receptive language barrier, he or she will have difficulty understanding words, commands, and all forms of verbal information conveyed by others. Meanwhile, children who have expressive language disorders will have difficulty conveying their desires, ideas, and opinions so that the messages they want to convey will not be easily understood by others.

Developmental barriers in children can be intervened using a family-based early intervention approach. Early intervention includes systems, services, and supports designed to improve child development, minimize the potential for developmental delays and the need for special education services, and increase family capacity as caregivers (Baker et al., 2017). As the closest party to the child, the family, especially the parents, is one of the sources that has the potential to help children develop more optimally (Rizqita et al., 2024).

To date, there have been many recent articles that discuss family-based early intervention, such as Family-Based Early Intervention Program for Families Who Have Children with Motor Barriers (Astuti, 2023), the effect of family-based early intervention on the development of children with downs syndrome (Nurhidayah, 2020), implementation of family-based early intervention for children with special needs (Sidik et al., 2022), primary prevention of child sexual abuse through family-based interventions in Pontianak city (Suwarni et al., 2022), and development of the "Traluli" family-sourced early intervention program for MDVI children with fine motor barriers in inclusive schools (Rizqita et al., 2024). However, until now there has been no research on family-based early intervention programs that seek to improve the articulation of consonant letters in children with articulation barriers.

The purpose of this research is to develop a family-based early intervention program to improve the articulation of consonant letters for children with articulation barriers. The method in this research is descriptive qualitative to develop a family-based early intervention program to improve the articulation ability of consonant letters for children with articulation barriers. The research subject is a student in an inclusive kindergarten in Bandung Indonesia who is 6 years old. This research produces a family-based early intervention program to improve the articulation of consonant letters for children with articulation barriers. This research can be used as a reference by teachers, special education teachers, and parents in developing the articulation skills of consonant letters for children with articulation barriers.

2. METHOD

The research method used in this research is the descriptive qualitative method. Qualitative descriptive methods are used to assist in obtaining data in a structured and comprehensive manner. This research focuses on a 6-year-old subject who has an articulation disorder. **Figure 1** is the flow used in this study. The research began by permitting the inclusive school, which in this case was one of the kindergartens in Bandung City. The school has been permitted to conduct research in that environment. Identification is the second stage in this research. At the identification stage, the target to be achieved is to determine the children who will be used as research subjects. The assessment stage is the third part of this research, with the target of obtaining a child profile containing abilities, barriers, and needs. The results of the assessment will then be implemented in the design of a family-based early intervention program to improve the ability to articulate consonant letters for children with articulation barriers.

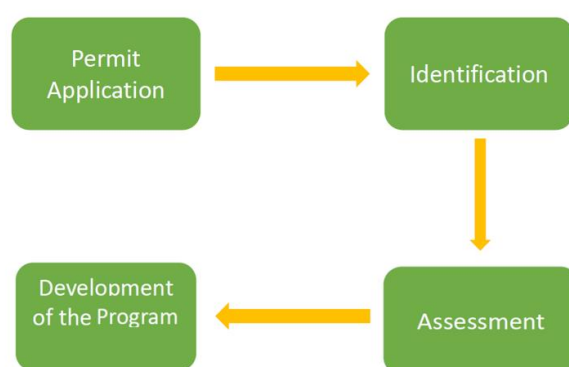


Figure 1. Research flow.

3. RESULTS AND DISCUSSION

3.1. Subject Demographics

Language or speech delay refers to cases where the development of the ability to understand and speak is correct but slower than what is considered normal (Wallace *et al.*, 2015). Another opinion expressed by Khoiriyah *et al.* (2016) states that speech delay is a tendency where the child has difficulty in expressing desires or feelings to others such as, unable to speak clearly, and lacking vocabulary mastery that makes the child different from other children his age. Language disorders can involve forms of phonology, morphology, syntax, semantics, pragmatics, or any combination (Wallace *et al.*, 2015). Phonology is the study of the sound system of language. Morphology is the study of morphemes and their arrangement in forming words. Syntax is the study of how words are combined to form sentences. Semantics is the study of the meaning of words. Pragmatics is the study of meaning in context. There are several types of speech delay disorders, including Speech and Language Expressive Disorder is a child who has a disorder in language expression, and Pure Dysphatic Development is a disorder of expressive speech and language development that has a weakness in the phonetic system.

3.2. Program Development

The subject of this study is a child with articulation challenges. The child is 6 years old and attends one of the inclusive kindergartens in Bandung. The first step after determining the research subject is to conduct an assessment. Assessment is the process of collecting and

discussing information from various sources and activities to develop a deep understanding of what the child knows, understands, and can do with his knowledge as a result of his educational experience.

One of the standardized instruments used to train early childhood language skills is the Test of Language Development-Primary (TOLD P). The TOLD-P is an instrument that can assess spoken language in young children. It is well-constructed, reliable, practical, research-based, and theoretically sound. This test consists of several subtests including: a) Picture vocabulary (Receptive Semantics) Tester reads a word and the child points to a picture that symbolizes the word. The child chooses one of 4 pictures; b) Oral vocabulary (Expressive Semantics) Tester reads a word and the child is asked to define the word orally; c) Grammatical understanding (Receptive Syntax) The tester reads a sentence and the child must choose a picture that illustrates the sentence.

The three pictures presented to the child represent the same sentence syntactically; d) Sentence Imitation (Expressive syntax) In this sub-test the tester reads a sentence and the child must repeat the utterance word for word; e) Word discrimination (Receptive Phonology) Tester reads two words and the child has to say if the words are the same or b. The child's score from the Picture Vocabulary subtest is 100%, the vocal vocabulary sub-aspect score is 50%, the grammatical understanding score is 62.5%, the sentence imitation score is 39%, and word discrimination is 20%. Based on the results of assessments and observations while at school, one major aspect was found that could be the child's weakness. This aspect is that the child has not been able to speak well on certain letters. This makes it difficult for people around the child to understand the intentions and messages that the child wants to convey. Some of the errors that consistently occur are.

The errors are consistent whether the child speaks one sentence, or just says one word. When the child speaks a sentence at a fast tempo, more errors are made, making it difficult for the communicator to understand the meaning of the message conveyed. Based on **Table 1** for the results of the assessment, it is necessary to develop a family-based early intervention program to improve the ability to articulate consonant letters for children with articulation barriers. The consonant letters that are the target of this program are "S, B, N, K, and R". The environment closest to the child is the family. Thus, the early intervention process needs to involve the family as a potential to develop the child's potential optimally. Pickard (2023) suggests that family-centered intervention is an approach that works with families to respect family values and choices. To achieve the goals of family-resourced early intervention programs, it is important to understand the opportunities and challenges of families.

Table 1. The subject's articulation abilities.

Letters That Should Be	Pronounced Letters
S	H
B	P
N	NG
K	H or P
R	L

Table 2 contains program development tailored to the needs of the subject. Program development consists of aspects of articulation, articulation program, program targets, and family-based intervention activities. Activities in this program are carried out together with parents and subjects. As the closest party to the child, the family, especially the parents, is one of the sources that has the potential to help children develop more optimally (Rizqita et al., 2024).

Table 2. Family-based early intervention program on aspects of articulation.

Aspects	Program	Destination	Activities
Articulation	Saying the letters "S", "B", "N", "K", "R"	For the child to have the ability to pronounce the letter "S" correctly	<p>Practice saying the letter "S"</p> <ol style="list-style-type: none"> Children are conditioned with a pleasant atmosphere of learning while playing together. The child is given a stimulus by the assessor to pronounce the letter "S" by hissing the pronunciation like the sound of a snake "SSSS...." The child is asked to keep his/her index finger in front of the mouth while feeling the sensation of wind coming out of the mouth when saying "SSSS...." After the child feels the air hitting his/her finger, then replace the finger with the paper held by the teacher. Ask the child to recite "SSS..." until the paper moves due to the air coming out of the mouth. Do this several times until the wind is strong and consistent. Give the child a word that begins with the letter "S", then ask the child to pronounce it using the above trick. For example, if the child is given the word cow, ask the child to pronounce it as "SSSS....Sapi". Parents are only asked to observe and note important points during the program.
Articulation	Saying the letters "S", "B", "N", "K", "R"	For the child to have the ability to pronounce the letter "B" correctly	<p>Practice saying the letter "B"</p> <ol style="list-style-type: none"> Children are conditioned with a pleasant atmosphere of learning while playing together. The child is given a stimulus by the assessor to say the letter "S" by inflating the cheeks as if to blow up a balloon, then say "beh...beh" by releasing the air stored in the inflated mouth. The child is asked to keep the index finger in front of the mouth while feeling the sensation of warm air coming out of the mouth when saying "beh...beh". After the child feels the air hitting the finger, then replace the finger with the palm of the hand. Ask the child to recite "beh..beh" until they feel a pop in the palm of their hand. Do this several times until the wind is strong and consistent. Parents give the child a word that starts with the letter "B", then ask the child to pronounce it using the above trick.

Table 2 (Continue). Family-based early intervention program on aspects of articulation.

Aspects	Program	Destination	Activities
Articulation	Saying the letters "S", "B", "N", "K", "R"	For the child to have the ability to pronounce the letter "N" correctly.	<p>h. For example, if the child is given the word read, ask the child to pronounce it by saying "behh..beh baca".</p> <p>Practice saying the letter "N"</p> <ol style="list-style-type: none"> Children are conditioned with a pleasant atmosphere of learning while playing together. The child is given a stimulus by the assessor to pronounce the letter "N" by pressing the right nose with the index finger of the right hand, then making the sound "nnnn...." The assessor asks the child to feel the vibration he/she makes when saying "nnnn..." After the child feels the vibration, the parent asks the child to keep repeating it. Do it several times until the sound produced by the child is consistent and the letter "N" is clearer, the parent monitors the sound produced by the child. Parents give the child a word that begins with the letter "N", then ask the child to pronounce it using the above trick. For example, given the word "dragon", ask the child to pronounce it as "nnnnnn...naga".
Articulation	Saying the letters "S", "B", "N", "K", "R"	For the child to have the ability to pronounce the letter "K" correctly	<p>Practice saying the letter "K"</p> <ol style="list-style-type: none"> Children are conditioned with a pleasant atmosphere of learning while playing together. The child is given a stimulus by the assessor to pronounce the letter "K" by sticking the hand to the throat and then making a "keh..keh" sound. The parent asks the child to feel the vibration he/she makes when saying "keh..keh". After the child feels the vibration, the parent asks the child to keep repeating it. Do it several times until the sound produced by the child is consistent and the letter "K" is clearer, the parent monitors the sound produced by the child. Parents give the child a word that starts with the letter "K", then ask the child to pronounce it using the above trick. For example, given the word "kita", ask the child to pronounce it as "keh..keh...kita".
Articulation	Saying the letters "S", "B", "N", "K", "R"	For the child to have the ability to pronounce the letter "R" with correctly	<p>Practice saying the letter "R"</p> <ol style="list-style-type: none"> Children are conditioned with a pleasant atmosphere of learning while playing together. The child is given a stimulus by the parent to pronounce the letter "R" by imitating the sound of a motorcycle "brrrr".

Table 2 (Continue). Family-based early intervention program on aspects of articulation.

Aspects	Program	Destination	Activities
			<ul style="list-style-type: none"> c. The child is asked to feel the vibration he/she makes when saying "brrrr" d. If this is not enough, parents can help by placing a sterile <i>cotton bud</i> under the tongue, and wiggling it when saying "brrr". e. Do this several times until the sound the child makes is consistent and the letter "R" is clearer. f. Give the child a word that starts with the letter "R", then ask the child to pronounce it using the above trick. g. For example, given the word "raga", ask the child to pronounce it as "brrrrr....raga". h. All activities are carried out by parents

4. CONCLUSION

Based on the results of this study, it can be concluded that children with articulation barriers need an intervention program as early as possible to avoid other barriers that arise as a result of their barriers, especially in the aspect of communication. The family is a very potential resource in implementing intervention programs as the closest individual to the child. The role of parents will increasingly replace the role of assessors as the program progresses. This is so that parents can implement the intervention program independently so that they can implement the program routinely and correctly.

5. ACKNOWLEDGMENT

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6. AUTHORS' NOTE

The authors declare that there is no conflict of interest regarding the publication of this article. The authors confirmed that the paper was free of plagiarism.

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