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Assessment and Intervention Strategies for Children with Hearing Impairments in Sidoarjo

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ABSTRACT

Objective: *This study aims to explore the characteristics of children with hearing impairments and design suitable intervention strategies to support their development at UPTD Anak Berkebutuhan Khusus Sidoarjo.* ***Method:*** *A qualitative descriptive approach was used, employing observations and interviews, and guided by the TEACCH-based assessment matrix to analyze each child's strengths and weaknesses.* ***Results:*** *The findings indicate notable strengths in sound detection, while significant challenges were observed in sound imitation and social interaction. Based on these assessments, individualized learning plans were formulated through collaborative efforts among teachers, parents, and therapists. A structured and consistent approach, including environmental support and periodic evaluations, was shown to enhance the child's confidence and improve educational outcomes.* ***Novelty:*** *This study contributes to the limited research on region-specific interventions for children with hearing impairments in Indonesia, emphasizing the integration of TEACCH-based assessments within inclusive education frameworks. The collaborative model presented serves as a replicable approach for optimizing support systems and tailoring interventions to meet the evolving needs of children with special needs.*

INTRODUCTION

Basically, every child has the potential to experience difficulties in learning. Some learning problems are mild and can be overcome by the individual concerned, while others require special assistance and attention from others. Children with special needs are one of the subjects who experience such difficulties [1].

Children with physical or psychological limitations are referred to as children with special needs. Another factor that categorizes a child as having special needs is the child's growth characteristics that do not align with their age or show growth deviations. The sociocultural concept considers children with special needs as children who have abilities and behaviors different from others. Therefore, they need different learning approaches to meet the needs of each child [2].

With education, all students' abilities, both regular and special needs, can be fully explored and perfected. Children with mild to moderate learning difficulties can attend public schools according to the specified requirements [3]. Therefore, children who have learning difficulties need educational services that can meet their learning needs [4].

According to Law Number 20 of 2003, which regulates the National Education System, the state is responsible for ensuring that children with special needs receive quality educational services [5]. UNESCO created the term "inclusive education" which comes from the phrase "education for all," meaning "education that is friendly for

everyone," with an educational approach that seeks to reach everyone without exception [6].

According to Suyanto and Mudjito, inclusion is an ideological system where all school members work together to realize a shared responsibility in educating all students in the same way, with the hope that everyone has differences and can develop them. So, an inclusive class is a classroom learning environment that consists of regular children, children with special needs, and teachers [7].

Children with special needs are grouped into three categories based on classification and type of disorder: physical disorders, mental disorders, and social characteristic disorders. Physical disabilities are abnormalities that occur in one or more organs of the body, causing body parts to not function properly, such as blindness and cerebral palsy. Children with mental disorders have critical and rational thinking that deviates from the norm. Mental disorders are classified into two categories: supernormal and subnormal. Behavioral disorders or social maladjustment are defined as individuals who have difficulty adjusting to their environment, regulations, social norms, and other aspects [2].

Deafness is a physical condition that occurs in the sensory organs. According to Atmaja (2018), a person who experiences deafness is someone who has hearing impairment across all degrees, whether mild, moderate, or profound. This disorder can be divided into two categories, namely deafness and hearing impairment, which disrupt the process of acquiring information or language as a means of communication [8]. According to Gunawan (2016), a deaf person is someone who cannot hear, which means they have difficulty understanding or comprehending other people's conversations by listening to them through a hearing aid (ABD) or without a hearing aid [9].

In the hearing impaired, there are 5 levels: very mild (25 dB-40 dB), mild (41 dB-55 dB), moderate (56 dB-70 dB), severe (71 dB-90 dB), and profound (≥91 dB). Children who fall into the category of severe hearing impairment communicate with others using sign language. They will have difficulty understanding language unless they undergo medical procedures (cochlear implants) or use ABD, which greatly helps them communicate [10].

Children with hearing impairments have difficulty controlling their emotions because they also struggle to express their feelings. The difficulty in verbal communication in deaf children is caused by obstacles in their language development. Deaf children do not understand language well, which causes them to be reluctant to interact and eventually feel lonely and isolated. Generally, they tend to be quieter and shyer. Nevertheless, they do not have difficulty interacting with people in their home environment [10].

With good learning planning, hearing-impaired children can participate in learning activities at inclusive schools. In the Individualized Educational Program (IEP) or Individual Learning Program (PPI), adjustments need to be made in the planning and learning procedures. PPI based on a transformative curriculum is a modification of the general curriculum so that the learning outcomes of children with special needs (ABK)

can be maximized. According to Gunarhadi (2010), PPI is a learning activity that emphasizes assistance and guidance for each student. This gives them ample opportunity to catch up on their learning and optimize their abilities. PPI requires a form of teamwork that consists of parents, teachers, teaching assistants, therapists, and psychologists [11].

RESEARCH METHOD

This research uses a descriptive qualitative research method. According to Bogdan and Taylor, qualitative research is a research process that produces descriptive data such as the behavior of research subjects and their spoken and written words [12].

Data collection techniques using non-participant observation and structured interviews. The type of observation where the researcher is not involved in the observed activities is called non-participatory observation [13].

In addition to observation, the researchers also conducted structured interviews with the subjects' parents. A structured interview is a form of interview where the interviewer meticulously and systematically prepares a plan or guideline of questions. In a structured interview, respondents will be given the same questions, and the results will be used as a data source to support the researcher's observations of the subject [14].

The observation recording technique used is a checklist using a matrix compiled by the UPTD for Children with Special Needs in Sidoarjo based on the TEACCH method. The systematic checklist recording method reveals frequency information about the presence or absence of an action [15]. This matrix consists of 3 stages. The first is a checklist matrix to observe the child's behavior. The second is the planning matrix for describing the child's behavior that appears during observation. The third matrix of planning serves as the basis for developing future child learning strategies (PPI). Here is the observation flow that the researcher conducted using the TEACCH method matrix:

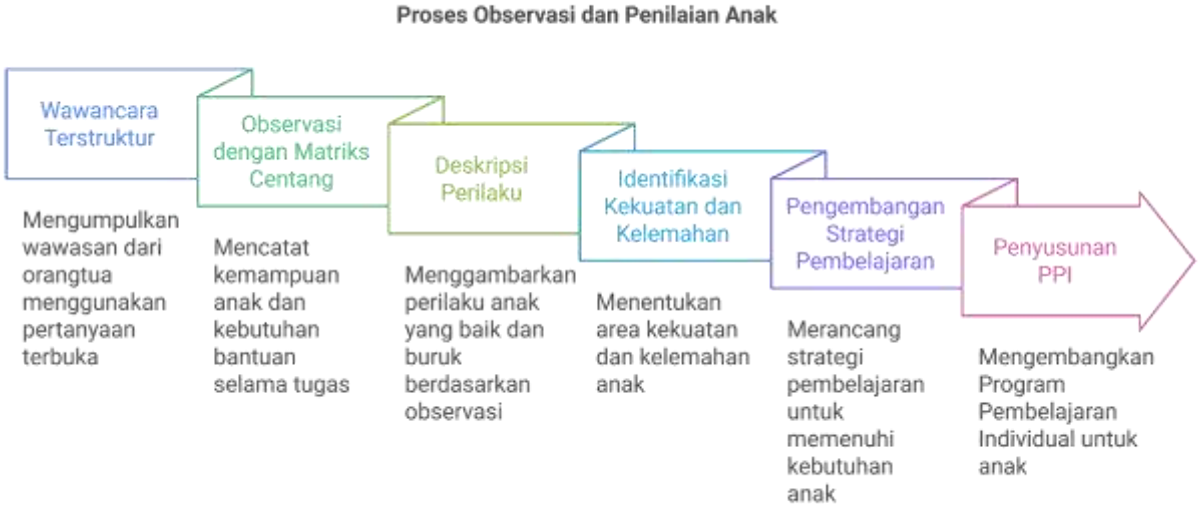

Figure 1. Observation Flow of Children with Special Needs Using the TEACCH Method

RESULTS AND DISCUSSION

Based on the assessment results above, Ananda has already displayed some of his characteristics. From these characteristics, we can identify Ananda's strengths and weaknesses. These shortcomings will become the priority for Ananda's therapy moving forward, determining what learning strategies are suitable for Ananda's characteristics. This assessment must be evaluated every semester to monitor Ananda's progress.

The matrix used for assessment was issued by UPTD Anak Berkebutuhan Khusus Sidoarjo based on the Treatment and Education for Autistic and Communication Related Handicapped Children (TEACCH) method in collaboration with Hearing and Speech Western Australia and the Autism Association of Western Australia (AAWA). This matrix has been studied for several years and continuously updated based on the developments in psychology. The matrix can be used by teachers in inclusive schools to help them map special needs students.

According to Migang & Mahardika (2018), the TEACCH method (Treatment and Education of Autistic and Related Communication Handicapped Children) is a structured teaching approach that focuses on the desires, needs, and developmental skills of children to help them become more independent [16]. Sudarto et al. (2019) revealed that the TEACCH method is a communication and social therapy for autistic children who experience learning difficulties through visual images. This visual learning not only facilitates autistic children but also helps children with hearing impairments who rely on visual aids [17].

The results of the assessment indicate that Ananda has several strengths that can support his development. In the auditory aspect, Ananda is able to detect sounds, recognize the direction of sound sources, react to music, and understand Ling 6 Sound well. He is also able to follow simple one-step commands. In articulation, Ananda can pronounce vowels, most consonants, as well as some words and short sentences. His receptive language skills are quite good, such as responding to smiles, conversations, and simple commands without gestures. He is also able to understand verbs, nouns, and prohibitions. In terms of expressive language, Ananda shows the ability to babble, imitate syllables, use words to ask for something, ask questions, comment on events around, and sing along with her friends. In addition, in terms of cognition, he can recognize numbers, letters, weather, and count with objects or pictures. Ananda also has good social behavior, such as making eye contact, taking turns while playing, and greeting others.

However, there are some weaknesses that need to be addressed. In terms of auditory skills, Ananda still has difficulty imitating certain Ling 6 Sounds and is still at a basic auditory memory level. In articulation, the pronunciation of some words is still unclear, especially for certain consonants. His receptive language shows difficulty in understanding concepts of comparison, time, and complex sentences. Meanwhile, in expressive language, he needs support to construct complete sentences and express stories. In the cognitive aspect, Ananda still needs assistance with reading syllables, copying writing, and associating sounds with letters. The aspects of behavior and social

interaction also indicate a need for assistance in following rules, understanding others' emotions, and playing with peers.

To support Ananda's development who is already using ABD (Hearing Aid), AVT (Auditory Verbal Therapy) can be done. With the help of digital hearing aids and cochlear implants, AVT helps hearing-impaired children maximize their auditory function [18]. Intensive Ling 6 Sound training can be gradually improved through AVT. Not only done by therapists, parents can also practice AVT at home during reading activities and word games to train the pronunciation of difficult consonants.

To train receptive and expressive language, Ananda can use visual aids such as PECS (Picture Exchange Communication System). PECS was developed by Bondy and Frost (1994) for children with autism spectrum disorders who have limited communication skills. PECS uses verbal symbols to teach communication [19]. The use of PECS can help Ananda understand the concept of time and comparison, as well as construct sentences gradually. Here are some examples of visual aids that can be used in school:

Figure 2. Therapy Schedule

Figure 3. Emotion Recognition

Figure 4. First-Then

CONCLUSION

Fundamental Finding : This study reveals that children with hearing impairments demonstrate strengths in sound detection, source recognition, musical responsiveness, and basic cognitive abilities such as recognizing numbers and letters, while exhibiting weaknesses in sound imitation, understanding complex concepts, and social interaction. **Implication :** These findings underscore the need for individualized learning strategies developed collaboratively by teachers, parents, and therapists, supported by consistent environmental reinforcement and periodic evaluations to enhance learning outcomes and self-confidence. **Limitation :** The study is limited by its qualitative design and specific context at a single institution, which may affect the generalizability of the findings. **Future Research :** Further studies with larger and more diverse samples, incorporating mixed-method approaches, are recommended to explore the long-term effectiveness of targeted interventions such as Auditory Verbal Therapy (AVT) and visual communication aids like PECS in enhancing both cognitive and socio-communicative skills among children with hearing impairments.

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