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Literature Study of Communication Problem Intervention in Autistic Students

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Abstract: Communication problems are a major challenge faced by students with autism spectrum disorders (ASD). This literature study aims to explore various intervention approaches that have been used to address communication problems in autistic students. The research method used is a systematic literature review of various scientific journals published between 2013 and 2023. The results of the study indicate that approaches such as Applied Behavior Analysis (ABA), Picture Exchange Communication System (PECS), speech therapy, social stories, and video modeling have proven effective in improving the communication skills of autistic students. These findings are expected to be a reference for educational practitioners and therapists in choosing appropriate intervention strategies.

Keywords: autism, communication, intervention, autistic students, literature study

INTRODUCTION

Autism spectrum disorder (ASD) is a neurodevelopmental condition that affects an individual's ability to interact socially, behave, and communicate. According to the World Health Organization (WHO), an estimated one in 100 children in the world are on the autism spectrum, and this prevalence continues to increase from year to year. In Indonesia itself, data from the Ministry of Health shows that the number of children with ASD has increased significantly over the past decade. One of the most significant challenges faced by autistic students is communication problems, both verbal and nonverbal. This barrier has a direct impact on their learning process and social interactions in the school environment. Ineffective communication can also increase frustration, problematic behaviour, and social isolation.

In the context of inclusive education, the presence of autistic students requires teachers and education personnel to understand the appropriate learning approach. Lack of training for educators and minimal intervention resources are obstacles to the implementation of education that is responsive to the needs of autistic children. Therefore, communication intervention strategies are very important to identify and adjust to the needs of individual students.

Various intervention approaches have been developed and applied in educational and clinical contexts, whether behavioural, visual, technology, or social. However, there are not many studies that systematically summarize the effectiveness of these methods comprehensively. This study aims to examine communication intervention approaches that have been scientifically proven to be effective in helping autistic

students improve their communication skills. Thus, this study is expected to contribute to the development of more adaptive and evidence-based inclusive education practices.

Autism is a neurodevelopmental disorder that usually appears before the age of three and affects an individual's social interaction, communication, and behaviour. The autism spectrum describes a variety of symptoms and levels of severity that vary from person to person. According to the DSM-5 (APA, 2013), individuals with ASD demonstrate two main criteria: (1) deficits in social communication and social interaction across contexts, and (2) restricted and repetitive patterns of behaviour, interests, or activities.

ASD is associated with neurological and genetic abnormalities that affect brain function, although the exact cause is not fully understood. Children with ASD can exhibit a wide range of cognitive abilities, ranging from severe intellectual disability to above-average intellectual ability. However, communication problems remain a prominent feature on this spectrum.

Communication includes verbal language expression, language comprehension, and nonverbal communication such as eye contact, gestures, and facial expressions. Children with ASD often experience speech delays, echolalia (repetition of words/sentences), or inappropriate use of language. In addition, they also tend to have difficulty understanding social communication norms, such as taking turns or understanding sarcasm and metaphors. According to Vygotsky (1978), language is a primary tool in a child's cognitive and social development. Thus, interventions that can improve communication skills in autistic children will have a direct impact on their social and academic development. Deficits in communication

not only affect understanding instructions, but also social engagement and the formation of interpersonal relationships.

The behaviorist approach emphasizes the importance of positive reinforcement to shape desired behaviour. ABA is the application of behaviorist principles to teach new skills and reduce problem behaviour. In the context of communication, ABA is used to improve children's ability to use functional language through intensive training and systematic structure. These approaches, such as Naturalistic Developmental Behavioural Interventions (NDBI), incorporate principles of naturalistic and relationship-based learning. Models such as the Early Start Denver Model (ESDM) focus on responsive interactions between children and adults to foster the development of spontaneous communication. Many children with ASD respond better to visual information than verbal information. Therefore, visual-based interventions such as PECS, the use of picture schedules, and video modelling are very effective in helping children understand and convey messages in a more structured way. Speech therapy aims to improve expressive and receptive language skills, as well as articulation and pragmatic skills. This approach is often combined with other techniques such as the use of augmentative and alternative communication (AAC). Social stories are short narratives designed to teach specific social skills in a real-life context. Through these stories, children learn to understand social expectations and appropriate communication strategies. By understanding the various theories and approaches, teachers and practitioners can choose the intervention method that best suits the characteristics and individual needs of autistic children. Furthermore, this study will review the results of studies related to the effectiveness of each approach in improving communication skills.

METHOD

This study uses a systematic literature study method to identify and analyse relevant research results related to communication interventions for autistic students. The literature study process is carried out in several stages, namely article searches, selection based on inclusion and exclusion criteria, and content analysis of selected articles.

The data sources in this study came from international and national scientific journals available in electronic databases such as Google Scholar, ScienceDirect, PubMed, and SpringerLink. The keywords used in the search process include: "autism", "communication intervention", "ASD", "speech therapy", "PECS", "ABA", "video modeling", and "social stories". The range of publication years selected was between 2013 and 2023. The flow is explained and can be seen in Figure 1.

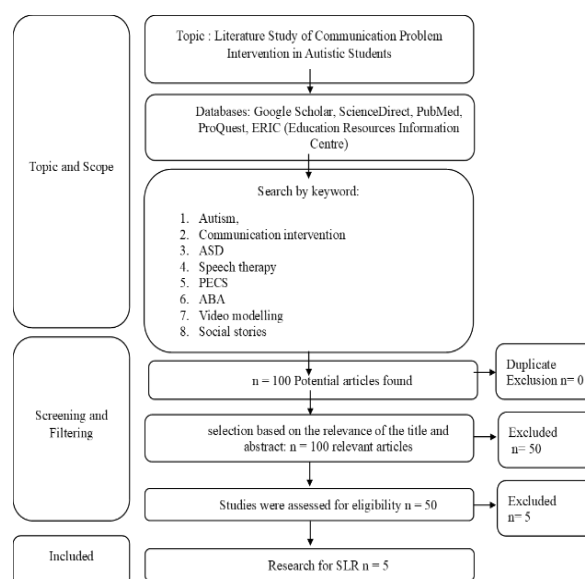


Figure 1. Systematic flow of literature review

The inclusion criteria used in this study were: (1) articles that focus on communication interventions for children or students with ASD; (2) empirical research using quantitative, qualitative, or mixed methods; (3) articles published in reputable journals and have gone through a peer-review process. Meanwhile, articles that are not in English or Indonesian, articles that focus on non-communication aspects, and non-scientific publications (such as popular articles or opinions) were excluded from the analysis.

Articles that met the criteria were reviewed in depth to identify the type of intervention used, the duration of the intervention, the target population, the research design, and the main findings related to the effectiveness of the intervention. The results of the analysis were then grouped based on the type of intervention approach, such as behavioristics, visual, social, or a combination of approaches. From these results, a narrative synthesis was compiled that describes the trends, effectiveness, and implications of each intervention.

RESULT AND DISCUSSION

The results of the literature study identified five main approaches that are consistently used in communication interventions for students with autism: Applied Behaviour Analysis (ABA), Picture Exchange Communication System (PECS), speech therapy, social stories, and video modelling. Each approach has advantages and limitations depending on the characteristics of the individual child and the context of its implementation.

Applied Behaviour Analysis (ABA), Many studies have shown that ABA is effective in improving functional communication and reducing problem behaviours in children with ASD. A study by Lovaas

(1987) and subsequent studies have shown significant improvements in children's speech abilities after receiving intensive ABA therapy. The basic theory of ABA refers to classical behaviourism from B.F. Skinner which emphasizes the importance of positive reinforcement as a way to shape behaviour. In practice, ABA uses techniques such as discrete trial training (DTT) to gradually train desired verbal responses. However, criticism of ABA has also emerged regarding its rigid approach and lack of flexibility in natural social contexts. Therefore, some researchers suggest integrating ABA with a naturalistic approach to increase the generalization of communication skills to everyday life.

Picture Exchange Communication System (PECS) has been proven to be very useful for nonverbal or minimally verbal children. According to Bondy & Frost (2001), PECS helps children understand the principles of two-way communication and improves communication initiation. PECS is based on the theory of augmentative and alternative communication (AAC) and the principles of behaviourism, with tiered stages that lead children from symbol exchange to sentence structure. In addition, PECS also trains functional communication skills through direct social interaction, which contributes to improving pragmatic communication skills.

Recent research shows that the use of PECS can accelerate the development of receptive and expressive language in early autistic children. The success of PECS is greatly influenced by the consistency of use and the involvement of parents and teachers in the training process.

Speech therapy is still the main approach in developing the language of autistic children. This intervention is effective in honing articulation skills, vocabulary, and pragmatic understanding. Based on the theory of language pragmatics, children with ASD often have difficulty using language socially, so the speech therapy approach focuses on improving overall communicative competence.

A study by Paul et al. (2007) showed that long-term intervention with a speech therapist can improve children's daily communication skills and social engagement. This approach is also often combined with assistive technology such as AAC to improve communication effectiveness.

Social Stories. This approach helps autistic students understand social situations and appropriate responses. Gray (1993), the developer of this method, states that social stories provide structure and clarity for children in dealing with complex social interactions. Social stories are based on Bandura's social learning theory, which states that individuals learn through observation and imitation. By reading stories that model appropriate social behaviour, children with ASD can internalize appropriate communication norms.

Research supports the effectiveness of social stories in increasing social understanding and reducing anxiety when communicating. However, the effectiveness of this method also depends on the construction of stories that are appropriate to the context and understanding of the individual child.

Video modelling uses visuals to model expected communication behaviours. This approach is strongly supported by social cognitive theory and visual processing theory, which suggest that children with ASD have strengths in understanding visual information. Research by Charlop-Christy et al. (2000) showed that this method is effective in improving spontaneous communication skills and accelerating the generalization of skills to various contexts.

The advantages of this method lie in its high visual appeal to autistic children and its ability to display behavioural models repeatedly and consistently. Video modelling can also be combined with other intervention strategies to strengthen the results achieved.

In general, all approaches studied showed varying effectiveness depending on the intensity, consistency, and involvement of the learning environment. Interventions that combine several approaches (multimodal) tend to provide better results, especially when tailored to the individual needs of the child.

The involvement of parents and teachers plays a significant role in strengthening the results of the intervention. In addition, Bronfenbrenner's developmental ecology theory can also be used as a basis for understanding the importance of social and environmental context in the effectiveness of interventions. A holistic and child-centred intervention approach is more likely to provide a positive long-term impact on the communication skills of autistic children. This literature review shows that communication interventions play a crucial role in supporting the development of students with autism spectrum disorder (ASD). The five main approaches discussed—Applied Behaviour Analysis (ABA), Picture Exchange Communication System (PECS), speech therapy, social stories, and video modelling—offer significant effectiveness in improving communication skills, both verbal and nonverbal, in children with autism. Each approach has its own strengths. ABA excels in its systematic training structure, PECS is effective for nonverbal children, speech therapy strengthens linguistic and articulation aspects, social stories equip children with an understanding of social context, and video modelling accelerates learning through visual appeal. The results of the review also indicate that the use of multimodal strategies—combining several approaches at once—can increase the overall effectiveness of interventions, especially when tailored to the characteristics of individual children.

The practical implications of these findings emphasize the importance of collaboration between

teachers, therapists, and parents in designing and implementing communication intervention programs. Educators in inclusive schools need to be equipped with adequate training on evidence-based intervention techniques. In addition, the development of educational policies that support the provision of diverse and affordable intervention resources is urgently needed.

Moving forward, more in-depth research is needed on the effectiveness of technology and digital-based interventions, as well as longitudinal studies to assess the long-term impact of communication interventions on the quality of life of children with ASD. With the right approach and continuous support, autistic children can develop optimally in their communication and social aspects, and be more actively involved in the educational environment and society.

CONCLUSION

This literature study shows that communication interventions such as ABA, PECS, speech therapy, social stories, and video modelling provide significant contributions to improving the communication skills of autistic students. The success of the intervention is highly dependent on the selection of an approach that suits the characteristics of the individual, as well as support from the educational environment and family.

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