

Research Article

Integrative Communication Enrichment Model (ICEM) & Visual-Spatial to Improve Speech Utterance Proficiency in Children with Autism Spectrum Disorders (ASD)

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Abstract: There are several symptoms that children with autism spectrum disorder (ASD) have, including communication and speech difficulties. They also display weak motor abilities, psychomotor issues, and cognitive impairments. By presenting new words, verbs, situations, and emotions to children through the use of pictures, the Picture Exchange Communication System (PECS) is a technique that aids in vocabulary growth, but it is less helpful for spoken utterance. The goal of this study is to determine how children with autism spectrum disorders ASD acquire spoken utterances in relation to the perceived approach (Visual-Spatial) PECS. Additionally, this study focuses on how speech utterances' cognitive growth influences their psychomotor development in terms of fluency and vocabulary growth. Instructor interviews were conducted to better explore this. Speech utterance is a psychomotor skill that depends heavily on the child's cognitive development. When auditory information is included, PECS helps children's learn words by preparing them with their definitions and aiding in word memorization. They can only improve their speaking fluency and utterance after that. Children with autism spectrum disorder (ASD) frequently have challenging speech and communication conditions, such as cognitive delays, psychomotor challenges, and poor motor abilities. The Picture Exchange Communication System (PECS) was created as a tool to improve vocabulary learning by exposing children's to new words, verbs, contexts, and feelings through visual cues. Its ability to sell voice utterance, however, is limited. This study aims to examine the effects of PECS's perceived approach, particularly its Visual-Spatial approach, on the growth of verbal utterances in ASD children. The study also looks at the role of cognitive development as a mediator in the relationship between speech utterances and psychomotor abilities, particularly fluency and vocabulary development. Speech production is a challenging psychomotor skill, and a child's cognitive development is key to this approach. The PECS programme helps children's become more familiar with words and their meanings by including aural information, which aids with vocabulary retention. Children can enhance their abilities in speech utterance and fluency with this advanced knowledge, encouraging dynamic communication.

Keywords: Autism Spectrum Disorders (ASD); Visual-Spatial; Cognitive Development; Speech Utterance; Psychomotor of Fluency.



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1. INTRODUCTION

With the aid of visual-spatial techniques, this study sought to ascertain how student accomplishment in spoken utterances is influenced by the perceived approach of past knowledge. The study created a framework for previous knowledge that was put to the test in four areas: knowledge of facts, knowledge of meaning, knowledge integration, and knowledge application. In order to get a better understanding of the wider communicative benefits of this strategy for children with autism spectrum disorders (ASD), the first research focused on the function of visual-spatial as an independent variable and speech utterance as a dependent variable.

A number of earlier research looked on interventions and therapy to improve speech utterance in children's with ASD. These research demonstrated the value of therapies including speech therapy, the PECS, speech producing devices, and different speech therapy techniques. The current study examines the mediating effects of cognitive abilities on the development of speech utterances with an emphasis on the cognitive framework of ASD. Smith (2022) was used in this study to examine the impact of the Picture Exchange Communication System (PECS) on the growth of spoken utterances in children who have been diagnosed with autism spectrum disorder (ASD).

Development of spoken utterances requires both physical and cognitive processes, where cognitive abilities are essential for both comprehending and speaking. The combination of PECS and auditory information improves speaking abilities and fluency while assisting with vocabulary retention. In a companion paper by Thompson (2022), several communication therapies, including PECS, were contrasted with regard to how well they improved speech in children with ASD. This study advances knowledge of communication therapies for children with ASD by examining the perceived approach, in particular the Visual-Spatial technique of PECS. It intends to provide light on how PECS affects speech utterances and the mediating role of cognitive development, offering insights for customised treatments and treatment regimens for children's with ASD.

2. METHOD & MATERIAL

The usefulness of Picture Exchange Communication Systems (PECS) in enhancing spoken communication abilities in children with Autism Spectrum Disorders (ASD) was investigated in this study using topic analysis and qualitative data analysis. To collect qualitative data for the study, eight autism centre teachers were interviewed. Thematic analysis was used to examine the results and locate themes and patterns in the data. The investigation concentrated on topics including how visual input affects social interaction and communication, how PECS affects these aspects, and how individualised interventions are for children with ASD. The findings emphasised the value of visual information, the communicative benefits of PECS, and the demand for specialised treatments. The study adds to the body of knowledge on communication treatments for children with ASD and offers insightful information for creating therapies that are tailored to their particular requirements.

3. FINDINGS

The impact of Picture Exchange Communication Systems (PECS) on young autistic children's (ASD) spoken utterance development. It emphasises the value of cognitive growth and the necessity of include both auditory and visual information in communication therapy. In order to meet the unique requirements of each child with ASD, the study calls for individualised therapies and highlights the limits of PECS in directly boosting spoken utterances. The literature review section looks at earlier studies on the effectiveness of PECS and other speech therapy for children with ASD. While also highlighting PECS's modest impact on speech production, it recognises the importance of PECS in fostering social engagement, vocabulary development, and nonverbal communication abilities. In order to acquire qualitative data on the effect of PECS on speech utterance proficiency, the study design involves qualitative data analysis and topic analysis of eight instructors from an autistic centre.

3.1 Framework of Visual-Spatial: A Mediator Effects on the Autism Spectrum Disorders (ASD) Achievement in Speech Utterance

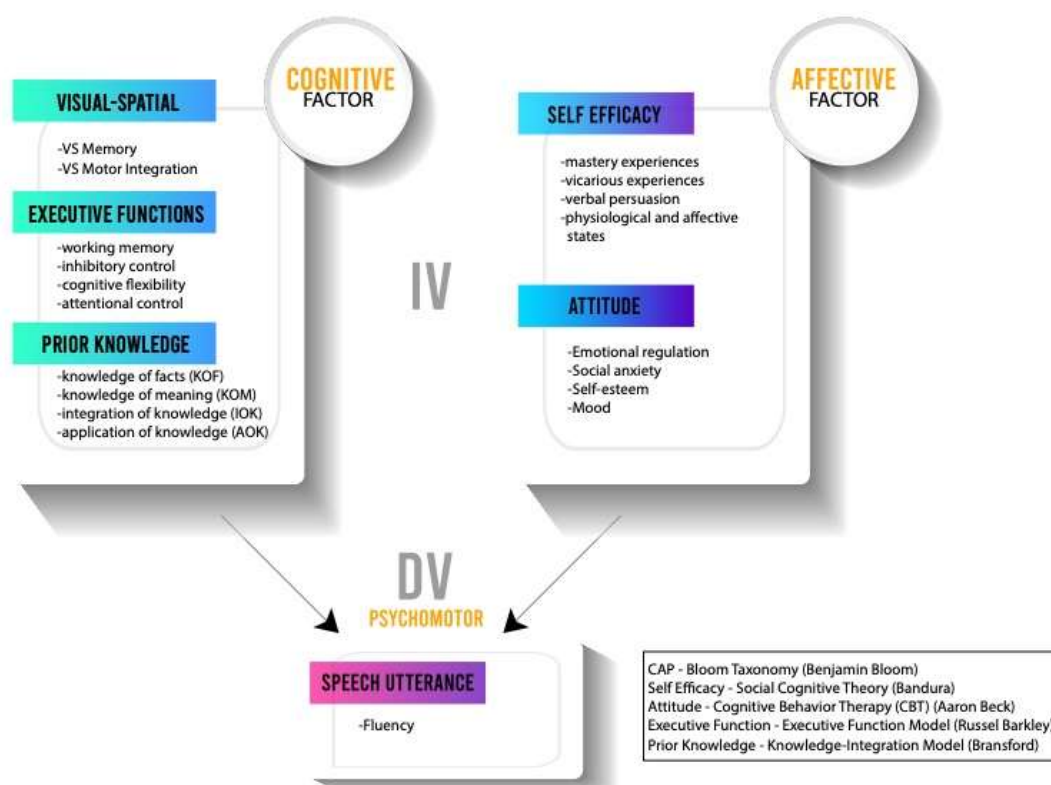


Figure 1: Framework of Visual-Spatial: A Mediator Effects on the Autism Spectrum Disorders (ASD) Achievement in Speech Utterance

The creation of a trustworthy and valid instrument is crucial in order to assess the mediator influence on speech utterance accomplishment in children with Autism Spectrum Disorders (ASD). To comprehend the cognitive and affective domains of each group, this instrument should combine significant concepts and components from instructor approaches. Based on a thorough literature analysis, the goal of this study is to develop a series of survey questions that correctly reflect the cognitive and emotional characteristics of each group.

The creation of this tool will give educators and researchers insightful information that will help them evaluate the efficacy of teaching strategies for students with ASD. Making educated choices about how to best assist their learning and development will be made easier. Figure 1 is a study's

framework lists five paradigms that are pertinent to how the Visual-Spatial approach affects children with ASD's ability to produce spoken utterances. The independent variables are divided into emotional (self-efficacy and attitude) and cognitive (visual-spatial and executive functions) aspects. Speech fluency, the dependent variable, is influenced by these variables.

The cognitive elements include working memory, inhibitory control, cognitive flexibility, and attentional control as well as visual-spatial skills, including memory and motor integration. Self-efficacy and attitude, which entail confidence in one's skills and emotional and cognitive assessment, respectively, are examples of affective variables. The dependent variable that is impacted by cognitive and emotional components is speech utterance fluency. The framework is influenced by a number of psychological theories, such as social cognitive theory, cognitive-behavioral therapy, the executive function model, the knowledge-integration model, and Bloom's taxonomy.

Overall, this framework and instrument will aid in the study of the variables affecting speech utterance development in children with ASD and will promote efficient support and intervention techniques. The results show that enhancing communication for children with ASD requires both auditory training and visual information. Although PECS can enhance social interaction and nonverbal communication, it has a limited direct impact on speech production. The paper emphasises the relevance of cognitive development in speech output and the necessity for comprehensive therapies that address concerns with language development. To promote the entire development of children with autism, a holistic approach with a variety of tactics is required, including speech therapy and interactive activities (Hassan, 2023).

3.2.2 Framework of Integrative Communication Enrichment Model (ICEM)

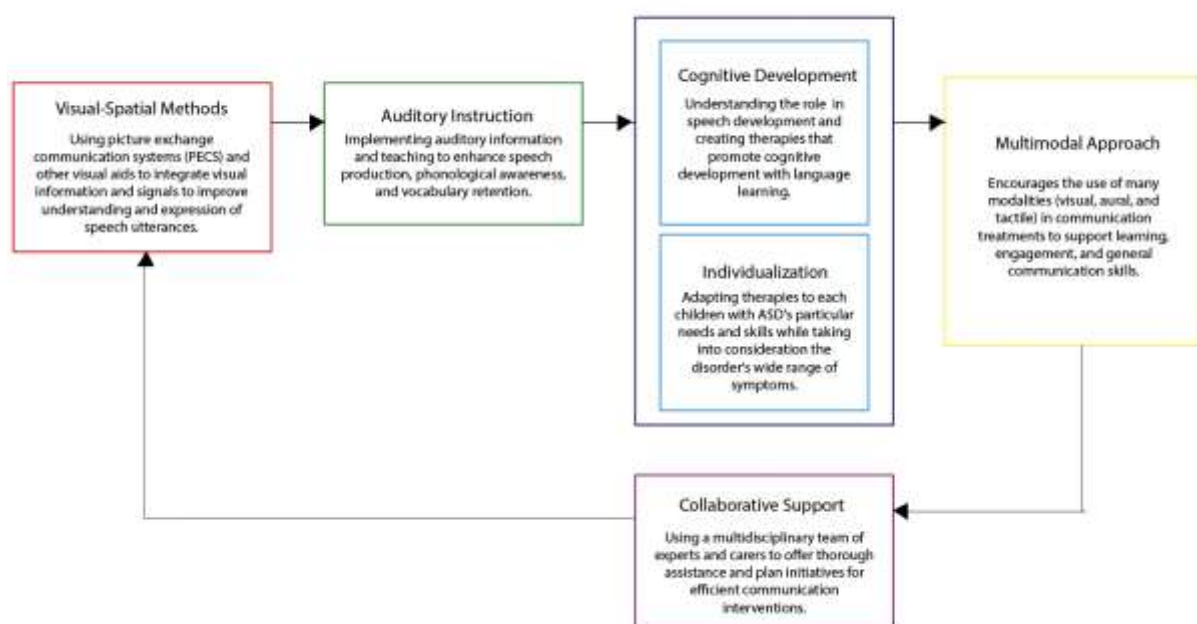


Figure 2. Framework of Integrative Communication Enrichment Model (ICEM)

The proposed framework, the Integrative Communication Enrichment Model (ICEM), attempts to increase the speech utterance proficiency of children with Autism Spectrum Disorders (ASD). The framework incorporates key elements from the corpus of recent literature as well as study data to provide a comprehensive technique for communication therapy for children with ASD. It has been shown how utilising visual and auditory modalities can help children with autism spectrum disorders (ASD) produce more speech (Johnson & Smith, 2019). The study makes the case that it's

crucial to combine several techniques, such as visual, auditory, and kinesthetic aspects, in order to foster good communication in children with ASD. It is suggested for designers to create assistive technologies that enable both verbal and nonverbal communication, taking into account the unique characteristics of autistic children. To fulfil the unique requirements of children with autism and improve their communication and social interaction abilities, sign language must be used in conjunction with other therapies and strategies. Children with autism require a comprehensive strategy that includes speech therapy and interactive activities for general development.

The Integrative Communication Enrichment Model (ICEM) is a comprehensive framework as in Figure 2 above that strives to enhance speech utterance proficiency in children with Autism Spectrum Disorders (ASD). By fusing a number of significant elements from the research findings and the body of existing literature, it develops a holistic approach to communication interventions. The paradigm accepts the use of picture exchange communication systems (PECS) and other visual-spatial methods for comprehending and conveying speech. It emphasises the use of auditory education to improve speech production and aid in vocabulary retention. The ICEM framework highlights the significant role that cognitive development plays in speech utterance and takes into consideration therapies that foster cognitive growth with language learning.

Individualization is a key component of the ICEM framework, which takes into consideration the various needs and abilities of every child with ASD. It promotes the use of many sensory modalities (visual, aural, and tactile) to enhance learning and participation in communication therapy. A multidisciplinary team, which includes experts like speech-language pathologists, occupational therapists, educators, and parents, must collaborate and support the framework. By applying the ICEM framework, professionals and carers may establish personalised strategies and treatment programmes that maximise communication skills and general development in children with ASD.

4. DISCUSSION

The study under discussion examines how well the Integrative Communication Enrichment Model (ICEM) and the Visual-Spatial approach may help children with Autism Spectrum Disorders (ASD) become more proficient with their speech utterances. The study highlights the speech and communication problems that ASD children frequently encounter as well as their limited success using the Picture Exchange Communication System (PECS) for spoken utterance. It intends to investigate how the perceived method of Visual-Spatial PECS affects psychomotor development, notably fluency and vocabulary acquisition. The study examines the effect of cognitive growth on speech utterance through interviews with teachers. It emphasises the value of using PECS in conjunction with auditory information to improve speaking ability, fluency, and vocabulary retention. The results indicate that while PECS aids with vocabulary growth and nonverbal communication, its direct influence on speech output is quite little. Therefore, for communication treatment to be effective in children with ASD, a complete strategy that tackles issues with language development is required.

The Visual-Spatial framework and the Integrative Communication Enrichment Model (ICEM) are the two frameworks that are presented in the study. Speech fluency is the dependent variable in the Visual-Spatial framework, which defines cognitive and emotional components as independent variables. These elements include executive functions, visual-spatial skills, self-efficacy, and attitude. To offer a comprehensive communication intervention for children with ASD, the ICEM incorporates numerous components from the body of existing literature. In addition to highlighting the importance of cognitive growth in speech utterance, it emphasises the interaction of visual, auditory, and

kinesthetic modalities. To develop individualised strategies and treatment plans based on the ICEM framework, professionals and carers must work together and emphasise individualization.

This study offers insights into the role of cognitive development, visual-spatial approaches, and the necessity for comprehensive interventions to support speech utterance proficiency and overall development in children with ASD, which adds to our understanding of effective communication therapies for children with ASD.

5. CONCLUSION

This study's findings emphasise the significance of cognitive growth, visual-spatial strategies, and all-encompassing therapies for enhancing speech utterance proficiency in children with Autism Spectrum Disorders (ASD). The Picture Exchange Communication System (PECS) is helpful for vocabulary growth and nonverbal communication, but it has little direct influence on speech output. Therefore, improving speech fluency and vocabulary growth in children with ASD requires a multifaceted strategy that incorporates auditory information, individualised therapy, and cooperative efforts among experts and carers. The Visual-Spatial Framework and the Integrative Communication Enrichment Model (ICEM), two of the frameworks that have been suggested, offer helpful direction for creating individualised tactics and treatment plans that will maximise communication abilities and general development in children with ASD.

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