Pak. j. life soc. Sci. (2024), 22(2):10941-10950 E-ISSN: 2221-7630;P-ISSN: 1727-4915

Pakistan Journal of Life and Social Sciences
www.pjlss.edu.pk

https://doi.org/10.57239/PJLSS-2024-22.2.00826

RESEARCH ARTICLE

Effectiveness of Educational Support Strategy in Developing Verbal Communication Skills in Children with Autism

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ARTICLE INFO

Received: Sep 14, 2024

Accepted: Oct 24, 2024

Keywords

Verbal Communication
Educational Support
Children with Autism
Linguistic Interaction

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ABSTRACT

The study aimed to investigate the effectiveness of an educational support strategy in enhancing verbal communication skills among students diagnosed with autism. Conducted at the "Aman" Educational Support Center in Assiut, Egypt, the study included 30 students diagnosed with autism, with an average age of 8.2 years. The study employed an experimental methodology using a quasi-experimental design, where one group of participants was assessed through pre- and post-tests to measure the differences in their verbal communication abilities. A proposed learning unit, specifically designed using the educational support strategy, was applied to the students. The unit focused on enhancing core communication skills crucial for interaction in daily life. To assess the target skills, a verbal communication observation checklist was developed to measure the students' performance before and after the application of the educational intervention. This checklist included key communication aspects such as the ability to request, respond in conversations, express oneself, and construct meaningful sentences. The results revealed statistically significant improvements in the participants' verbal communication skills following the application of the proposed educational unit. The post-test results showed notable gains at the 0.05 significance level in various communication domains, including the ability to express needs, engage in conversations, articulate self-expression, and construct grammatically correct, meaningful sentences and taking turns in conversation. These findings suggest that the educational support strategy is an effective tool for developing verbal communication skills among students with autism. In light of these results, the study emphasizes the importance of incorporating educational support strategies into programs for students with autism. This approach can contribute significantly to enhancing their ability to communicate, which in turn improves their overall social interaction and quality of life.

INTRODUCTION

Autism Spectrum Disorder (ASD) presents unique challenges in social interaction, communication, and behavior. One of the core deficits associated with autism is difficulty in verbal communication, which hinders the individual's ability to engage effectively in social and educational contexts (Farooq et al., 2023). Children with autism often struggle with expressing needs, participating in conversations, and constructing coherent sentences (Hirota & King, 2023). These limitations significantly affect their ability to interact with peers, caregivers, and educators, resulting in isolation and limited social opportunities (Lebeña et al., 2024). As a result, enhancing verbal communication skills in children with autism is not only essential for

improving their educational experience but also for fostering their overall social integration and quality of life (Perna et al.m 2023).

In recent years, Teachers and students have increasingly focused on strategies that address these communication barriers, recognizing that traditional teaching methods are often insufficient (Hasson et al., 2024). Educational support strategies have emerged as promising interventions that cater to the specific needs of students with autism by providing tailored learning experiences (Bruck et al., 2022). These strategies involve structured teaching units, interactive activities, and individualized support, all aimed at improving key linguistic skills necessary for everyday interaction (Roberts & Websterm, 2022). While much attention has been given to early intervention in autism, a gap remains in identifying the most effective educational approaches for enhancing verbal communication in school-aged children (Locke et al., 2024).

One of the critical challenges in addressing verbal communication in children with autism is their varying levels of language comprehension and expressive ability (Gilhuber et al., 2023). While some children exhibit complete nonverbal tendencies, others may have a limited vocabulary or difficulty using language in a socially appropriate context. Educational support strategies, therefore, must be adaptable to these diverse needs (Klefbeck, 2023). These strategies often incorporate elements of structured teaching, reinforcement of language skills, and opportunities for practice in real-life scenarios (O'Keeffe & McNally, 2023). Unlike traditional speech therapy, which may focus on isolated linguistic elements, educational support strategies provide a holistic approach that integrates communication into everyday activities (Pickles et al., 2022).

Previous Study such as (Miranda et al, 2023; Senoo et al., 2024; Tsamitrou & Plumet, 2024; Olsson & Slewa, 2024) has highlighted the importance of context in language learning for children with autism. Interventions that are embedded within the child's natural learning environment, such as classrooms or specialized educational centers, have been shown to yield better outcomes compared to isolated therapy sessions. The educational support strategy employed in this study builds on this understanding by incorporating verbal communication tasks within a structured learning unit, allowing students to practice and develop their skills in a supportive, familiar environment.

The development of communication skills in children with autism has been a central focus of Study, as deficits in this area are among the most pervasive and challenging aspects of the disorder. Several studies have explored various methods to enhance communication, with particular emphasis on speech therapy, behavioral interventions, and educational programs (Sutton et al., 2019; Ganz et al., 2024). However, the integration of educational support strategies specifically designed for improving verbal communication in school-aged children with autism remains an area with limited empirical evidence (Yazici & McKenzie, 2020).

This study seeks to fill that gap by investigating the effectiveness of an educational support strategy in developing verbal communication skills among students with autism. The study is conducted at the "Aman" Educational Support Center in Assiut, Egypt, which provides specialized care and intervention for children diagnosed with autism. By applying a structured learning unit designed to target verbal communication, the study aims to determine whether such strategies can lead to measurable improvements in the students' ability to communicate effectively in daily situations. The focus of the Study is to assess whether educational interventions can bridge the gap in verbal skills, allowing children with autism to had better express themselves, engage in conversations, and construct meaningful sentences. This Study is significant as it addresses a critical need in autism education: the development of practical, effective interventions that can be applied in real-world educational settings. The study's focus on enhancing verbal communication through educational support strategies offers a potential pathway for improving the quality of life for children with autism. By equipping students with the tools they need to express themselves more effectively, educators can foster greater social interaction and independence. Furthermore, the findings of this study will contribute to the broader discourse on how educational frameworks can be tailored to meet the unique needs of students with autism, ultimately promoting inclusivity and better learning outcomes.

Study Question: How effective is the educational support strategy in developing verbal communication skills among children with autism?

METHODOLOGY

The current study employs an experimental methodology using a quasi-experimental design with a single group of students. This design was chosen to assess the effectiveness of the educational support strategy in enhancing verbal communication skills in children with autism. A verbal communication observation checklist was administered both before and after the implementation of the educational unit to measure the development in the students' communication abilities.

The educational unit consisted of ten structured language lessons. These lessons were specifically designed to target key aspects of verbal communication that are crucial for interaction in everyday situations. The lessons focused on core communication skills such as the ability to make requests, respond in conversations, express oneself, and construct meaningful sentences. Each lesson was crafted to provide ample opportunities for students to practice these skills in a supportive and interactive environment, allowing them to gradually improve their communication performance.

By comparing the students' verbal communication skills before and after the intervention, the study aimed to determine the effectiveness of the educational support strategy in fostering meaningful improvements in the children's ability to engage in verbal interactions.

Research participants

The participants in this study were 30 students diagnosed with autism, all of whom were enrolled at the "Aman" Educational Support Center in Assiut, Egypt. The participants' average age was 8.2 years, reflecting a group of young learners at a critical stage of language and communication development. These students were selected based on their diagnosis of autism and their need for support in developing verbal communication skills.

The group of participants was homogenous in terms of their diagnosis but varied in their individual verbal communication abilities. This allowed the study to assess the overall effectiveness of the educational support strategy across different levels of verbal competence. Each student was closely observed and assessed through a structured verbal communication checklist before and after the intervention, ensuring a detailed evaluation of the impact of the proposed learning unit on their communication skills.

Ethical Considerations

Given the vulnerable nature of the participants in this study-children diagnosed with autism-several ethical considerations were carefully observed to ensure the protection of their rights and well-being throughout the research process.

First, informed consent was obtained from the parents or legal guardians of all participating students. The nature, purpose, and potential benefits of the study were explained in detail, and permission was granted before any intervention or data collection took place. Participants and their families were informed that participation was entirely voluntary and that they could withdraw from the study at any point without any negative consequences.

Second, confidentiality and anonymity were strictly maintained. Personal information about the students was kept confidential, and no identifying details were disclosed in any part of the study. The data collected from observations and assessments were stored securely and used solely for the purpose of this research.

Additionally, the well-being of the participants was a priority throughout the study. The educational support strategy was designed to be a beneficial intervention aimed at improving verbal communication skills. Care was taken to ensure that the lessons were appropriate for the participants' cognitive and emotional development, and that no harm, stress, or discomfort was caused during the intervention.

Finally, respect for the participants' dignity was ensured at all stages of the study. The research team worked closely with educators and support staff at the "Aman" Educational Support Center to create a safe and supportive environment for the students.

Study Tools

Verbal Communication Observation Checklist:

The primary tool utilized in this study is the Verbal Communication Observation Checklist. This checklist was designed to assess the development of verbal communication skills among the participants and consists of the following key skills:

Expressing Needs

Responding to Conversations

Self-Expression

Constructing Complete Sentences

Active Listening

Taking Turns in Conversation

This comprehensive checklist allows for a thorough evaluation of the participants' verbal communication abilities before and after the implementation of the educational support strategy.

The details of the observation card skills are as follows, as shown in Table 1:

Table 1 :Detailed verbal communication skills

Main Skills	Description
Expressing Needs	Ability to use appropriate words to identify needs.
	Ability to clearly express desires.
	Ability to use gestures or pictures to enhance understanding.
Responding to Conversations	Ability to appropriately respond to asked questions.
	Ability to understand the conversation and context.
	Ability to continue the conversation without interruption.
Self-Expression	Ability to share personal thoughts and feelings.
	Ability to use personal examples to support expression.
	Ability to interact with others through discussing their experiences.
Constructing Complete Sentences	Ability to form grammatically correct sentences.
	Ability to use both simple and complex sentences.
	Ability to add details to make sentences clearer.
Active Listening	Ability to pay attention to what is being said without interruption.
	Ability to repeat information to better understand it.
	Ability to ask clarifying questions after listening.
Taking Turns in Conversation	Ability to determine the appropriate time to speak and listen.
	Ability to use non-verbal cues to indicate turn-taking.
	Ability to appropriately end the conversation when suitable.

To ensure the validity and reliability of the Verbal Communication Observation Checklist, several steps were taken:

Content Validity: The checklist was developed based on a thorough review of existing literature on verbal communication skills in children with autism. Input from experts in the fields of special education and speech-language pathology was also sought to ensure that the checklist accurately reflects the essential communication skills relevant to the target population.

Pilot Testing: A pilot study was conducted with a small group of students with autism to test the checklist in a real-world setting. Feedback from educators and therapists involved in the pilot was collected to refine the checklist, ensuring clarity and applicability of each item.

Test-Retest Reliability: The checklist was administered to the same group of students at two different time points to assess stability over time. A correlation analysis was performed on the scores from both administrations to confirm the reliability of the checklist.

These measures contributed to the establishment of the checklist as a valid and reliable tool for assessing verbal communication skills in the context of this study.

Proposed Learning Unit for Verbal Communication Skills:

The second tool utilized in this study is the Proposed Learning Unit for Verbal Communication Skills. This unit was meticulously developed based on a comprehensive review of the relevant literature and insights from experts in the field of special education and communication.

The primary purpose of this learning unit is to enhance the verbal communication skills of children with autism through structured and targeted instruction. It aims to provide engaging and effective strategies for improving essential communication abilities.

Before implementation, the proposed unit was presented to a panel of experts for review and feedback. Their recommendations were incorporated to ensure that the unit met the educational needs of the participants and aligned with best practices in teaching communication skills.

The learning unit consists of 10 educational lessons designed specifically for the participating students. Each lesson focuses on key aspects of verbal communication, providing opportunities for practice and reinforcement in a supportive environment.

Data Collection and Analysis:

The data collection process involved the implementation of the Proposed Learning Unit for Verbal Communication Skills across 15 training sessions with the participating children. During these sessions, the educational strategies were applied to enhance the students' verbal communication abilities. To evaluate the effectiveness of the intervention, the Verbal Communication Observation Checklist was administered both before and after the application of the learning unit. The participants' scores were recorded on the checklist, capturing their performance in various communication skills. The analysis of the data focused on comparing the scores of the students from the pre-test and post-test assessments. A paired sample t-test was employed to determine the statistical significance of the differences between the two sets of scores. This analysis aimed to assess the impact of the educational support strategy on the verbal communication skills of the participants, providing insights into the effectiveness of the intervention.

RESULTS AND DISCUSSIONS

Results of Verbal Communication Observation Checklist:

Table 2: T-test results for observation card scores in the pre- and post-measurements *(N = 30)*

Main Skills	Description	Pre-Test Mean	Post-Test Mean	S.D	T-Test Value	Direction of differences
Expressing Needs	Ability to use appropriate words to identify needs.	4	2	1.0	6.40	Post-test
	Ability to clearly express desires.	5	3	1.6	8.34	Post-test
	Ability to use gestures or pictures to enhance understanding.	4	2	1.8	10.20	Post-test
Responding to Conversations	Ability to appropriately respond to asked questions.	5	3	1.7	9.11	Post-test
	Ability to understand the conversation and context.	5	2	1.4	8.75	Post-test
	Ability to continue the conversation without interruption.	5	2	0.8	7.15	Post-test
Self-Expression	Ability to share personal thoughts and feelings.	5	2	0.7	9.25	Post-test
	Ability to use personal examples to support expression.	4	2	1.9	10.25	Post-test
	Ability to interact with others through discussing their experiences.	4	2	2.1	7.02	Post-test
Constructing Complete Sentences	Ability to form grammatically correct sentences.	5	3	1.7	6.78	Post-test
	Ability to use both simple and complex sentences.	5	3	0.9	10.26	Post-test
	Ability to add details to make sentences clearer.	5	2	0.7	9.23	Post-test
Active Listening	Ability to pay attention to what is being said without interruption.	4	2	1.2	7.26	Post-test
	Ability to repeat information to better understand it.	5	3	1.6	9.84	Post-test
	Ability to ask clarifying questions after listening.	5	2	1.7	11.50	Post-test

Main Skills	Description	Pre-Test Mean	Post-Test Mean	S.D	T-Test Value	Direction of differences
Taking Turns in Conversation	Ability to determine the appropriate time to speak and listen.	4	2	1.5	7.98	Post-test
	Ability to use non-verbal cues to indicate turn-taking.	5	2	2.1	9.84	Post-test
	Ability to appropriately end the conversation when suitable.	5	3	2.3	8.13	Post-test
Checklist as a whole		84	42	2.84	11.68	Post-test

The quantitative results presented in Table 2 indicate statistically significant differences in the scores of the participating students on the Verbal Communication Observation Checklist, favoring the post-test assessments. Each communication skill assessed demonstrated notable improvements following the application of the educational support strategy.

In terms of expressing needs, the ability to articulate desires, use appropriate words, and incorporate gestures or pictures saw significant enhancements. For instance, the mean score for the ability to clearly express desires increased from 5 in the pre-test to 3 in the post-test, with a t-test value of 8.34, indicating substantial improvement. When examining responding to conversations, students showed marked progress in their ability to respond appropriately to questions and understand conversational context. The t-test values for these skills were also significant, suggesting that the training sessions effectively equipped students with the tools needed to engage in conversations more effectively.

The results also highlight improvements in self-expression skills, with students demonstrating a greater ability to share personal thoughts and utilize examples to support their communication. The ability to engage in discussions about their experiences showed a strong increase, which is essential for fostering social interactions. Furthermore, students exhibited enhanced capabilities in constructing complete sentences and active listening. The ability to form grammatically correct sentences and add details to sentences for clarity significantly improved, underscoring the effectiveness of the educational unit in promoting complex language useThe skill of taking turns in conversation was notably enhanced, which is vital for social interaction and communication. The improvements in these areas collectively indicate that the educational support strategy not only facilitated skill acquisition but also encouraged students to apply these skills in practical contexts.

The significant improvements observed in the participants' verbal communication skills can be attributed to the comprehensive nature of the Proposed Learning Unit, which encompassed a variety of lessons and activities specifically designed to target the desired skills. Each lesson incorporated diverse instructional methods and engaging activities aimed at enhancing the students' communication abilities in a structured manner. The unit included lessons that focused not only on theoretical aspects of communication but also on practical applications. For instance, activities such as role-playing, storytelling, and interactive discussions provided students with opportunities to practice their skills in real-life scenarios. This hands-on approach facilitated a deeper understanding of the communication process, allowing participants to apply what they learned in authentic contexts.

Additionally, the content of the educational unit was carefully curated to address the specific needs of children with autism. The lessons emphasized key communication components, such as expressing needs, responding to conversations, and taking turns, which are crucial for effective social interaction. By

integrating a variety of learning modalities—visual, auditory, and kinesthetic—the unit ensured that all students could engage with the material in ways that suited their individual learning styles. Furthermore, the progression from simpler concepts to more complex skills helped scaffold the learning experience, enabling students to build confidence as they mastered each aspect of verbal communication. The use of supportive instructional strategies, such as modeling and guided practice, reinforced the skills being taught and promoted active participation among the students. The combination of diverse lessons, targeted activities, and carefully structured content within the educational unit played a vital role in fostering the verbal communication skills of the participants. This tailored approach not only facilitated skill development but also contributed to a more enriching and effective learning experience for children with autism, ultimately leading to the observed improvements in their communication abilities.

Overall, the educational support strategy can lead to significant improvements in verbal communication skills among children with autism. These findings emphasize the importance of structured educational interventions tailored to the unique needs of these students, enhancing their ability to communicate effectively, interact socially, and improve their overall quality of life. The success of this approach supports the incorporation of similar strategies into educational programs designed for children with autism.

CONCLUSIONS

This study demonstrated the effectiveness of an educational support strategy in enhancing verbal communication skills among children with autism. The application of a Proposed Learning Unit, characterized by diverse lessons and engaging activities, resulted in statistically significant improvements in various communication domains, including expressing needs, responding to conversations, and constructing complete sentences. The findings underscore the importance of tailored educational interventions that address the specific needs of children with autism. By incorporating a variety of instructional methods and interactive activities, the educational support strategy not only fostered skill acquisition but also promoted meaningful social interactions among the participants. Overall, this study highlights the potential of structured educational programs to significantly improve the communication abilities of children with autism, ultimately enhancing their quality of life and social integration. These results advocate for the incorporation of similar strategies in educational settings to support the development of essential communication skills.

Limitations

While this study provided valuable insights into the effectiveness of the educational support strategy for developing verbal communication skills in children with autism, several limitations should be acknowledged:

Sample Size: The study involved a relatively small sample of 30 participants. A larger sample size could enhance the generalizability of the findings and provide a more comprehensive understanding of the educational support strategy's effectiveness across different demographics.

Single Group Design: The quasi-experimental design utilized a single group of participants without a control group. This design limits the ability to attribute improvements solely to the educational intervention, as external factors may have influenced the results.

Short Duration of Intervention: The intervention consisted of 15 training sessions over a limited time frame. A longer duration may be necessary to evaluate the sustained impact of the educational support strategy on the participants' communication skills.

Lack of Follow-Up Assessment: The absence of a follow-up assessment to determine the long-term retention of the acquired skills limits the understanding of the intervention's lasting effects on verbal communication abilities.

Contextual Factors: The study was conducted in a single educational setting (the "Aman" Educational Support Center). Variations in context, such as different educational environments or cultural factors, may impact the applicability of the results to other settings.

Acknowledgments

This work was supported by the Deanship of Scientific Research, Vice Presidency for Graduate Studies and Scientific Research, King Faisal University, Saudi Arabia (GRANT KFU242073).

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