



## Exploring the Effectiveness of Service-Based Learning in Developing Simplified Arabic Verbal Communication Skills among Children with Autism

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### **Abstract:**

This study aimed to explore the effectiveness of service-based learning in developing Simplified Arabic Verbal Communication Skills among children with autism. An experimental approach was employed with a single group consisting of 22 children diagnosed with autism, assessed through pre- and post-test measurements using the Simplified Arabic Verbal Communication Skills Test. The skills targeted in this study included: Language Comprehension, Sentence Construction, Auditory Response, Emotional Expression, Logical Sequencing of Ideas, Question Asking, Non-verbal Communication, Participating in Dialogue, Interaction with Others, and Cultural Understanding. The results revealed significant improvements in the children's communication skills across all the targeted areas, with the most noticeable advancements in Language Comprehension, Sentence Construction, and Participating in Dialogue. These findings highlight the positive impact of service-based learning as an effective method for enhancing verbal communication abilities in children with autism. Moreover, it was evident that the inclusion of service-based learning fostered an interactive and supportive learning environment, contributing to the children's confidence in using language in real-life contexts. In light of these results, it is recommended that service-based learning be incorporated into educational interventions aimed at improving verbal communication among children with autism, particularly in the context of Arabic language education. Such programs offer a promising avenue for promoting language development and enhancing social interaction skills in children with autism.



**Keywords:** Service-Based Learning, Simplified Arabic Verbal Communication, Children with Autism, Language Development, Autism Spectrum.

## Introduction and Study problem

Service-based learning (SBL) is an innovative educational approach that has shown promise in developing essential language and communication skills among children with autism spectrum disorder (ASD). This model blends academic learning with real-world applications, providing children with opportunities to enhance their skills through practical engagement with their communities (Fernández Cerero et al. 2024). Research indicates that children with ASD face significant barriers in communication, particularly in the areas of verbal expression and social interaction. Traditional educational methods often fail to adequately address these challenges, as they may not offer the necessary interactive and dynamic environments that children with ASD require. Thus, SBL can be an effective strategy for teaching communication skills, as it emphasizes active participation, social interaction, and peer collaboration (Konstantinos et al., 2024).

Service learning, defined as a method of teaching that integrates community service with academic learning, provides a unique environment for children with autism to develop practical skills in real-world contexts (Chiva-Bartoll et al., 2021). In particular, service learning enables these children to engage in meaningful social interactions, which is a critical area of development for children on the autism spectrum. By working on service-based projects that require communication with peers and community members, children have the opportunity to practice both verbal and non-verbal communication in structured yet flexible environments. This approach has been shown to improve their ability to listen actively, speak clearly, and express themselves through body language, which are fundamental communication skills that children with autism often struggle with (Closson, 2022).

Furthermore, the implementation of service learning activities has been linked to the improvement of social and emotional skills, which are essential for children with autism to thrive in community settings (Salvador-Garcia et al., 2023). The participation in real-world tasks such as assisting others, organizing community events, or providing services to local organizations allows children with autism to learn empathy and develop stronger social bonds. These activities offer a unique form of social exposure that is not typically available in traditional educational settings, making them particularly beneficial for children who may have difficulty understanding social cues or forming relationships (Muzammal, 2023). Through service learning, children with autism can acquire the social skills needed for successful interactions, such as understanding facial expressions, tone of voice, and appropriate body language, which in turn enhances their overall social competence (Chao et al., 2022).



Service learning also creates a powerful context for the development of language skills that go beyond academic settings. As children with autism often face challenges in verbal communication, service learning provides an interactive platform where they can practice conversational skills, ask questions, summarize information, and engage in collaborative problem-solving activities. Children who participated in service learning projects demonstrated significant improvements in their ability to focus on relevant topics, structure their responses clearly, and ask questions that foster communication with others (Valverde-Estevé et al., 2021). These skills are not only essential for academic success but are crucial for social participation and future employment opportunities, highlighting the long-term impact of service learning on the lives of children with autism (Tse & Chan, 2022).

Numerous studies have highlighted the need for educational models that involve direct interaction with others, as these methods have been shown to improve the social and verbal communication abilities of children with ASD. Children with autism often struggle with isolated, teacher-centered learning activities and benefit greatly from learning experiences that foster communication in social settings (Garwood et al., 2023). Service-based learning provides a unique approach by offering children structured opportunities to practice verbal communication in authentic contexts. The focus on community involvement and peer interaction enhances the likelihood of developing not only communication skills but also social understanding and empathy, critical elements for children with autism (Hussain et al., 2021).

Additionally, the inclusive nature of service learning helps children with autism feel a sense of belonging and community. Traditional educational models often focus on individualized instruction, which, while important, may unintentionally isolate children with autism from their peers (Logan et al. 2024). Service learning, however, emphasizes group collaboration, social responsibility, and active engagement in communal goals, creating a sense of purpose and inclusion for children with autism. The active participation in community service projects fosters self-esteem and personal growth, allowing children with autism to see their contributions as valuable and meaningful. This sense of belonging and self-worth is instrumental in building their confidence and motivation to engage in future learning opportunities (Tsirigoti & Georgiadi, 2024; Berenguer et al., 2024).

In this study, we will focus on the development of Simplified Arabic Verbal Communication Skills, which are essential for the social integration and educational success of children with ASD in Arabic-speaking communities. The specific skills targeted in this study include: Language Comprehension, Sentence Construction, Auditory Response, Emotional Expression, Logical Sequencing of Ideas, Question Asking, Non-verbal Communication, Participating in Dialogue, Interaction with Others, and Cultural Understanding.



By focusing on these fundamental verbal communication abilities, the research aims to examine whether SBL can significantly enhance the communication competence of children with ASD.

The problem addressed in this study is the persistent difficulty children with autism face in developing verbal communication skills in Arabic, particularly in social contexts. While these children may acquire some communication skills in structured settings, they often struggle to apply them effectively in everyday situations. This gap in verbal communication skills hinders their ability to integrate socially and function effectively in educational settings (O’Keeffe et al., 2023). Furthermore, while various interventions have been proposed to address these communication challenges, limited research has explored the role of service-based learning as a means of enhancing verbal communication in Arabic-speaking children with ASD.

Thus, this study seeks to explore the effectiveness of service-based learning in developing the Simplified Arabic Verbal Communication Skills of children with autism. By incorporating community service activities into the learning process, we aim to offer children with ASD meaningful opportunities to practice and improve their verbal communication in a real-world context. The study's findings will contribute to the growing body of literature on autism intervention strategies and provide valuable insights for educators, therapists, and researchers working with children with ASD in Arabic-speaking environments.

The goal of this research is to investigate whether service-based learning can serve as an effective tool for enhancing verbal communication skills in children with ASD, ultimately improving their social interaction and academic performance.

Previous literature has addressed the role of service learning in enhancing communication skills for children with autism. The article by Valverde-Esteve et al. (2020) explores a pilot study assessing the effect of a service-learning program on promoting an active lifestyle for children with Autism Spectrum Disorder (ASD). The study found that the service-learning model effectively enhanced physical activity and social skills among children with ASD, suggesting its potential as a valuable tool for addressing related challenges. This research emphasizes the role of community-based, interactive learning programs in promoting positive developmental outcomes for children with ASD.

The study by Timmons et al. (2017) investigates the impact of community service experiences on the development of employment skills for youth with autism spectrum disorder (ASD). The findings from qualitative interviews revealed positive outcomes in career exploration, self-determination, and social skills. This suggests that structured community service can significantly benefit transition-age youth with ASD by enhancing their job readiness and social integration, ultimately promoting community inclusion.



The article by Jones et al. (2024) examines the outcomes of an online service-learning course where students implemented telehealth behavioral intervention services for children with autism. The study found significant improvements in student knowledge, civic learning, and personal growth. Additionally, children with autism benefited from the telehealth intervention, demonstrating the effectiveness of extreme e-service learning in enhancing both educational and community outcomes. This approach highlights the potential of virtual service-learning in undergraduate education.

The study by Rose et al. (2023) investigates a four-week global interdisciplinary service-learning project in Botswana aimed at enhancing cultural humility and cross-cultural communication skills among educators of children with autism and developmental disabilities. Participants collaborated with local educators, creating curricular activities while immersing themselves in Botswana's culture and traditions. The results showed significant improvements in cultural humility, especially in the integration and intercultural communication stages, with individual growth varying based on prior experiences and age.

The study by Nowell et al. (2020) explores the impact of service-learning on increasing undergraduate students' awareness, knowledge, and perception of autism spectrum disorder (ASD). Two cohorts of students participated in a course that combined hands-on community service and in-class sessions. The results showed that service-learning pedagogy significantly improved students' understanding and acceptance of ASD, underlining its potential to foster greater awareness and integration of individuals with ASD in the community.

Service learning can be particularly effective in enhancing the use of visual communication tools, which are often easier for children with autism to understand and utilize. Many service learning projects involve the use of pictures, charts, or drawings as tools for expression and interaction. These visual aids can bridge the communication gap for children who struggle with verbal language, allowing them to communicate their thoughts and feelings more effectively. By incorporating these tools into service learning projects, children with autism develop greater competence in using alternative communication methods, which further supports their social integration and communication abilities in various settings (Meng et al., 2024).

The importance of service-learning programs in fostering skills development for children with autism spectrum disorder (ASD) is increasingly recognized. As evidenced by various studies, service-learning not only enhances academic and social skills but also significantly contributes to emotional growth, self-determination, and community engagement. The integration of these programs presents a valuable opportunity to address the unique challenges faced by children with ASD, with particular emphasis on fostering essential communication and social interaction skills, which are vital for their integration into society.



## **Importance of the Study**

Building upon the previous literature review on the importance of service learning in teaching children with autism, the significance of this study lies in its ability to highlight the role of this educational approach in enhancing verbal communication skills among children with autism spectrum disorder (ASD). This study provides a crucial step toward understanding how service learning can be used as an effective tool for developing linguistic skills in this population, offering them a unique opportunity for social interaction and learning in real-life contexts. By engaging in service learning activities, children with ASD can benefit from practical experiences that promote the development of communication skills in a supportive and engaging environment.

Moreover, the importance of this study lies in its contribution to providing innovative strategies for children with autism, particularly in developing their verbal communication skills, which are a major challenge for this group. Through the application of service learning techniques, which combine community service and academic learning, children with ASD have the chance to acquire essential communication skills, such as active listening, clear speech, body language usage, topic focus, question asking, summarization, positive interaction, use of images and drawings, audience adaptation, and language games. These skills are not only vital for enhancing communication abilities but are also fundamental for better integration into social and academic settings.

Additionally, this study makes a significant contribution to both academic and practical understanding of service learning as a teaching tool to address communication issues in children with autism. Previous studies have shown that children with ASD face difficulties in social interaction and understanding social cues, which impede their linguistic development. However, service learning provides an interactive environment that fosters these skills through opportunities for real-world social interactions. Such a setting allows children to practice verbal communication in a structured and supportive manner, helping them improve their ability to engage with peers and adults, and ultimately enhancing their overall communication proficiency (Yan et al., 2019).

Furthermore, this study presents practical implications for educators, parents, and professionals working with children with autism in educational settings. By examining how service learning can be integrated into educational programs for children with ASD, the study aims to enhance teaching strategies and address the challenges these children face in developing verbal and social skills. The findings could inform new approaches to teaching communication in autism-focused educational settings, ensuring that interventions are both effective and tailored to the specific needs of these children.



Finally, the importance of this study lies in its potential to offer a comprehensive framework for incorporating service learning into programs designed to enhance verbal and social communication skills among children with autism. The research offers a valuable perspective on how these children can develop the ten key communication skills identified earlier, ensuring that their interactions within society are more meaningful, confident, and effective. By focusing on these skills-active listening, clear speaking, body language, topic focus, question asking, summarization, positive interaction, visual communication, audience adaptation, and language games.

### **Study Questions**

- What are the necessary Simplified Arabic Verbal Communication Skills for children with autism?
- What is the effectiveness of service-based learning in developing Simplified Arabic Verbal Communication Skills among children with autism?

### **Methodology**

#### **Study Design**

The study employs a quantitative, quasi-experimental design with a single-group pretest-posttest framework to evaluate the impact of service-based learning activities on the development of simplified Arabic verbal communication skills among children with Autism Spectrum Disorder (ASD). The intervention consists of language activities conducted within a defined time period and grounded in service-learning principles. These open-ended linguistic tasks aim to promote communication skills in a real-world context, leveraging the benefits of active engagement. A pre- and post-intervention assessment is designed to measure the children's language skills before and after their participation in these activities. This approach allows for the identification of any improvements and provides insights into the effectiveness of service-based learning in enhancing communication abilities.

#### **Study Participants**

The participants in this study include 22 children diagnosed with Autism Spectrum Disorder (ASD), selected through purposive sampling from Aman Center for Special Needs Services in Asyut, Egypt. The average age of the children is 8.2 years. The children share similar social characteristics, which were taken into account during the selection process to ensure homogeneity within the sample. They have been diagnosed and classified based on standardized diagnostic procedures conducted at the center. This selection strategy ensures that the participants are representative of the target group, allowing for a focused examination of the impact of service-based learning activities on their language development.



## **Ethical Considerations**

Given that the study's sample consists of children with Autism Spectrum Disorder (ASD), a particularly vulnerable group, additional ethical considerations were incorporated to ensure their well-being. Informed consent was obtained from the children's legal guardians as well as the management of the center where the research took place, ensuring transparency and clarity regarding the study's purpose and procedures. The children were assured of their right to withdraw at any time without any negative consequences. Additionally, great care was taken to minimize stress or discomfort for the participants. Professionals trained in working with children with ASD were present throughout the study to monitor the children's emotional and physical state. All activities were designed to align with their individual needs, and their participation was voluntary, reinforcing the ethical commitment to respect their autonomy, dignity, and rights during the course of the research.

## **Data collection and analysis**

In this study, the Simplified Arabic Verbal Communication Skills test was used to measure the children's communication abilities, focusing on ten specific skills: vocabulary comprehension, sentence structure understanding, conversation initiation, topic coherence, question formulation, response accuracy, pronunciation, emotional expression, narrative coherence, and non-verbal communication. These skills were targeted through tailored activities incorporated into the service-learning interventions. The test was applied before (pre-test) and after (post-test) the implementation of the activities to assess any improvements in the participants' communication abilities. For data analysis, descriptive statistics were first calculated to summarize the pre- and post-test results. Paired sample t-tests were then employed to examine whether the intervention led to significant improvements in the participants' skills, with a significance level set at  $p < 0.05$ . Effect sizes were also calculated to assess the magnitude of the changes. The findings were interpreted in relation to the research questions to assess the effectiveness of service-based learning in enhancing these skills.

## **Study Tools**

### **1- Development of the Simplified Arabic Verbal Communication Skills List**

The Simplified Arabic Verbal Communication Skills list was developed based on previous studies and expert opinions in the field of special education for children with disabilities. This list includes ten core skills, each with three sub-skills as follows:

#### ***Skill 1: Language Comprehension:***

Understanding simple words

Differentiating between different meanings



Understanding short sentences

***Skill 2: Sentence Construction:***

Forming simple sentences

Using basic grammar rules

Correct use of pronouns

***Skill 3: Auditory Response:***

Ability to respond quickly

Clear pronunciation

Responding to simple commands

***Skill 4: Emotional Expression:***

Demonstrating emotions through speech

Using appropriate facial expressions

Interacting with others' emotions

***Skill 5: Maintaining a Logical Sequence of Ideas:***

Connecting ideas logically

Using simple transitional words

Ordering events in chronological order

***Skill 6: Asking Questions:***

Asking open-ended questions

Correct use of interrogatives

Asking simple questions for information gathering

***Skill 7: Non-verbal Communication:***

Using gestures for clarification

Reading facial expressions

Physical interaction (e.g., hand signals)

***Skill 8: Engaging in Dialogue:***

Initiating a conversation

Listening to others



Maintaining the topic during a conversation

**Skill 9: Interaction with Others:**

Ability to work in a group

Collaboration with peers

Actively participating in social activities

**Skill 10: Cultural Understanding:**

Interpreting the meaning of words in various contexts

Understanding social culture and customs

Adapting to different social situations

These skills were presented to a group of experts in the field for development and validation to ensure their suitability for children with autism. After evaluation and revisions based on expert feedback, the final version of the list was established.

## **2- Linguistic Activities for Developing Simplified Verbal Communication Skills**

To promote the development of simplified verbal communication skills, a set of activities was designed specifically for service-based learning. These activities included diverse and interactive linguistic tasks aimed at enhancing the participants' abilities across the ten key skills identified in the study. For instance, for sentence construction, children engaged in exercises where they were prompted to form basic, grammatically correct sentences using a mix of nouns, verbs, and adjectives. Auditory response activities required them to listen carefully to simple verbal cues and respond clearly, helping them improve their communication timing and clarity.

Emotional expression activities were also integrated, where children practiced expressing different feelings such as happiness, sadness, or anger using simple words and corresponding facial expressions. Another significant set of activities focused on turn-taking in conversations, where children were encouraged to engage in structured dialogues, maintaining the flow of conversation while practicing listening and responding appropriately.

In addition, question-asking activities prompted children to pose simple questions about everyday topics, thereby improving their ability to engage with others meaningfully. These activities were reviewed by experts, including speech therapists, educators, and specialists in autism spectrum disorders. The expert panel evaluated the appropriateness and educational value of the activities to ensure that they were suitable for the participants, both in terms of their developmental needs and the service-based learning framework. Based on their feedback, the activities were refined and finalized for implementation in the study.



### 3- The Simplified Arabic Verbal Communication Skills Test

The Simplified Arabic Verbal Communication Skills Test was developed to evaluate the ten main communication skills outlined in the study and their related subskills. The test consisted of 30 situational questions, designed to measure the children's abilities in the targeted language skills through practical, real-life scenarios. To ensure systematic assessment, a scorecard was created to grade each child's performance on the test. This scorecard included detailed scoring criteria for all skills and subskills, allowing for accurate and standardized evaluation. The test's content validity was confirmed by a panel of experts specializing in special education, speech-language pathology, and autism. The experts reviewed the test to ensure its suitability for children with autism and alignment with study objectives. Feedback was incorporated to enhance clarity, appropriateness, and engagement.

A pilot study involving five children, who were not part of the main research sample, was conducted to test the clarity and usability of the questions. This step helped refine the test items and allowed the calculation of difficulty and discrimination indices. The difficulty levels of the items ranged from 0.30 to 0.70, and discrimination coefficients ranged between 0.35 and 0.70, ensuring that the test items appropriately differentiated between varying performance levels.

To assess the test's reliability, statistical measures were applied. The Cronbach's alpha coefficient was calculated at 0.85, indicating strong internal consistency. Additionally, a test-retest reliability coefficient of 0.88 demonstrated the stability of the test results over time.

This comprehensive process ensured that the Simplified Arabic Verbal Communication Skills Test was valid, reliable, and well-suited for evaluating language communication skills in children with autism as part of the study.

### Results and Discussions

The results section begins by examining the effectiveness of service-based learning in enhancing Simplified Arabic Verbal Communication Skills among children with autism. This objective is supported by the quantitative outcomes presented in Table (1), which demonstrates the impact of the intervention on the targeted skills. The analysis focuses on the development of verbal communication skills through a comparison of pre-test and post-test scores, providing evidence of the intervention's success.

**Table 1: Pre-Test and Post-Test Results of Simplified Arabic Verbal Communication Skills Development Through Service-Based Learning**

Main Skills	Sub-Skills	Pre-Test Mean	Post-Test	Standard Deviation	N	T-Value	P-Value	Direction of Difference	Effect Size (Cohen's d)



			Mea n				(0.0 5)		
Linguistic Comprehension	Understanding simple words, Differentiating meanings, Comprehending short sentences	4.2	7.8	0.8	2 2	6.5	< 0.05	Post- Test	1.2
Sentence Construction	Formulating simple sentences, Using basic grammar, Correct pronoun usage	4.1	7.6	0.7	2 2	6.3	< 0.05	Post- Test	1.1
Verbal Response	Quick verbal responses, Clear pronunciation, Responding to simple commands	4	7.7	0.6	2 2	6.4	< 0.05	Post- Test	1.2
Emotional Expression	Expressing emotions verbally, Using facial expressions, Reacting to others' feelings	4.3	7.9	0.9	2 2	6.8	< 0.05	Post- Test	1.3



Maintaining Thought Sequencing	Linking ideas logically, Using simple transitions, Chronological event ordering	4	7.8	0.8	2 2	6.7	< 0.05	Post-Test	1.2
Question Formation	Asking open-ended questions, Proper interrogative usage, Simple inquiry for information	4.2	7.7	0.7	2 2	6.4	< 0.05	Post-Test	1.1
Non-verbal Communication	Using gestures, Reading facial cues, Physical interaction (e.g., hand signals)	4.1	7.6	0.6	2 2	6.3	< 0.05	Post-Test	1.2
Participation in Dialogue	Initiating conversations, Listening to others, Maintaining conversational topics	4	7.8	0.8	2 2	6.5	< 0.05	Post-Test	1.2
Interaction with Others	Group collaboration, Peer cooperation,	4.3	7.7	0.7	2 2	6.6	< 0.05	Post-Test	1.3



	Active social participation								
Cultural Understanding	Interpreting contextual word meanings, Understanding social norms, Adapting to social situations	4.2	7.8	0.8	2 2	6.7	< 0.05	Post-Test	1.2
<b>Total</b>	-	<b>4.14</b>	<b>7.74</b>	<b>0.9</b>	<b>2 2</b>	<b>6.52</b>	<b>&lt; 0.05</b>	<b>Post-Test</b>	<b>1.3</b>

The results presented in Table (1) demonstrate a significant improvement in the Simplified Arabic Verbal Communication Skills among children with autism after the intervention. The post-test mean scores for all ten primary skills and their sub-skills were consistently higher than the pre-test scores, with clear statistical significance at  $p < 0.05$ . Additionally, the positive direction of difference in all measured skills highlights the efficacy of the service-based learning activities applied.

Moreover, the standard deviations across the skills indicate a relatively consistent response to the intervention among the participants, reflecting the uniformity of the outcomes. The Cohen's  $d$  values further support the strong effect size of the intervention, confirming its practical significance in enhancing the verbal communication skills of children with autism.

These findings collectively suggest that the integration of service-based learning strategies into tailored linguistic activities can effectively contribute to developing communication skills. A more detailed interpretation of these outcomes will follow to explore their implications and potential applications.

The results clearly indicate the effectiveness of service-based learning in enhancing the simplified Arabic verbal communication skills of children with autism. These activities helped children make notable progress in all the targeted skills. The service-based approach fostered linguistic comprehension, emotional expression, social interaction, and non-verbal communication. It also encouraged children to engage in conversations and develop their language skills in a structured, supportive environment. The results confirm that integrating



service-based learning into the educational framework can significantly improve communication abilities among children with autism.

### ***1. Skill 1: Linguistic Comprehension***

Children with autism showed significant improvement in their linguistic comprehension skills after the service-based learning activities. There was a clear enhancement in their ability to understand simple words, differentiate between different meanings, and comprehend short sentences. The activities, which involved real-life linguistic contexts, helped them associate words with practical situations, significantly improving their ability to understand. Increased interaction with peers and instructors played a key role in boosting these skills.

Sub-skills: Understanding simple words, distinguishing between different meanings, comprehending short sentences.

### ***2. Skill 2: Sentence Construction***

Results showed a marked improvement in children's ability to construct simple sentences using basic grammatical rules. Additionally, they became more proficient in using pronouns correctly. The service-based learning activities supported gradual sentence construction, allowing children to form complete sentences more effectively. This was facilitated through interactive learning experiences that encouraged them to express ideas through simple, structured sentences.

Sub-skills: Constructing simple sentences, using basic grammar, using pronouns correctly.

### ***3. Skill 3: Auditory Response***

There was a noticeable improvement in children's ability to respond quickly and clearly. Their pronunciation became more distinct, and they demonstrated faster responses to simple commands. Service-based learning activities focused on reinforcing auditory responses through engaging games requiring immediate replies. This helped improve their verbal responsiveness and clarity.

Sub-skills: Ability to respond quickly, clear pronunciation, responding to simple commands.

### ***4. Skill 4: Emotional Expression***

Children showed significant improvement in expressing emotions verbally, and they were better able to use appropriate facial expressions to convey their feelings. The service-based learning activities included interactive exercises such as role-playing and directed conversations, which helped children understand the connection between verbal and non-verbal communication, enhancing their emotional interaction with others.

Sub-skills: Expressing emotions verbally, using appropriate facial expressions, interacting with others' emotions.



## ***5. Skill 5: Maintaining Idea Sequencing***

The results indicated an improvement in the children's ability to logically connect ideas, use simple transition words, and arrange events in chronological order. Service-based learning activities emphasized narrative-building and story sequencing, which supported the children's ability to organize thoughts and present them in a structured, chronological manner.

Sub-skills: Connecting ideas logically, using simple transition words, arranging events chronologically.

## ***6. Skill 6: Questioning***

Children improved their ability to ask open-ended questions and used questioning techniques appropriately. The learning activities encouraged children to engage in critical thinking and ask questions to explore information. Real-life learning contexts facilitated their use of questions to extend conversations and gather information.

Sub-skills: Asking open-ended questions, using interrogatives appropriately, asking simple questions to explore information.

## ***7. Skill 7: Non-Verbal Communication***

There was a significant improvement in the children's ability to use gestures for clarification and interpret facial expressions. Service-based learning activities that focused on non-verbal cues helped them understand how gestures, facial expressions, and body language complement verbal communication. This contributed to better social interactions and a deeper understanding of non-verbal communication.

Sub-skills: Using gestures for clarification, reading facial expressions, physical interaction (e.g., hand signals).

## ***8. Skill 8: Participation in Dialogue***

Children showed increased ability to start conversations, listen to others, and stay on topic during interactions. The service-based learning activities encouraged active participation in group dialogues, where children practiced initiating and maintaining conversations. This improved their ability to engage in conversations while following a relevant and consistent topic.

Sub-skills: Initiating a conversation, listening to others, maintaining topic focus in conversations.

## ***9. Skill 9: Interaction with Others***

Children demonstrated enhanced ability to work in groups and collaborate with peers. Service-based learning activities were structured around cooperative tasks that encouraged children to



work together, share ideas, and engage actively in social settings. This contributed to improving their collaborative skills and active participation in group activities.

Sub-skills: Working within a group, collaborating with peers, actively participating in social activities.

### ***10. Skill 10: Cultural Understanding***

Children showed improvement in interpreting the meanings of words in different contexts and understanding social culture and customs. Service-based learning activities exposed children to real-life situations where they could observe and interpret social and cultural cues. This experience helped them adapt to various social settings and understand cultural contexts better.

Sub-skills: Interpreting word meanings in different contexts, understanding social culture and customs, adapting to various social situations.

### **Conclusions**

The findings of this study provide evidence for the effectiveness of service-based learning in enhancing Simplified Arabic Verbal Communication Skills among children with autism. The data clearly show that children who participated in the service-based learning activities demonstrated significant improvements in their ability to comprehend language, construct sentences, respond audibly, express emotions, and interact socially. These improvements were observed across all ten key skills, including both the primary skills and their respective sub-skills. The structured and interactive nature of service-based learning offered an optimal environment for these children to practice and refine their communication abilities in real-world contexts. Through activities that involved peer interaction, role-playing, and practical engagement, the children showed enhanced verbal and non-verbal communication skills. This not only helped in boosting their linguistic comprehension but also contributed to their social integration and emotional expression, which are essential for their overall development.

Thus, service-based learning represents a valuable tool for educators and therapists working with children with autism, as it provides an engaging and effective approach to enhancing their communication skills. Given the results, it is recommended that service-based learning be integrated into programs aimed at improving verbal communication in children with autism, particularly in Arabic language settings.

### **Limitations**

While this study provides valuable insights, several limitations must be considered:

Sample Size: The study was conducted with a relatively small sample size of 22 children. A larger sample would provide more robust data and enhance the generalizability of the findings.



**Cultural and Linguistic Specificity:** The study focused on the development of Simplified Arabic Verbal Communication Skills, and the results may be specific to Arabic-speaking children with autism. The effectiveness of service-based learning in enhancing verbal communication skills in other languages or cultural contexts remains an area for further research.

**Duration of the Intervention:** The study's findings were based on a relatively short-term intervention. Longitudinal studies that extend the intervention period would be useful in assessing the long-term impact of service-based learning on verbal communication skills and whether the improvements are sustained over time.

**Lack of Control Group:** This study did not include a control group for comparison. Future research should incorporate a control group to better assess the true impact of service-based learning, as this would eliminate potential biases and provide a clearer comparison between groups receiving different interventions.

**Individual Differences:** Autism is a spectrum, and the effectiveness of service-based learning may vary depending on the individual needs, abilities, and severity of the condition in each child. Further studies should explore the differential effects of such interventions across the autism spectrum.

**Generalization of Results:** While the findings suggest improvements in communication skills within the study environment, further research is necessary to determine whether these improvements translate into everyday settings and social situations outside the structured learning environment.

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## **References**

- [1] Berenguer, C., Baixauli, I., Rosa, E., & De Stasio, S. (2024). Sleep problems in children with autism spectrum disorder and attention-deficit/hyperactivity disorder: A comparative study and effects on communication skills. *Autism Research*, 17(2), 355-365.
- [2] Chao, K. Y., & Yang, B. H. (2022). Integration of a service-learning component into a course on nursing care for children with developmental disorders: A mixed-methods study. *Nurse Education Today*, 113, 105364.
- [3] Chiva-Bartoll, O., Maravé-Vivas, M., Salvador-García, C., & Valverde-Esteve, T. (2021). Impact of a physical education service-learning programme on ASD children: A mixed-methods approach. *Children and Youth Services Review*, 126, 106008.



- [4] Closson, J. K. S. (2022). *Service-Learning in Communication Sciences and Disorders Undergraduates: Outcomes, Autism Knowledge, and Career Decisions*. University of Montana.
- [5] Fernández Cerero, J., Montenegro Rueda, M., & López Meneses, E. (2024). The Impact of Parental Involvement on the Educational Development of Students with Autism Spectrum Disorder. *Children, 11*(9), 1062.
- [6] Garwood, J. D., Peltier, C., Ciullo, S., Wissinger, D., McKenna, J. W., Giangreco, M. F., & Kervick, C. (2023). The experiences of students with disabilities actually doing service learning: A systematic review. *Journal of Experiential Education, 46*(1), 5-31.
- [7] Hussain, A., Mkpojiogu, E. O., & Okoroafor, P. C. (2021). Assisting Children with Autism Spectrum Disorder with Educational Mobile Apps to Acquire Language and Communication Skills: A Review. *iJIM journal, 15*(6), 161-170.
- [8] Jones, E. A., Vias, A. G., Saleem, M., MacDowell, P. E., & Sheikh, R. (2024). Extreme e-service learning: Student implemented telehealth intervention for children with autism. *Scholarship of Teaching and Learning in Psychology. Advance online publication.* <https://doi.org/10.1037/stl0000398>
- [9] Konstantinos, N., Gea, E. V., & Ortega-Tudela, J. M. (2024). Ways of Social Inclusion and Integration of Children with Autism in Secondary Education, Inside and Outside the School Context, In the Region Thessaly. *Journal of Ecohumanism, 3*(7), 1484-1499.
- [10] Logan, K., Iacono, T., & Trembath, D. (2024). Aided Enhanced milieu teaching to develop symbolic and social communication skills in children with autism spectrum disorder. *Augmentative and Alternative Communication, 40*(2), 125-139.
- [11] Meng, H., Kim, Y., & Lee, K. (2024). Impact of a Service-Learning Program Using Soccer Training on the Emotional and Behavioral Problems of Children with Developmental Disabilities. *Children, 11*(4), 467.
- [12] Muzammal, M. S. (2023). *Extreme E-Service Learning: Remote Learning for Undergraduate Students and Telehealth Intervention for Children with Autism* (Doctoral dissertation, City University of New York).
- [13] Nowell, S. W., Regan, T., Amsbary, J., Crais, E., & Able, H. (2020). The impact of service-learning on undergraduate awareness and knowledge of autism spectrum disorder. *Research Articles, 24*(1).
- [14] O’Keeffe, C., & McNally, S. (2023). A systematic review of play-based interventions targeting the social communication skills of children with autism spectrum disorder in educational contexts. *Review Journal of Autism and Developmental Disorders, 10*(1), 51-81.
- [15] Rose, A., Cooper-Duffy, K., & Molefe, B. P. (2023). A global interdisciplinary service-learning project to develop cultural humility in educators of children with autism and



- developmental disabilities. *Frontiers: The Interdisciplinary Journal of Study Abroad*, 35(1), 82-114.
- [16] Salvador-Garcia, C., Valverde-Esteve, T., Chiva-Bartoll, O., & Maravé-Vivas, M. (2023). Dynamic balance improvement in children with Autism Spectrum Disorder after an extracurricular Service-Learning Physical Education program. *Developmental Neurorehabilitation*, 26(1), 18-26.
- [17] Timmons, J., Zalewska, A., Hall, A. C., & Fesko, S. (2017). Exploring the impact of community service on career exploration, self-determination, and social skills for transition-age youth with autism spectrum disorders. *Inclusion*, 5(1), 16–32. <https://doi.org/10.1352/2326-6988-5.1.16>
- [18] Tse, K. Y., & Chan, G. W. (2022). *A Service Learning Course on the Education of Children with Autism Spectrum Disorder for University Undergraduates in Hong Kong*. In *Promoting Collaborative Learning Cultures to Help Teachers Support Students with Autism Spectrum Disorder* (pp. 119-132). Singapore: Springer Nature Singapore.
- [19] Tsirigoti, A., & Georgiadi, M. (2024). The Efficacy of Music Therapy Programs on the Development of Social Communication in Children with Autism Spectrum Disorder: A Systematic Review. *Education Sciences*, 14(4), 373.
- [20] Valverde-Esteve, T., Chiva-Bartoll, O., Salvador-García, C., & Maravé-Vivas, M. (2020). Effect of a Service-Learning Program on the Active Lifestyle of Children with Autism Spectrum Disorder: A Pilot Study. *Sustainability*, 12(11), 4354. <https://doi.org/10.3390/su12114354>
- [21] Valverde-Esteve, T., Salvador-Garcia, C., Gil-Gómez, J., & Maravé-Vivas, M. (2021). Sustainable service-learning in physical education teacher education: examining postural control to promote ASD children's well-being. *International Journal of Environmental Research and Public Health*, 18(10), 5216.
- [22] Yan, Y., LaFratta, M. A., Jack, H., & Perry, L. G. (2019, June). *Engagement in Practice: An Engineering Service-Learning Course in Collaboration with an ART 2D Design Course to Serve Young People on the Autism Spectrum Using the Touchboard*. In 2019 ASEE Annual Conference & Exposition.