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USING CHATGPT TO MENTOR PARENTS IN ENHANCING LANGUAGE DEVELOPMENT FOR CHILDREN WITH ASD 2-5 YEARS OLD THROUGH HOME-BASED DAILY ACTIVITIES IN THE VIETNAMESE CONTEXT

[1]Quyen Pham (Pham Thi To Quyen), [2]Ha Mai (Mai Dang Ngoc Ha), [3]Ha Cao (Cao Thi Ha)*

[1]Vinschool Imperia Primary, Hai Phong, VietNam, [2]Sunshine Special Developmental School, Sunshine West, VIC Australia, [3]Mental health and rehabilitation unit, Quang Ninh Obstetrics and pediatrics hospital, VietNam

Phamtoquyen.coach@gmail.com

ABSTRACT

ChatGPT has been rapidly and wisely applied in many areas of education. With an aim to explore the mentor's function of ChatGPT for parents of children with ASD to promote their language at home, this research investigates how ChatGPT supports parents in designing personalized, practical and readily applicable routines for their special-needs children while also assisting them in addressing unexpected obstacles that arise during the implementation of ChatGPT's recommended tasks. 50 volunteers were divided into two groups whose were examined to compare and analyze the benefits and challenges of language development for children with ASD 2-5 years old via home-based experiences in Haiphong City, Vietnam. One group involved the use of ChatGPT at least 3 hours a day for mentoring purposes, whereas the other group had no ChatGPT intervention. Parents participated in two sessions. The first session focused on parents' self-discovery with ChatGPT. After two weeks, semi-structured interviews were conducted on five topics: applicability, accuracy, accessibility, diversity, and cost-effectiveness to explore the potential of the universal function of ChatGPT. In the second session, held four weeks later, based on the reflection of prior experiences from the first stage, an appropriate plan was developed to train parents on applying effective commands and fostering creativity in their interaction with ChatGPT. Input and output data on children's language development levels were collected using the MacArthur-Bates Communicative Development Inventories test. The findings reveal that while parents demonstrate a clear understanding of the study's objectives, certain specific requirements still need to be addressed to develop effective learning and mentoring skills. Proved to be a valuable mentoring tool, ChatGPT enables parents to overcome communication barriers, improve the quality of social interactions, support learning, and foster independence. Overall, this AI contributes significantly to empowering parents to raise their children in a linguistically enriched environment within the Vietnamese context.

Keywords: Children on the Autistic Spectrum, language, daily activities, Artificial Intelligence tools, mentor, parenting.

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INTRODUCTION

During 2017-2018, a national cross-sectional and population-based survey for autism spectrum disorder (ASD) among 40,243 children aged 18 to 30 months was conducted in 7 provinces representing Vietnam's socio-economic regions. The prevalence of ASDs among children aged 18 and 30 months in Vietnam was considered to be relatively high, with the number of 0.758% or 1 in 132 children (Le et al., 2022). Besides, there was a study that assessed the availability and quality of early identification and intervention services for children with autism spectrum disorder (ASD) in Vietnam. The authors found that while such services are available in major cities, there is a lack of well-trained professionals, standardized evaluation tools, and scientific evidence supporting these services. The study emphasizes the need for research to assess the quality of ASD services in Vietnam and advocates for governmental policy and support to ensure appropriate and effective services for families and children with ASD (Tran et al., 2016). Therefore, the importance of recognizing and early intervention in home-based activities relies the most on parenting (Rojas-Torres et al., 2020). Parents play a significant role in developing the first years of their children, especially children with special education needs (Roberts & Kaiser, 2011). ChatGPT (a powerful AI) has recently been identified with several advantages, including the creation of learning assessments, enhancement of pedagogical practices, provision of virtual personal tutoring, assistance in drafting essays or research outlines, and facilitation of idea generation (Sok & Heng, 2023). There is a notable research gap in the empirical study of ChatGPT's application in special education, particularly in the context of supporting children with ASD (Tran et al., 2016). Additionally, there is a lack of contextual research on the use of AI tools for parents with ASD children in the Vietnamese context, highlighting the need for exploring culturally appropriate applications of AI to enhance home-based learning for these children. Thus, intending to explore the mentor's function of ChatGPT for parents of children with ASD to promote their language at home, this research investigates how ChatGPT supports parents in designing personalized, practical and readily applicable routines for their special- needs children while also assisting them in addressing unexpected obstacles that arise during the implementation of ChatGPT's recommended tasks. It is hypothesized that ChatGPT has the potential to serve as a practical tool in the parenting process in developing countries such as Vietnam, offering an extensive range of resources at minimal cost, thereby increasing opportunities for children with ASD to equally access effective early interventions.

Overall, this study involves 50 families in Hai Phong City, Vietnam. Data were collected over a six-week period using quantitative surveys and qualitative methods, including semi-structured interviews and parental journals. The paper outlines the research design and critically reviews existing literature on the application of AI in special education and parental involvement in early intervention. The findings are analyzed in relation to current challenges and cultural considerations, organized around five key themes: applicability, accuracy, accessibility, diversity, and cost-effectiveness. The study concludes with practical recommendations and suggests directions for future research on the culturally contextualized use of AI to support language development in children with ASD.

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LITERATURE REVIEW

Childhood is a unique stage of life when the child is in the connection of family and cultural ties. Early childhood education (ECE) is important because children first learn how to interact with others and begin to develop interests (Essa, E. L. et al., 2019). In the early literature, Holland (2000) reviews the principal approaches of Artificial Intelligence (AI) in music education. Chassignol et al. (2012) and Drigas and Ioannidou (2011) discuss the studies of AI in special education over the last decade (2001–2010). Recently, Huijnen et al. (2017a) reviewed the studies about AI-based robots that are used in therapy and education for children with Autism Spectrum Disorder (ASD). The above articles analyzed and affirmed the potential of AI in the field of education, affirming its application to many fields. Limited studies have a combination of AI, early education, and the role of parents in the context of home-based. Which seems hard but relevant and can fix each other's distress. As one of the first known studies to examine ChatGPT use in parenting, Quan et al. (2024) contribute to understanding the role of ChatGPT as an AI tool for parenting in home learning environments. Overall, the main themes parents discussed with the chatbot included issues regarding their child's habits, handling disruptive behaviors, interpersonal development, and emotional difficulties. Parents generally commented on the usefulness of the intervention and suggested improvements to the chatbot's communication style (Entenberg, G. A et al, 2021). Specifically, in the context of early childhood education, ChatGPT is noted for generating age-appropriate content, supporting creative thinking, and providing storytelling prompts, with an emphasis on the importance of supervision during its use (Ağmaz, 2023). Hu et al (2024) explored the application of ChatGPT in enhancing diagnostic accuracy and profiling specific linguistic features indicative of autism. Leveraging ChatGPT's advanced natural language processing capabilities, this research identified ten distinct features of autism-associated language disorders, which included echolalia, pronoun reversal, and atypical language usage, that were crucial for accurately diagnosing ASD and customizing treatment plans.

Building on previous research, this study supports the notion that ChatGPT can be effectively integrated into parents' daily routines to support language development. With simple, user- friendly prompts, parents can access relevant information and strategies in real time. ChatGPT functions as an accessible, on-demand mentoring tool, offering consistent guidance regardless of time or location.. Chatbot was positively viewed as a useful tool for facilitating language learning (Pham & Le, 2024). We chose the field of language development for children withautism disorders because, based on the number of words and sentence development milestones, we can measure the effectiveness of ChatGPT compared to other methods.

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METHODOLOGY

This study involves 50 families selected from 68 parents who are interested in our survey. Those families meet our following conditions: their children were diagnosed with Autism Spectrum Disorder (ASD) by a doctor of a special educational master, aged 2–5 years, residing in Hai Phong, Vietnam. Participants were selected based on convenience sampling, ensuring all children were within the specified age range and had a formal ASD diagnosis. The parents of these children expressed interest in participating and were provided with full information about the study before consenting to join. Parents need to commit to spending at least 1-2 hours a day participating in research (Practicing with ChatGPT, filling in information collection, and practicing with children). In our research, 50 parents were divided into two groups: one group will utilize ChatGPT for support and guidance, whereas the other group will receive no AI intervention, allowing for a comparative analysis of outcomes between AI-assisted and non- assisted approaches.

Data collection

Data was gathered using a mix of both quantitative and qualitative methods, including questionnaire surveys, semi-structured interviews, MacArthur-Bates Communicative Development Inventories (CDI) as an assessment test, and parental journals. Initially, questionnaire surveys were distributed at the beginning of the study to gather basic information about the survey objects, including age, role, professional field, time to be with the child at home, and status of the child diagnosed by a pediatric specialist (table 1).

Table 1: *An overview of the research object*

Information about research subjects		Quantity	%
Role	Father	11	16.2%
	Mother	54	79.4%
	The caregiver	3	4.4%
Age	Under 30	13	19.1%
	From 30 to 40	31	45.6%
	Over 40	24	35.3%
Professional field	Pharmacy	1	1.5%
	UX designer	1	1.5%
	Tourism industry	1	1.5%
	Accountant	4	5.9%
	Teacher	9	13.2%
	Worker	5	7.4%
	Fashion design	1	1.5%
	Sale	9	13.2%
	Housewife	10	14.7%
	Freelance	7	10.2%
	Bussinessman	9	13.2%

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	Office Staff	11	16.2%
Time to be with the Child at home	Under 01 hour	11	16.2%
	From 1 to 2 hours	14	20.6%
	Over 2 hours	43	63.2%
Children are diagnosed by a pediatric specialist	Have not been diagnosed with ASD	0	0.0%
	Diagnosed with ASD	30	44.1%
	Be assessed at a special educational center	37	54.4%
	Other choices	1	1.5%
TOTAL		68	100%

Furthermore, Parents were asked to complete a post-study survey on their awareness of ASD and language development indicators based on Vietnam's educational standards, as well as their experiences with intervention methods, including ChatGPT. Semi-structured interviews and reflective journals were also used to capture in-depth insights into their interactions with the tool. To track the children's progress, the MacArthur-Bates Communicative Development Inventories (CDI) were implemented to measure key communication skills, namely vocabulary and sentence structure. The CDI was administered at both the beginning and the end of the study to observe the changes in language abilities. With a focus on vocabulary development, the CDI-WG contains a checklist of 396 vocabulary items, whereas the CDI-WS includes 680 words, spanning 22 semantic categories (e.g., animals, body parts, action words, descriptive words, and pronouns). Vocabulary, pre-speech, and gestures scores on CDIs administered at the check-in period were used to predict follow-up IQ, language, adaptive skills, and scores on diagnostic measures (Ferreira, S., & Cruz-Santos, A. 2021). .

The study was conducted over a six-week period and organized into two distinct phases. During the initial two-week phase (Self-discovery with ChatGPT), parents engaged in independent exploration of ChatGPT, familiarizing themselves with its functionalities and learning to generate and adapt language development activities aligned with their child's individual needs. The subsequent four-week phase (Reflective Training and Command Prompts) provided structured training focused on enhancing parents' ability to formulate effective prompts and design developmentally appropriate activities. This phase aimed to support the integration of ChatGPT into daily routines as a consistent and reliable tool for promoting language development in young children with ASD. Ethical standards were strictly followed, ensuring participant confidentiality, voluntary participation, and the option to withdraw at any time without consequence.

The answers to the questions are pre-designed into five levels (5 points - Likert scale) for parents to choose from, with the number of points increasing from low to high; the lowest score is one, and the highest is 5. Besides, qualitative auxiliary answers are used to check the accuracy of the selected levels. The results were evaluated on five levels using IBM SPSS Statistics 22. The distance value is calculated by dividing the Likert measure into five parts: Distance value = (Maximum – Minimum) / 5 = 0.8. This creates value segments: 1.00 – 1.80: Never, 1.81 – 2.60: Rarely, 2.61 – 3.40: Sometimes, 3.41 – 4.20: Usually, 4.21 – 5.00: Always SPSS Statistics 22 was used for research data processing, including paired sample T Test and calculations for mean, standard deviation, percent, and frequencies.

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RESULTS AND FINDINGS

Parents' awareness about ASD, early childhood education. Parental views on ChatGPT and their usage

Part 2 analyzes parents' conceptual understanding of Autism Spectrum Disorder through their responses to the question: "What is your concept of Autism Spectrum Disorder?". The expected answer defines Children with autism spectrum disorder as having difficulties in communication, social interaction, and exhibiting typical repetitive behaviors that affect learning and peer relationships, relationships with parents and caregivers. The results are as follows:

Table 2: *Parents' awareness about ASD*

Parents' Age Rank	Correct		InCorrect	
	Sum	%	Sum	%
Under 30	9	69.23	4	30.77
From 30-40	21	67.74	10	32.26
Over 40	14	58.33	10	41.67

Overall, parents' awareness of children with autism appears to be relatively consistent. Approximately 50–60% of the parents demonstrate an appropriate understanding of autism, whereas 30–40% show limited or no knowledge of the condition. Parental perception plays a critical role, as misconceptions or a lack of awareness may lead to inappropriate support, impatience, or insufficient effort in providing home-based interventions. However, although our parents come from various regions in Hai Phong, Vietnam, and represent a range of occupational backgrounds, including teaching, sales, homemaking, and office work (Table 1), the majority possess a foundational understanding of autism spectrum disorder, which is an encouraging sign. These parents have also brought their children to specialized hospitals or educational centers for diagnosis, suggesting that they have received professional consultation and have made efforts to understand their children's conditions, and from there, reflecting a strong motivation and commitment to supporting their children's development at home.

Data from the survey is summarized in Table 2, which presents an overview of parents' knowledge regarding their child with Autism Spectrum Disorder (ASD) and their perceptions of the importance of language development at home. The majority of parents recognized the significance of fostering language skills in children with ASD within the home environment, as reflected by a high average score of 4.191.

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The mean of using methods to develop language for children at home ranges from 1.265 to 3.206 among 5 major aspects: using Flash Cards, Spend at least 30 minutes to 1 hour talking to children in 1 day, Using language development books for children with special needs, Using support technology (ChatGPT, AI) and other methods. The coefficient of variation CV (CV = S.D / Mean, S.D: standard deviation) is only from 0.1271 to 0.6778 < 1. That is, the standard deviation is smaller than the mean, the data part fluctuates slightly on average, and the responses of the respondents show low divergence. In which "using support technology" is the lowest (Mean= 1.647, S.D = 0.6173). The method that are assessed to have the highest level is "Spend at least 30 minutes to 1 hour talking to children in 1 day" (Mean= 3.206, S.D= 0.4074). This result shows that parents, although interested and can spend time with their children, they have not really effective methods. When asked, 44/68 (64.7%) parents shared that the methods they used were not effective. We also conduct semi-structured interviews to learn more about parents' perspectives on ChatGPT and its application to child language development. Parents also have little access to ChatGPT and have not thought of using this tool in raising children at home. 32/68 (47.05%) Parents who have never used ChatGPT or have heard of but have not been used, 8/68 (11.76%) Parents use chatgpt daily but do not mention the application of them for language development at home, 28/68 (41.19%) Parents know very well about chatGPT in many different fields but they assert that this application can not be widely applied in early education, teaching it or improving their children in education, teaching their children in early education Parenting.

The mean of the child's language development level, according to the parents' assessment, ranges from 1.970 to 3.821 among 13 aspects. These aspects are based on the draft of the Preschool Education Curriculum Innovation, issued by the Ministry of Education and Training of Vietnam on December 16, 2024. The results indicate that, compared to kindergarten age, children with autism disorders in the research group have a level of language development from average to weak, especially in 8/13 criteria; the group of children is ranked at an average of less than 2.6 (Rarely).

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Table 3: *Situation of Parents' knowledge about their child with ASD and the importance of developing language at home*

TT	Survey Contents	LEVEL										Mean	S.D
		1		2		3		4		5			
		F[1]	%	F	%	F	%	F	%	F	%		
1	**Parents' opinions on the necessity of language development for children with ASD at home**					6	8.824%	43	63.235%	19	27.941%	4.191	0.5797
2	**Parents use methods to develop language for children at home**												
	Flash Card	4	5.882%	16	23.529%	13	19.118%	35	51.471%			3.162	0.9866
	Spend 30 minutes to 1 hour talking to children a day					54	79.412%	14	20.588%			3.206	0.4074
	Using language development books for children with special needs			55	80.882%			13	19.118%			2.382	0.7923
	Using support technology (ChatGPT, AI)	29	42.647%	34	50.000%	5	7.353%					1.647	0.6173
	Other methods	62	91.176%					6	8.824%			1.265	0.8572
3	**The level of language development of the child[2], according to the parents' assessment**												
	Children understand and follow the simple instructions in daily activities (for example, give the mother a hat/ shoes/ dress/ wear)	5	7.353%	29	42.647%	22	32.353%	12	17.647%			2.603	0.8663
	Children can say their name when asked	4	5.882%	7	10.294%	12	17.647%	45	66.176%			3.441	0.9041
	Understand and answer simple questions about the story that has just been told (e.g. Who, what, What to do? How?)	4	5.882%	34	50.000%	21	30.882%	9	13.235%			2.522	0.8045
	Clear pronunciation (do not mispronounce)	5	7.353%	34	50.000%	28	41.176%	1	1.471%			2.373	0.6475

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	Survey contents	LEVEL										Mean	S.D
		1		2		3		4		5			
		F	%	F	%	F	%	F	%	F	%		
	Use single sentences with common words in daily communication (indicating objects, things, activities), for example: Mom goes to work, broken dolls, rain)	4	5.882%	6	8.824%	18	26.471%	40	58.824%			3.403	0.8714
	Ask and answer simple questions	8	11.765%	40	58.824%	11	16.176%	9	13.235%			2.313	0.8565
	Use gestures, eyes, and sound to express your needs and opinions			1	1.471%	12	17.647%	55	80.882%			3.821	0.3863
	Responding to the rhythm of the song, poetry, and rhymes by swaying, dancing, moving in rhythm, or reading	1	1.471%	4	5.882%	18	26.471%	45	66.176%			3.574	0.6762
	Say greeting, goodbye, thanks, and sorry for each communication situation	1	1.471%	4	5.882%	13	19.118%	50	73.529%			3.647	0.6639
	Naming the characters in the comic book is viewed separately.	2	2.941%	29	42.647%	37	54.412%					2.515	0.5597
	Using some words, phrases, repeated sentences of stories, poems, and rhymes	3	4.412%	36	52.941%	29	42.647%					2.388	0.5762
	See books, see pictures, and name the characters, things, and actions in the picture	4	5.882%	39	57.353%	25	36.765%					2.313	0.5828
	Distinguish the image and words in the comic	18	26.471%	34	50.000%	16	23.529%					1.970	0.7171

[1] *F: Frequency, %: Percent, S.D: Standard Deviation*

[2] *The Program of preschool education draft innovation on December 16, 2024 (The Ministry of Education and Training, Vietnam)*

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Final Results on Language Development of Children

Based on the survey of 68 parents, 50 parents were filtered in accordance with the experimental requirements. These 50 parents have children with autism disorders aged 2-5 years who have been formally diagnosed, parents have at least 1-2 hours or more every day to implement the study's guided activities with or without using ChatGPT. The selected parents were also required to demonstrate a clear conceptual understanding of autism and were able to accurately assess their child's level of language development. The MacArthur–Bates Communicative Development Inventories (CDI) were employed to evaluate vocabulary acquisition and overall language development both prior to and following the experimental intervention.

Table 4: *Paired Sample T test statistics of Group 1 (Parents with Mentor ChatGPT)*

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	Pre-Assessment score & Score after stage 1	162	.998	.000
Pair 2	Score after stage 1 & Score after stage 2	162	.992	.000

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	Interval of the Lower	Upper			
Pair 1	Pre-Assessment score - Score after stage 1	-2.6049	3.6070	.2834	-3.1646	-2.0453	-9.192	161	.000
Pair 2	Score after stage 1 - Score after stage 2	-5.5926	6.7083	.5271	-6.6334	-4.5518	-10.611	161	.000

The pre-experimental score of the group of children whose parents used ChatGPT as a mentor and the post-experimental score had an average difference of 2.6049 (after stage 1) and 5.5962 (after stage 2). This proves that the group of children had visible progress compared to the pre-experimental. The Sig value = 0.000 < 0.05 proves that the difference between the pre- experimental and post-experimental is statistically significant. In other words, the application of measures using ChatGPT as a mentor for parents has brought about improved results. Meanwhile, although the Sig value is also <0.05 and statistically significant, the comparison of the average scores in group 2 (the group of parents without mentors) has a smaller difference. The average difference is 0.413 (after stage 1) and 1.1377 (after stage 2).

Table 5: *Paired Sample T test statistics of Group 2 (Parents with no Mentor)*

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	Pre-Assessment score & Score after stage 1	138	1.000	.000
Pair 2	Score after stage 1 & Score after stage 2	138	1.000	.000

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	Interval of the Lower	Upper			
Pair 1	Pre-Assessment score - Score after stage 1	-.4130	.6008	.0511	-.5142	-.3119	-8.076	137	.000
Pair 2	Score after stage 1 - Score after stage 2	-1.1377	1.3301	.1132	-1.3616	-.9138	-10.048	137	.000

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In addition, when examining each index for each child (which has been coded), it is discovered that there is considerable variation in progress across the sample, as presented in Table 6. Progress was categorized into three levels: 0–20% was classified as little to no progress, 20– 60% as moderate progress, and above 60% as significant progress.
The results showed that in the group of parents without a mentor, children have very little progress. Mostly at 10% or less, especially with 1, 2 fields of 1 or 2 children progressing at 16- 17%. This is the average level of age - that is, children can develop in the natural environment with not much expertise in parenting at home.

The outstanding difference found among the parent group using ChatGPT as a supported mentor. Most children in this group have made progress. 11% of the fields are marked with significant progress, 42,59% of the fields have been marked with moderate progress, and only 01 child with little or no progress.

Throughout the experiment, parents were asked to reflect on their challenges and emotional responses, as well as to document the strategies they found most effective. Commonly cited strategies included designing home-based activities to help children with Autism Spectrum Disorder (ASD) develop vocabulary related to food, drinks, and clothing, and learning techniques to attract the attention of children with ASD. Parents were also encouraged to comment on the methods they used most frequently and to explain why they found these methods helpful. Additionally, parents provided insights into the unique characteristics of their children's language disorders.

In response to these queries, ChatGPT offers guidelines to limit the phenomenon of echolalia, pronoun reversal, and atypical language usage. For example, regarding echolalia, ChatGPT provided the following explanation: "First, determine the reason behind the child's repetition of words. Immediate echolalia occurs when a child repeats words immediately after hearing them, possibly due to a lack of understanding of how to respond. Delayed echolalia occurs when a child repeats words after a delay, such as from a video or advertisement, and may serve as a learning tool or communication strategy rather than being a 'meaningless' behavior."

While most parents found the guidance helpful, a small number expressed difficulty in translating ChatGPT's verbal and visual instructions into practical activities without the assistance of a teacher or specialist. Some parents also noted that ChatGPT's advice was occasionally inaccurate, requiring comparison and experimentation to identify the most effective approach for their child. As a result, many parents reported spending more than two hours daily seeking support and engaging in hands-on activities with their children. In terms of emotional response, parents generally expressed excitement and appreciation for the convenience of the ChatGPT tool, particularly its accessibility at any time, even late at night. The affordability of the Pro version of ChatGPT was also highlighted, as it offered a cost-effective alternative to hiring teachers or specialists for intervention.

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Table 6: *Progress of the children*

Child (anonymous)	Age	Pre-Assessment score (Mean)	Total Progress (%)							
			Phrase Understood	Category	Understands Vocabulary list	Category	Understands and say Vocabulary list	Category	Action and gestures	Category
A. Group Parents with mentor ChatGPT (27)										
C1	2	1.769	14.286%	little to no progress	100.000%	significant progress	71.429%	significant progress	38.462%	moderate progress
C21	2	2.462	14.286%	little to no progress	85.000%	significant progress	65.000%	significant progress	30.769%	moderate progress
C22	2	2.692	14.286%	little to no progress	85.000%	significant progress	65.000%	significant progress	30.769%	moderate progress
C16	3	2.385	20.000%	little to no progress	25.641%	moderate progress	34.615%	moderate progress	14.286%	little to no progress
C17	3	2.538	20.000%	little to no progress	33.333%	moderate progress	50.000%	moderate progress	28.571%	moderate progress
C19	3	2.538	0.000%	little to no progress	6.122%	little to no progress	6.522%	little to no progress	25.000%	moderate progress
C10	3	2.615	16.667%	little to no progress	20.513%	moderate progress	38.462%	moderate progress	14.286%	little to no progress
C20	3	2.615	0.000%	little to no progress	16.327%	little to no progress	13.043%	little to no progress	18.750%	little to no progress
C4	3	2.692	0.000%	little to no progress	104.000%	significant progress	145.000%	significant progress	23.077%	moderate progress
C11	3	2.692	16.667%	little to no progress	43.590%	moderate progress	46.154%	moderate progress	28.571%	moderate progress
C18	3	2.692	20.000%	little to no progress	6.122%	little to no progress	56.000%	moderate progress	28.571%	moderate progress
C3	3	2.769	14.286%	little to no progress	84.000%	significant progress	85.000%	significant progress	30.769%	moderate progress
C5	3	2.769	14.286%	little to no progress	34.286%	moderate progress	60.000%	moderate progress	35.714%	moderate progress
C27	3	2.769	28.571%	moderate progress	17.241%	little to no progress	14.493%	little to no progress	58.333%	moderate progress
C2	3	2.846	14.286%	little to no progress	90.000%	significant progress	85.000%	significant progress	30.769%	moderate progress
C12	3	2.846	16.667%	little to no progress	43.590%	moderate progress	46.154%	moderate progress	28.571%	moderate progress
C34	3	2.846	33.333%	moderate progress	13.793%	little to no progress	27.536%	moderate progress	25.000%	moderate progress
C8	3	2.923	14.286%	little to no progress	35.897%	moderate progress	44.828%	moderate progress	28.571%	moderate progress
C13	3	2.923	16.667%	little to no progress	43.590%	moderate progress	46.154%	moderate progress	28.571%	moderate progress
C26	3	3.154	28.571%	moderate progress	27.273%	moderate progress	8.219%	little to no progress	25.000%	moderate progress

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C23	4	3.000	18.750%	little to no progress	8.696%	little to no progress	13.559%	little to no progress	25.000%	moderate progress
C24	4	3.154	25.000%	moderate progress	7.971%	little to no progress	16.522%	little to no progress	33.333%	moderate progress
C25	4	3.385	27.778%	moderate progress	8.633%	little to no progress	17.797%	little to no progress	20.000%	little to no progress
C28	4	3.000	11.765%	little to no progress	10.853%	little to no progress	14.815%	little to no progress	21.429%	moderate progress
C30	4	3.077	18.750%	little to no progress	11.765%	little to no progress	9.375%	little to no progress	13.333%	little to no progress
C9	5	3.000	17.647%	little to no progress	9.459%	little to no progress	14.388%	little to no progress	21.429%	moderate progress
C14	5	3.154	12.500%	little to no progress	7.246%	little to no progress	5.755%	little to no progress	21.429%	moderate progress
B. Group Parents with no Mentor (23)										
C45	2	1.846	16.667%	little to no progress	5.882%	little to no progress	10.000%	little to no progress	0.000%	little to no progress
C44	2	2.769	16.667%	little to no progress	2.632%	little to no progress	13.636%	little to no progress	7.143%	little to no progress
C31	3	2.769	14.286%	little to no progress	2.083%	little to no progress	16.667%	little to no progress	7.143%	little to no progress
C32	3	2.846	14.286%	little to no progress	2.273%	little to no progress	13.333%	little to no progress	7.143%	little to no progress
C35	3	2.923	14.286%	little to no progress	4.651%	little to no progress	17.241%	little to no progress	7.143%	little to no progress
C48	3	2.769	16.667%	little to no progress	2.597%	little to no progress	2.985%	little to no progress	7.692%	little to no progress
C29	4	2.923	6.250%	little to no progress	0.862%	little to no progress	3.738%	little to no progress	5.263%	little to no progress
C33	4	3.154	6.250%	little to no progress	1.681%	little to no progress	5.660%	little to no progress	10.526%	little to no progress
C40	4	2.923	8.333%	little to no progress	1.754%	little to no progress	2.857%	little to no progress	10.526%	little to no progress
C41	4	2.846	0.000%	little to no progress	0.870%	little to no progress	4.854%	little to no progress	10.526%	little to no progress
C42	4	2.846	0.000%	little to no progress	1.739%	little to no progress	3.883%	little to no progress	12.500%	little to no progress
C43	4	2.846	0.000%	little to no progress	0.877%	little to no progress	1.942%	little to no progress	12.500%	little to no progress
C46	4	2.923	0.000%	little to no progress	0.901%	little to no progress	0.000%	little to no progress	10.000%	little to no progress
C47	4	2.846	0.000%	little to no progress	0.901%	little to no progress	0.000%	little to no progress	10.000%	little to no progress
C6	5	3.000	6.667%	little to no progress	2.273%	little to no progress	2.308%	little to no progress	4.545%	little to no progress
C7	5	3.000	0.000%	little to no progress	1.504%	little to no progress	3.101%	little to no progress	4.545%	little to no progress
C15	5	3.385	6.667%	little to no progress	1.563%	little to no progress	5.000%	little to no progress	4.545%	little to no progress
C36	5	3.385	0.000%	little to no progress	0.758%	little to no progress	4.237%	little to no progress	4.545%	little to no progress
C37	5	3.308	6.667%	little to no progress	0.671%	little to no progress	0.725%	little to no progress	0.000%	little to no progress
C38	5	3.385	0.000%	little to no progress	1.342%	little to no progress	0.000%	little to no progress	4.545%	little to no progress

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C39	5	3.308	10.000%	little to no progress	0.806%	little to no progress	2.632%	little to no progress	4.545%	little to no progress
C49	5	3.308	8.333%	little to no progress	1.325%	little to no progress	1.563%	little to no progress	4.167%	little to no progress
C50	5	3.308	0.000%	little to no progress	1.307%	little to no progress	1.550%	little to no progress	0.000%	little to no progress

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DISCUSSIONS, RECOMMENDATIONS, AND CONCLUSIONS

The findings of this study suggest that ChatGPT has effectively fulfilled its role as a mentor in supporting parents at home, particularly in the context of children with Autism Spectrum Disorder (ASD). The experimental results highlight several key characteristics of ChatGPT: (1) Applicability, (2) Accessibility, (3) Accuracy, (4) Diversity, and (5) Cost-Effectiveness to explore the potential of the universal function of ChatGPT.

Applicability

ChatGPT demonstrates significant potential as a tool to support language development in children with Autism Spectrum Disorder (ASD), particularly through the provision of practical and context-specific guidance for parents. Its adaptability enables it to address a broad spectrum of developmental needs, including vocabulary acquisition, social communication, and interactive behaviors (Samala et al, 2024). By facilitating the integration of tailored strategies into daily routines, ChatGPT empowers parents to reinforce language skills beyond formal educational or therapeutic environments, thereby enhancing the continuity of learning (Gill et al, 2023). However, its effectiveness may be constrained by limitations in capturing the individualized and nuanced needs of each child. While the tool can generate generalized recommendations, these may not consistently align with the unique challenges faced by children with ASD. In the absence of professional support, parents may encounter difficulties in modifying and implementing the suggested strategies, potentially diminishing the overall impact of the intervention (Bahrini et al., 2023).

Accessibility

One of ChatGPT's most notable strengths is its high level of accessibility, allowing parents to access support anytime and anywhere with ease (Ali et al., 2024). This flexibility is especially valuable for families in regional or under-resourced areas, as it ensures continuous availability of guidance without reliance on scheduled professional sessions (Organization for Economic Co-operation and Development, 2024, p. 15). The tool offers a consistent resource to address daily challenges and reinforce language development goals in real-time, even during late hours or weekends (Xiong, 2025). However, this accessibility also presents certain limitations. The effectiveness of ChatGPT may depend on the parents' digital literacy, with some facing difficulties in navigating the platform or interpreting the AI-generated suggestions.

Accuracy

Regarding accuracy, ChatGPT provides evidence-based guidance rooted in established principles of language development and ASD intervention, offering parents accurate and reliable support that complements professional advice. It can assist in explaining developmental milestones and suggest strategies to address language challenges such as echolalia and pronoun reversal, as aforementioned in the results (Xiong, 2025). Nevertheless, parents noted that the content provided by ChatGPT tended to be general and suggested that it should be further elaborated through repetitive activities or comparison with established professional methods. Without professional oversight, there is also a risk of misinterpretation or inappropriate application of strategies, potentially impacting the child's developmental progress (Bahrini et al., 2023). While ChatGPT can serve as a complementary tool, it is not a substitute for human academic advisors.

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Diversity

In terms of diversity, ChatGPT offers a wide range of strategies, methods, and activities tailored to various communication challenges experienced by children with ASD. This versatility enables parents to select and apply approaches suited to their child's developmental stage and unique needs, from basic vocabulary exercises to more advanced social interaction practices embedded in daily routines (Dhananjaya et al., 2024). Moreover, this AI tool has the potential to promote educational equity by empowering users from diverse backgrounds with access to effective guidance (Akiba, D., & Fraboni, M., 2023). As noted by Rakap (2024), ChatGPT positively influences the quality, content, and efficiency of Individualized Education Plans (IEPs) goal development for novice special education teachers, demonstrating its mentoring role through supportive, encouraging, and constructive responses (Berkel et al, 2024). However, this same diversity can present challenges. Parents may feel overwhelmed by the breadth of options, making it difficult to determine which strategies are most appropriate. In the absence of professional guidance, this could lead to a trial-and-error process that is time-consuming and potentially discouraging, particularly if certain methods prove ineffective or misaligned with the child's profile (Ashraf, 2024).

Cost effectiveness

Finally, ChatGPT's cost-effectiveness provides a significant merit, particularly for families with limited financial resources, by providing an affordable alternative to specialized therapy or private tutoring. This accessibility helps mitigate financial barriers to early intervention, allowing a broader range of families to support their child's language development. However, despite its affordability, ChatGPT cannot fully substitute the expertise and personalized support of trained professionals. The tool's lack of individualized, context-specific guidance may limit its efficacy for children requiring more specialized interventions. Moreover, while cost-effective, parents may still incur indirect costs in terms of time and effort needed to familiarize themselves with and effectively implement the platform's recommendations.
Based on the findings of this study, several recommendations are proposed to enhance the effective use of ChatGPT in supporting language development for young children with Autism Spectrum Disorder (ASD) in Vietnam. As a practical and flexible tool, ChatGPT can assist parents in creating language-rich routines at home by offering tailored strategies and suggestions for daily interactions. In educational and clinical contexts, ChatGPT may serve as a valuable supplementary resource for educators and therapists, supporting the reinforcement of therapeutic goals outside formal sessions when aligned with individualized intervention plans. At a broader level, integrating AI tools like ChatGPT into early intervention programs has the potential to expand access to quality support, particularly for families in underserved or remote areas. To ensure equitable benefits, it is essential to promote digital inclusion through accessible technologies and provide training for parents and practitioners on effective usage. Moreover, developers should localize ChatGPT's content to reflect the Vietnamese language and cultural context, while enhancing interactive features and progress-tracking capabilities to better meet the developmental needs of children with ASD. Collectively, these suggestions highlight the potential of AI to complement human-led interventions and contribute to more inclusive, scalable, and contextually relevant early childhood education and care.

In conclusion, ChatGPT presents a range of benefits for supporting the language development of children with ASD, particularly in terms of its applicability, accessibility, diversity, and cost- effectiveness. However, its limitations, such as the need for more accuracy, the potential overwhelm due to diversity, and its inability to replace human interaction, underscore the importance of using AI as a complementary tool rather than a

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substitute for professional intervention. To maximize its potential, future developments should focus on enhancing the tool's personalization, cultural relevance, and real-time adaptability to better address the unique needs of children with ASD and their families.

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