

A Review of the Impact of Generative AI on Preschool Children's Expressive Language Development from Teachers' Perspectives

Rui Xiong*

Huizhou University, Guangdong, China

*Corresponding author: Rui Xiong.

Abstract

Generative artificial intelligence is entering educational and home-based learning contexts through intelligent dialogue, story generation, voice interaction, and real-time feedback. The preschool stage is a critical period for the development of children's expressive language ability, during which vocabulary, narrative competence, pragmatic awareness, and social communication skills depend heavily on authentic interaction and high-quality language input. This paper adopts a literature review approach to examine the impact of generative AI on preschool children's expressive language development, regarding early childhood teachers as key mediators in the application of this technology. The review indicates that generative AI may support children's expressive language development by enriching language input, providing low-anxiety opportunities for expression, supporting story continuation and role-play, and facilitating personalized feedback. However, its impact is not directly determined by the technology itself, but depends on the quality of AI-generated content, teachers' guidance strategies, usage contexts, and whether children can still maintain sufficient teacher-child, peer, and parent-child interaction. Existing research still shows several limitations, including insufficient attention to the preschool stage, limited discussion of active language expression, the absence of teachers' perspectives, and inadequate consideration of ethical and equity-related issues. This paper argues that the appropriate pathway for applying generative AI to preschool children's language development should be teacher-AI collaboration. In this framework, teachers are responsible for selecting, designing, regulating, and evaluating AI-supported language activities, so that technology functions as an auxiliary tool for promoting authentic expression rather than as a substitute for interpersonal interaction.

Keywords

generative AI, language development, early childhood education, teacher perspectives, preschool education

1. Introduction

Generative artificial intelligence (GenAI), represented by large language models, intelligent dialogue systems, AI story-generation tools, and voice-interaction platforms, is transforming content production, learning feedback, and human-computer interaction in education. Compared with earlier educational technologies, the distinctive feature of generative AI is not merely that it provides resources, but that it can generate linguistic content based on user input and sustain interaction through multi-turn dialogue. This shift

is particularly significant for language education, because language learning itself relies heavily on language input, expressive output, real-time feedback, and communicative contexts. Existing research on AI-assisted language education indicates that AI has been used in areas such as speech recognition, intelligent feedback, personalized recommendation, and learning process analysis, gradually reshaping the ecology of language education [1]. The preschool stage is an important period for the development of children's expressive language ability. Children do not develop language merely by memorizing isolated words or sentence patterns, but gradually develop vocabulary expression, syntactic organization, narrative competence, pragmatic awareness, and social communication skills through continuous interaction with teachers, parents, and peers. The Guidelines for the Learning and Development of Children Aged 3-6 emphasize that children should be provided with a language environment in which they want to speak, dare to speak, enjoy speaking, and receive positive responses [2]. Therefore, evaluating the impact of generative AI on children's expressive language development requires attention not only to whether it can produce fluent texts, but also to whether it can promote children's active expression, coherent narration, and appropriate communication in authentic contexts. In recent years, studies on AI-assisted language education, AI-based storytelling applications, intelligent speech systems, and social robots supporting early language learning have gradually increased. Relevant studies generally acknowledge the potential of AI in personalized input, real-time feedback, and the creation of interactive contexts. However, they also point out that empirical research on the impact of generative AI on children's language development remains limited in the fields of early childhood education and developmental psychology [1]. It is particularly important to note that teachers are organizers, observers, and evaluators of children's language activities, as well as selectors and gatekeepers when AI enters kindergarten contexts. Therefore, discussing the impact of generative AI on children's expressive language development from teachers' perspectives can respond to technological development while avoiding an understanding of AI as a mere technological substitute. This paper aims to reconstruct the mechanism framework of generative AI in preschool language education from the perspective of teacher mediation. This paper addresses the following three questions. First, what issues are currently emphasized in research on generative AI and children's language development? Second, through what mechanisms might generative AI influence preschool children's expressive language development? Third, how should early childhood teachers play mediating, regulating, and gatekeeping roles in AI applications in order to promote children's authentic, age-appropriate, and safe language development?

2. Theoretical Background

2.1 Definition of Core Concepts

Generative AI refers to artificial intelligence systems that can generate texts, speech, images, stories, dialogues, and other forms of content based on training data and user prompts. This paper primarily focuses on its language-related functions, such as intelligent question answering, story creation, voice interaction, role-play, and learning feedback. Compared with talking pens, early education devices, or ordinary electronic picture books, the distinctive features of generative AI lie in the immediacy of content generation, the continuity of dialogue, and the personalization of feedback. Preschool children's expressive language ability refers to the ability of children aged 3 to 6 to use spoken language to express needs, describe experiences, organize stories, participate in dialogue, and engage in social communication. According to the language-domain requirements in the Guidelines for the Learning and Development of Children Aged 3-6, children's language development includes not only listening and expression, but also willingness to speak, clear expression, understanding of communicative contexts, and the use of language for communication [2]. Therefore, the expressive language ability discussed in this paper includes not only vocabulary size and sentence length, but also expressive fluency, narrative coherence, pragmatic appropriateness, and interactive responsiveness. The term "teacher perspective" in this paper does not treat teachers' attitudes as an independent topic, but emphasizes how teachers observe, judge, and regulate the influence of AI on children's language development.

2.2 Theoretical Foundation: A Three-Level Analytical Framework

The theoretical foundation of this paper does not simply place sociocultural theory, language acquisition theory, and the technology acceptance model side by side. Instead, it situates the three theories at different

analytical levels: Vygotsky's sociocultural theory constitutes the social interaction foundation layer, Krashen's language acquisition theory constitutes the input-output mechanism layer, and Davis's technology acceptance model constitutes the teacher adoption behavior layer. This layered structure helps explain that children's expressive language development first depends on authentic social interaction, then requires high-quality language input and opportunities for output, and is ultimately influenced by whether teachers understand, accept, and appropriately use AI tools. First, at the social interaction foundation layer, Vygotsky argued that children's higher psychological functions develop through social interaction, and that language is both a tool for communication and an important mediator of cognitive development [3]. This theory suggests that children's expressive language development cannot be separated from authentic interpersonal interaction. Even if generative AI can simulate dialogue, it is not equivalent to the emotional responses and social support provided by teachers, peers, or parents. Therefore, the value of AI should not be understood as replacing interpersonal communication, but should be evaluated within authentic networks of teacher-child, peer, and parent-child interaction. Second, at the input-output mechanism layer, language acquisition theory emphasizes the importance of comprehensible input, expressive output, and feedback [4]. Generative AI may provide children with richer language input, more frequent opportunities for expressive practice, and more immediate feedback. However, whether such input is age-appropriate, accurate, and contextually meaningful still requires teachers' selection and transformation. In other words, AI can become a resource for language input and expressive practice, but whether it can truly promote children's expressive ability depends on whether teachers can transform AI-generated content into language activities that children can understand, are willing to respond to, and can transfer to real-life communication. Third, at the teacher adoption behavior layer, the technology acceptance model indicates that users' perceived usefulness and perceived ease of use influence their willingness to adopt a technology [5]. In preschool education contexts, whether early childhood teachers understand AI, possess AI literacy, and can embed AI into language activity design will all affect the actual role of AI in children's expressive language development. It can therefore be seen that teachers are not external variables, but key mediators connecting AI tools with children's language development.

3. Literature Review

3.1 Research on Preschool Children's Expressive Language Development

Research on children's language development generally suggests that early language ability is closely related to later reading, learning adaptation, social interaction, and cognitive development. Preschool children's language expression does not fully develop through natural maturation alone, but requires high-quality adult responses, rich vocabulary input, authentic communicative opportunities, and continuous encouragement. In kindergartens, storytelling, picture book reading, conversational activities, role-play, and peer negotiation are important ways to promote language expression. The Guidelines for the Learning and Development of Children Aged 3-6 also identify "listening and expression" and "preparation for reading and writing" as important components of the language domain, emphasizing that children should develop language ability in everyday contexts and communicative activities [2]. Domestic studies on the current situation of kindergarten language education show that real teaching practice still involves problems such as insufficient frequency of language activities, monotonous teaching content, excessive reliance on whole-class instruction, limited interaction opportunities, neglect of basic expressive abilities, and a tendency toward primary-school-oriented instruction [6]. Some teachers tend to regard character recognition, recitation, and pinyin learning as outcomes of language development, while paying insufficient attention to children's active expression, narrative organization, and communicative language. This suggests that whether any new technology is worth introducing must return to one core criterion: whether it can increase high-quality language interaction rather than merely provide more content.

3.2 Research on Digital Media and Children's Language Development

Before the emergence of generative AI, digital media had already reshaped children's language environments. Relevant studies have generally developed two orientations. One view emphasizes that passive screen exposure may reduce children's authentic communication with adults and peers, thereby affecting vocabulary development, expressive fluency, and social language use. In particular, short videos, animations, and one-way audiovisual content may weaken children's opportunities for active expression if they replace

parent-child reading, teacher-child conversation, and peer play. The other view focuses on the positive role of highly interactive media. When used with adult support, electronic picture books, interactive stories, and digital games may enhance children's attention through images, sounds, tasks, and feedback, while stimulating retelling, questioning, and discussion. Neumann's research on touch-screen devices and emergent literacy suggests that digital media do not necessarily promote or hinder children's development in themselves; the key lies in interaction quality, adult participation, and activity goals [7]. Therefore, research on generative AI should not simply repeat the binary judgment that "screens are harmful" or "technology is beneficial," but should focus on whether it truly supports children's expressive output.

3.3 Research on AI-Assisted Language Education

AI-assisted language education (AILE) is an important area of educational technology research. Relevant studies indicate that AI has been widely applied to speech recognition, intelligent feedback, automatic assessment, personalized recommendation, and learning process analysis in language learning [1]. In broader research on artificial intelligence in education, AI is considered to have the potential to support personalized learning, provide formative feedback, and reduce teachers' repetitive workload [8]. These mechanisms have implications for children's expressive language development. If AI can provide language input within children's comprehension range, encourage children to speak, and respond immediately to their expressive content, it may compensate for the difficulty teachers face in providing frequent one-to-one interaction in traditional classrooms. Systematic reviews also show that AI language education is shifting from the application of single tools toward broader discussions of learning ecologies, teacher roles, and future trends [9,10]. However, existing research also has obvious limitations. Most AI language learning studies focus on foreign language learning, primary and secondary education, or higher education, where learners have stronger self-regulation and judgment abilities. Preschool children differ from adult language learners because they lack the ability to evaluate technological outputs and depend more heavily on emotional security and concrete contexts. Therefore, conclusions from AI language education research cannot be directly transferred to preschool children's expressive language development, but must be reconsidered in relation to children's age characteristics and the conditions of teacher support.

3.4 Research on Generative AI in Early Childhood Education

Generative AI has brought human-computer interaction in children's education into a new stage. Kanders et al. point out that generative AI is rapidly entering the field of early childhood development and education, yet research on its impact remains insufficient in developmental psychology and early childhood education [11]. Compared with traditional digital media, generative AI is characterized by instant generation, multi-turn dialogue, and quasi-social interaction, and thus cannot simply be classified as screen media or electronic resources. It is more like an interactive system that can participate in language activities, which is precisely why its potential and risks coexist. In terms of research types, the current literature can be broadly divided into three categories. The first category consists of review studies, which mainly summarize the potential influence of AI storytelling, AI language learning, and generative AI on children's development. For example, Chen's systematic review of AI-driven storytelling applications found that the interactivity, personalization, and adaptability of AI storytelling tools may promote children's vocabulary, comprehension, and narrative development, particularly in bilingual, multicultural, and digital learning environments [12]. Such studies help identify general trends, but they often cannot directly demonstrate the long-term effects of specific tools on children's expressive language ability. The second category consists of design-based studies. These studies typically focus on system prototypes, interaction processes, scaffolding strategies, and home or classroom application contexts. For example, the ELLA system proposed by Antony et al. uses generative AI-powered social robots to support early language development at home, with a design that emphasizes parents' selection of language goals, interactive storytelling by the system, and scaffolded dialogue to promote children's participation [13]. The value of design-based studies lies in demonstrating how generative AI can be transformed into concrete educational tools, but their conclusions usually point more to feasibility and design principles than to evidence of educational effectiveness. The third category consists of empirical studies. Such studies need to examine whether AI tools truly improve children's vocabulary richness, narrative coherence, expressive initiative, and pragmatic ability through authentic classroom practice, home deployment, observation of children's language performance, or experimental comparison. At present, this type of research remains relatively limited, especially with regard to long-term tracking and evidence from natural kindergarten

contexts [11,12]. Therefore, this paper argues that, at the current stage, it is not appropriate to simply claim that generative AI has already promoted preschool children's expressive language development. Instead, its mechanisms, application conditions, and teacher mediation should be discussed more cautiously.

3.5 Research on Teacher Perspectives, AI Literacy, and Ethics

From teachers' perspectives, the role of generative AI does not occur independently. Teachers need to judge whether AI-generated content is accurate, age-appropriate, and consistent with educational goals, whether it can elicit children's authentic expression, and whether it may reduce children's interaction with adults and peers. Existing research on AI in education generally suggests that teachers will not simply be replaced by AI, but will gradually shift toward the roles of learning designers, technology selectors, data interpreters, and ethical gatekeepers [1,8]. This shift is even more evident in preschool education. Children cannot produce high-quality prompts in the same way as adults, nor do they possess stable judgment abilities. If children use AI directly, vague questioning, insufficient comprehension of content, or excessive trust in machine responses may affect learning outcomes. Therefore, teachers need to transform AI-generated content into age-appropriate activities such as conversation, performance, story continuation, and peer discussion. In other words, teachers are not bystanders in AI application, but designers and regulators of child-AI language interaction. Ethical issues should not be overlooked among preschool children. AI-supported language interaction may involve children's voices, interests, expressive content, and learning data, which may generate privacy risks if clear authorization and protection mechanisms are absent. AI-generated content may also contain factual errors, value bias, or cultural homogenization [11]. According to the main focus of this paper, ethical issues should not replace language development as the central concern of the study, but they must serve as basic boundaries for teachers' use of AI.

3.6 Literature Gaps and Research Limitations

A synthesis of existing studies reveals at least four limitations in current research. First, attention across educational stages is uneven. Research on generative AI in education has mainly focused on primary and secondary education, higher education, and adult learning, with insufficient attention to children aged 3 to 6 [11]. Second, the research dimension tends to emphasize language input. Existing studies discuss more frequently how AI provides stories, vocabulary, and reading materials, but pay less attention to children's active expression, narrative organization, and pragmatic interaction. Third, teachers' perspectives remain underdeveloped. Many studies emphasize technological potential, but discuss less frequently early childhood teachers' willingness to adopt AI, their concerns, usage strategies, and professional support needs in real teaching contexts. Fourth, the distinctive nature of generative AI has not been fully differentiated. Unlike traditional digital media, generative AI is characterized by instant generation, multi-turn dialogue, and quasi-social interaction, and therefore requires a new analytical framework.

4. Discussion and Synthesis

4.1 Mechanisms Through Which Generative AI Influences Preschool Children's Expressive Language Development

Generative AI may support preschool children's expressive language development through three pathways. First, it can enrich language input. AI can generate diverse stories, questions, and role-based language, providing children with models of vocabulary, sentence patterns, and narrative structures. Second, it can increase opportunities for expression. Compared with the one-to-many classroom environment, AI can provide children with low-pressure and repeatable dialogue practice, enabling shy children or those with weaker expressive ability to obtain more opportunities to speak. Third, it can create interactive contexts. AI can simulate role-based scenarios such as shops, hospitals, travel, and fairy tales, helping children organize language in concrete contexts. These mechanisms are consistent with the trends of personalization, real-time feedback, and interactive learning emphasized in AI language education [1,9]. However, whether these mechanisms can be transformed into authentic language development depends on teacher mediation. Teachers need to embed AI-generated materials into authentic activities, such as asking children to retell, continue, discuss with peers, and perform roles after listening to an AI-generated story. Only when AI interaction further elicits communication between children and people is it more likely to promote language expression rather

than remain at the superficial level of human-computer question answering. From the perspective of sociocultural theory, language development always requires the support of social interaction; from the perspective of language acquisition theory, the input and feedback provided by AI must also be transformed into expressive experiences that children can understand, respond to, and transfer [3,4].

4.2 Potential Problems and Risks

The first risk of generative AI lies in the replacement of authentic interaction. Children's language development is contextual, emotional, and social in nature. AI can generate language, but it cannot fully replace teachers' eye contact, facial expressions, body movements, emotional responses, and value guidance. If children rely on AI dialogue for extended periods and reduce communication with teachers, peers, and parents, they may develop the problem of being able to chat with AI while lacking sufficient expressive ability in real-life contexts. This is consistent with the cautious attitude toward the impact of generative AI in early childhood development research [11]. The second risk concerns content quality. Large language models generate content based on corpora and probability, which does not mean that they truly understand the principles of child development. AI outputs may contain factual errors, logical leaps, age-inappropriate content, or cultural bias. For preschool children, inaccurate language input and inappropriate value expression are more likely to be accepted and imitated. Therefore, teachers must assume responsibility for content selection and explanation. A further risk concerns technological dependence and equity. Differences exist among families and kindergartens in terms of devices, internet access, teachers' digital literacy, and parental support, and AI may widen gaps in language resources [11,13].

4.3 A Comprehensive Evaluation from Teachers' Perspectives

From teachers' perspectives, the impact of generative AI on preschool children's expressive language development should be understood as conditional facilitation. It is neither naturally beneficial nor inevitably harmful, but depends on how teachers select tools, set goals, design activities, control usage time, observe feedback, and manage risks. Teachers' professional judgment involves at least four aspects: judging whether content is age-appropriate, whether activities promote active expression, whether AI serves authentic interaction, and whether children show signs of dependence or misunderstanding. The technology acceptance model also suggests that teachers' judgments of AI's usefulness and ease of use will affect whether they are willing to use relevant tools continuously and appropriately [5]. Therefore, the appropriate pathway is not to allow AI to directly undertake educational tasks with children, but to establish a teacher-AI collaboration framework. In this framework, AI provides materials, contexts, and preliminary feedback, while teachers are responsible for educational goals, language scaffolding, emotional responses, and ethical boundaries. Such a framework preserves the personalization and interaction advantages of generative AI while avoiding the weakening of interpersonal relationships and authentic communication, which are central to preschool education [8].

4.4 Future Directions for Educational Practice

Future applications of generative AI in kindergartens can be advanced from three aspects. First, age-appropriate usage norms should be established, including clear standards for the duration of AI use, application scenarios, data protection, and content review. Second, early childhood teachers' AI literacy should be enhanced, so that teachers understand the basic mechanisms, limitations, and educational transformation methods of generative AI, rather than merely knowing how to use tools. Third, the principle of using AI to support authentic expression should be upheld by transforming AI-generated content into conversation, play, picture book reading, story performance, and parent-child shared reading, rather than allowing children to immerse themselves independently in human-computer interaction. These directions are consistent with current AI education research, which emphasizes teacher role transformation, ethical regulation, and interdisciplinary collaboration [1,10].

5. Conclusion

By reviewing studies on preschool children's language development, digital media, AI-assisted language education, and generative AI in early childhood education, this paper finds that generative AI has potential

benefits for preschool children's expressive language development, but such benefits do not arise automatically from the technology itself. It may promote children's language expression by enriching language input, increasing expressive opportunities, providing interactive contexts, and supporting personalized feedback. At the same time, it may also generate problems such as reduced authentic interaction, unstable content quality, children's excessive trust in AI, privacy protection concerns, and educational equity issues. The central argument of this paper is that understanding the impact of generative AI on children's expressive language development requires attention not only to AI tools themselves, but also to how teachers play mediating and regulating roles in the process. Teachers are both selectors of AI-generated content and designers of children's expressive activities, as well as maintainers of authentic interaction. Therefore, the appropriate positioning of generative AI in preschool language education should be that of an auxiliary tool, rather than a communication partner that replaces teachers, peers, or parents. As a literature review, this paper is mainly based on the analysis of existing studies and has not yet conducted interviews with frontline teachers or observations of children's language performance. Future research may further adopt questionnaires, interviews, classroom observations, and quasi-experimental methods to examine the effects of different AI usage patterns on children's vocabulary richness, narrative coherence, expressive initiative, and pragmatic ability. Meanwhile, attention should also be paid to the differentiated effects that generative AI may have on children's language development under different regional conditions, family backgrounds, and levels of teachers' AI literacy.

References

- [1] Semerikov, S. O., Striuk, A. M., & Shalatska, H. M. (2021). AI-assisted language education: A critical review. *Educational Dimension*, 62(3), 74–91.
- [2] Ministry of Education of the People's Republic of China. (2012). Guidelines for the learning and development of children aged 3–6. Beijing Normal University Press. [In Chinese]
- [3] Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes*. Harvard University Press.
- [4] Krashen, S. D. (1982). *Principles and practice in second language acquisition*. Pergamon Press.
- [5] Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly*, 13(3), 319–340.
- [6] Li, Q. H. (2021). Research on the current situation and implementation strategies of kindergarten language education. *New Wisdom*, (14), 120–121. [In Chinese]
- [7] Neumann, M. M., & Neumann, D. L. (2014). Touch screen tablets and emergent literacy. *Early Childhood Education Journal*, 42(4), 231–239.
- [8] Luckin, R., Holmes, W., Griffiths, M., & Forcier, L. B. (2016). *Intelligence unleashed: An argument for AI in education*. Pearson.
- [9] Chen, X., Zou, D., Cheng, K. S., & Xie, H. (2021). Artificial intelligence-assisted personalized language learning: Systematic review and co-citation analysis. In M. Chang, N.-S. Chen, D. G. Sampson, & A. Tlili (Eds.), *Proceedings of the 21st IEEE International Conference on Advanced Learning Technologies* (pp. 241–245). IEEE.
- [10] Zhu, M., & Wang, C. (2025). A systematic review of research on AI in language education: Current status and future implications. *Language Learning & Technology*, 29(1), 1–29.
- [11] Kandars, K., Stupple-Harris, L., Smith, L., & Gibson, J. L. (2024). Perspectives on the impact of generative AI on early-childhood development and education. *Infant and Child Development*, 33(4), Article e2514.
- [12] Chen, G. (2024). The impacts of AI-driven storytelling applications on language acquisition and literacy development in early childhood education: A systematic review. *Asian Journal of Advanced Research and Reports*, 18(11), 1–12.
- [13] Antony, V. N., Cao, S., Wang, S., & Huang, C.-M. (2026). ELLA: Generative AI-powered social robots for early language development at home. *arXiv Preprint*.

Funding

This research received no external funding.

Conflicts of Interest

The authors declare no conflict of interest.

Acknowledgment

This paper is an output of the science project.

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