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Exploring the Current Status and Optimization Strategies of Chinese Kindergarten Language Education from the Perspective of Artificial Intelligence

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Abstract: This article analyzes the current situation and challenges of kindergarten language education in China in the context of digital transformation. It discusses the impact of artificial intelligence (AI) on kindergarten language education and proposes optimization strategies, including innovating teaching methods, designing engaging courses, improving evaluation mechanisms, and enhancing teacher AI literacy. The article concludes that integrating AI into kindergarten language education is an inevitable trend, and kindergartens should actively embrace intelligent education while addressing potential risks.

Keywords: Kindergarten language education; Artificial intelligence; Digital transformation; Personalized teaching; Intelligent evaluation

1. Analysis of the Current Situation of Kindergarten Language Education in China

1.1 Relatively monotonous teaching methods with insufficient interactivity

At present, although kindergarten language education in China has made significant progress, the teaching methods are still dominated by traditional teacher-led instruction, with relatively monotonous forms. As Dong Di pointed out, the teaching methods for the teacher-led courses are mainly traditional, with single forms. Moreover, due to the lack of a cohesive curriculum leadership across educational stages in China, kindergartens have not yet uniformly incorporated artificial intelligence into the curriculum system, and lack a clear understanding of the courses, content, methods, and resource pool construction for carrying out artificial intelligence education^[1].

1.2 Lack of fun and attractiveness in teaching content

Currently, many kindergartens have problems with the selection of language teaching content, such as lack of fun and insufficient attractiveness. As Li Jin and Pan Haimei pointed out, for preschool children, images are often easier to accept than text, but high-quality image resources require creation by professionals, which requires a huge human cost, resulting in relatively monotonous types and presentation methods of learning resources^[2]. The "Guidelines for Learning and Development of Children Aged 3-6" emphasizes the need to fully respect and understand individual differences in children's development and support children to achieve personalized development at their own pace and in their own way^[3]. However, the current language teaching content often fails to fully consider children's interests and cognitive characteristics.

1.3 Imperfect evaluation and feedback mechanism with insufficient pertinence

The evaluation and feedback mechanism of kindergarten language education is not perfect, and it is difficult to accurately diagnose the current language ability and improvement needs of each child. Teachers' assessment of children's language development mostly stays at the level of overall impression, lacking scientific and systematic assessment tools and analysis methods. It is urgent to use new technological means such as artificial intelligence to establish a dynamic and accurate language development portrait to provide children with more personalized and precise language learning guidance and training programs^[4].

2. The Impact of Artificial Intelligence Technology on Kindergarten Language Education

2.1 Artificial intelligence supports personalized and precise teaching

With its characteristics of adaptive learning and intelligent recommendation, artificial intelligence technology provides new possibilities for personalized and precise teaching in kindergarten language education. As Sun Lihua and Wang Qianqi pointed out, artificial intelligence can "generate teaching content that conforms to children's cognitive laws and levels, including images, videos, audios and other media, according to their personalized needs and interests, providing teachers and parents with more diversified teaching resources", and "achieve per-

sonalized assessment and guidance based on children's learning situations". Through intelligent speech recognition, natural language understanding and other technologies, artificial intelligence can analyze the current language ability and learning characteristics of each child, then intelligently recommend the most suitable content from a vast amount of language learning resources, and dynamically adjust the learning path and rhythm to achieve individualized teaching and precise guidance.

In addition, artificial intelligence can also provide children with language learning partners and practice objects anytime and anywhere through virtual assistants and intelligent companions, extending the time and space boundaries of teacher-child interaction and companion teaching, embedding personalized language learning into children's daily life and improving learning effects.^[5]

2.2 Artificial intelligence enriches the content and form of language teaching

Artificial intelligence technology integrates various capabilities such as virtual reality, augmented reality, voice interaction, and intelligent generation, greatly enriching the content and form of kindergarten language teaching. As Li Jin and Pan Haimei pointed out, artificial intelligence can "generate realistic images and provide diverse learning materials for early childhood education", creating an immersive and embodied language learning experience; at the same time, it can "provide teaching content that is closer to children's cognition and interests", stimulating children's interest in learning languages. Teachers can use intelligent algorithms to automatically generate personalized voice and image teaching resources, creating immersive language learning situations for children.

In addition, game-based teaching supported by artificial intelligence also injects fun and participation into language learning. Teachers can develop immersive language games and interactive scripts based on speech recognition, motion capture, human-computer dialogue and other technologies, guiding children to learn language knowledge and train language expression through games, combining education with fun. The integration of artificial intelligence and traditional language teaching promotes the upgrading of kindergarten language classrooms towards more vivid content, interactive methods, and immersive experiences.^[6]

2.3 Artificial intelligence optimizes teaching effect evaluation and feedback

Artificial intelligence can help teachers diagnose children's language ability development more accurately and efficiently through automatic assessment and intelligent feedback, optimizing teaching effect evaluation and feedback. Traditional language assessment methods often rely on teachers to manually observe, record, and analyze, which is inefficient and easily affected by subjective factors. In contrast, artificial intelligence can use intelligent speech assessment, multimodal learning analysis and other technologies to comprehensively collect children's language learning process data, objectively evaluate their abilities in pronunciation, vocabulary, grammar, pragmatics and other aspects, and provide visualized presentation and intelligent diagnosis, providing teachers with a panoramic language development portrait and assessment report, achieving precision and immediacy of evaluation.

At the same time, based on intelligent algorithms and knowledge graphs, artificial intelligence can also provide personalized learning improvement plans and targeted feedback according to each child's assessment results, realizing the seamless connection between assessment results and teaching improvement.^[7]

3. Optimization Strategies for Kindergarten Language Education from the Perspective of Artificial Intelligence

3.1 Leveraging AI technology to innovate language teaching methods

Kindergartens should actively embrace artificial intelligence technology and integrate it into language teaching to innovate teaching methods and improve teaching quality. Teachers can use intelligent voice interaction systems to guide children to engage in situational dialogues, enhancing their oral expression and communication skills. Moreover, teachers can utilize intelligent story generation tools to automatically create personalized stories based on children's interests and language levels, stimulating their reading interest and comprehension abilities.

3.2 Applying AI resources to design engaging language courses

Kindergartens should make full use of high-quality artificial intelligence education resources to design engaging and interesting language courses. Teachers can integrate intelligent voice recognition, natural language processing, image generation, and other AI technologies to develop multimedia language courses that combine sound, image, and text, creating a multi-sensory learning experience for children. The use of AI resources not only enriches the content and form of language courses but also caters to children's learning needs and preferences, effectively improving their learning enthusiasm and efficiency.

3.3 Utilizing AI systems to improve evaluation and feedback mechanisms

Kindergartens should leverage artificial intelligence technology to establish scientific and efficient language learning evaluation and feedback mechanisms. AI-based intelligent evaluation systems can automatically collect and analyze children's language learning data, providing objective and comprehensive evaluation results. Moreover, intelligent learning analytics tools can help teachers track children's learning

progress and adjust teaching strategies in real-time, realizing data-driven teaching decision-making.

3.4 Strengthening teacher AI literacy training to create a favorable environment

To effectively integrate artificial intelligence into kindergarten language education, it is crucial to enhance teachers' AI literacy and create a supportive environment for intelligent education. Kindergartens should provide targeted training for teachers to help them master AI-related knowledge and skills, and guide them to explore the effective integration of AI and language teaching^[2]. Moreover, kindergartens should also strengthen the construction of intelligent education infrastructure, such as building a stable and high-speed network environment, configuring necessary intelligent devices and equipment.

4. Conclusion

The integration of artificial intelligence technology into kindergarten language education is an inevitable trend in the digital transformation of preschool education. We should seize the opportunities brought by AI technology, actively embrace intelligent education, and strive to cultivate children's language abilities and comprehensive qualities. With the joint efforts of kindergartens, teachers, and researchers, artificial intelligence will surely play a more significant role in promoting the innovation and development of early childhood language education.

Conflicts of interest

The author declares no conflicts of interest regarding the publication of this paper.

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