# Innovation-Driven Development Strategy of Preschool Education in the Internet+ Era

Hongxia Cai, Zhumadian Preschool Education College, China\*

#### **ABSTRACT**

With the development of information technology and the internet, preschool education needs more innovative thinking and methods to promote its development. However, current preschool education faces many problems, such as limited resources, uneven educational quality, and difficulty in achieving personalized education, which seriously affect children's physical and mental health and social adaptability. Therefore, this paper selects preschool education innovation in the "internet plus" era as the research object. This paper will use literature review and empirical research methods to analyze problems and explain the theoretical basis; put forward teaching, management, service innovation; and at the same time promote educational system reform, optimize resource allocation, strengthen teacher construction, improve teaching quality and other pre-school education innovation strategies in the "internet plus" era. The research results can provide reference and inspiration for innovation in preschool education.

#### **KEYWORDS**

Innovation-Driven Development Strategy, Internet+, Preschool Education

#### INTRODUCTION

With the rapid development of information technology and the popularity of the Internet, preschool education faces new opportunities and challenges. This level of education is a pivotal stage of children's development, which is particularly important for children's physical and mental health and social adaptability (Xu, 2021). In today's society, the Internet has profoundly changed people's way of life and thinking, and it has also affected education (Jiao, 2016). The Internet Plus era has brought unprecedented opportunities and challenges to preschool education, which requires innovative thinking and methods to promote its development (Qu, 2021). Internet Plus is not just a technological concept. The new model of Internet Plus and preprimary education, which promote and advance each other, can solve the most basic problems of preprimary education such as resource constraints, educational fairness, educational personalization, and the exertion of the teachers' dominant position.

Society continuously evolves, and preschool education continues to face new opportunities and challenges (Kowalski, 2018). On the one hand, the rapid development of information technology and the Internet provides a broad development space for preschool education and more innovative opportunities for teaching, management, and service. On the other hand, preschool education faces

DOI: 10.4018/IJWLTT.337601 \*Corresponding Author

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many challenges such as insufficient educational resources and uneven educational quality. Therefore, the question of how to innovate thinking and methods to promote the development of preschool education is a hot issue in the field. It is found, however, that the scale of cost of preschool education in China has increased from 190 billion yuan in 2017 to 338 billion yuan in 2022 under the joint action of market demand and policy guidance. It is predicted that the cost will reach 373 billion yuan in 2023. The scale and forecast of preschool education in China from 2017 through 2023 are shown in Figure 1.

With the improvement of China's economy, and people's attention to education, more and more families are aware of the importance of preschool, thus increasing the demand. The government's policy support and supervision provide more development opportunities and resources for learning institutions. The government has introduced a series of supportive policies such as financial subsidies, tax incentives, etc., which have increased the economic benefits of these institutions, promoting market competition and expansion of scale. The bottleneck for the government to develop preschool education have been the issues of educational fairness due to regional and economic differences, the difficulty in achieving personalized education for preschool children due to the lack of screening means and corresponding resource guarantees, and the difficulty in exerting teacher autonomy and young children's subjectivity caused by the impact of traditional education models. The goal of high-quality and inclusive education for all seems far off.

Insufficient and uneven allocation of resources, differentiation in educational quality, and difficulty in achieving personalized education are challenges that need to be addressed, for they adversely affect the development of children's physical and mental health and social adaptability. In this paper, we aim to explore how to promote the innovation and development of preschool education in the context of the Internet Plus era. We elaborate on the theoretical basis of preschool education innovation, summarize the practical experience of innovation, and propose strategies and paths forward. This article serves as reference and inspiration for the practical innovation of preschool education through literature review and empirical research methods. We conduct research on the following aspects. We will analyze the current problems and reasons faced by preschool education; explore the significance, theoretical basis, and practical experience of innovation in preschool education. We

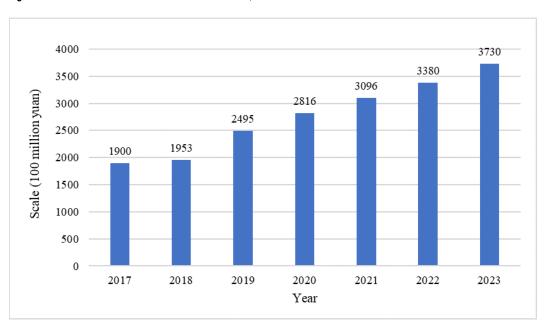


Figure 1. Preschool education scale and forecast in China, 2017-2023

then propose strategies and paths for preschool education innovation in the Internet Plus era including Internet-based teaching, management, and service innovation; promotion of education system reform, optimization of the allocation of educational resources, strengthening of the construction of teachers, and improving the quality of education and teaching.

#### PRESCHOOL EDUCATION IN THE ERA OF INTERNET PLUS

In this study, we used a literature review and empirical research methods, combined with the theory and practice of preschool education, to explore the innovation-driven development strategy of preschool education in the Internet Plus era. The literature review method is used to collect and integrate materials in related fields, including research results in multiple aspects such as preschool education, the Internet, and education, in order to gain a deeper understanding of cutting-edge developments and research hotspots in the field. Empirical research methods such as questionnaire surveys and interviews were used to collect, analyze, and explain actual situations, in order to obtain more convincing and reliable results. In terms of method selection, we focus on integrating theory with practice, using modern technology as the main research tool, and are committed to establishing innovative development models and strategic paths for preschool education in the context of the times.

# **Development Status**

The present situation of preschool education in the era of Internet Plus is varied. In some advanced regions, internet technology has been actively applied, promoting the process of educational information integration, and achieving personalized and diversified preschool education (Tiitola-Meskanen, 2014). In some underdeveloped areas, however, there are still problems such as a lack of resources, insufficient teachers, and a lagging curriculum system, resulting in a gap in the level and quality of preschool education.

According to relevant surveys, in 2019, China's education industry information market scale was about 436.84 billion yuan, while in 2020, China's education industry information market scale was 469.1 billion yuan (Jinping, 2017). The scale of China's education informatization market from 2015 through 2020 is shown in the Figure 2.

The development of the Internet Plus era first brought more colorful resources to preschool education. Through the Internet, preschool education can obtain excellent resources at home and abroad more conveniently, making the curriculum richer and more diverse, and meeting the learning needs of children at different levels (Li, 2020).

Traditional preschool education mainly adopts classroom teaching, which is relatively simple, but it is difficult to meet the diverse learning needs of children. With the technology afforded in the Internet Plus era, preschool education includes diversified teaching activities such as online classrooms, online interaction, and game-based teaching. And it promotes the diversification and individualization of preschool education teaching methods, enabling more children to participate at their own level. The change of the number of children in kindergarten in China from 2014 through 2021 is shown in Figure 3.

Great changes have taken place in the management of preschool education in this new technological era. By means of Internet and information technology, preschool education can realize various management methods such as educational integration of information, education management refinement, and education quality monitoring, which provides a better guarantee for the sustainable development of preschool education.

# **Challenges and Problems**

The Internet Plus era provides new technical support and resource platform and development opportunities for preschool education innovation. In recent years, China has conducted a series of practical explorations of preschool education innovation, including the following aspects:

Figure 2. Information market scale of the Chinese education industry, 2015-2020

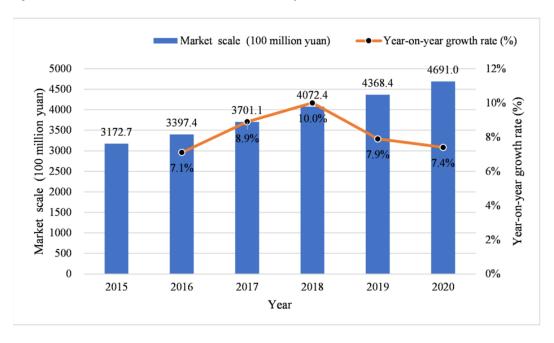
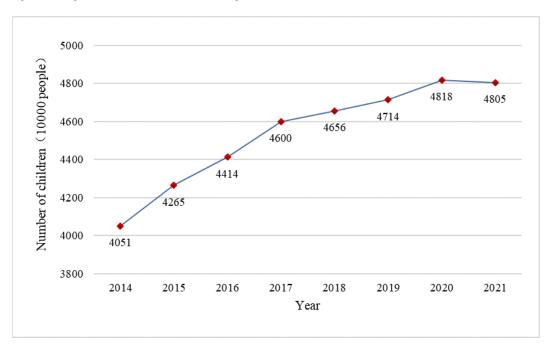


Figure 3. Changes in the number of children in kindergarten in China, 2014-2021



(1) Utilize internet technology to enhance the level of information technology in preschool education. Internet technology can improve the infrastructure, enrich multimedia teaching resources, promote the sharing and utilization of information resources, and improve the efficiency and quality of educational management. For example, He (2021) introduced the current situation, problems, and

- strategies of preschool education informatization construction in the context of Internet Plus and believed that informatization should be used as a means to promote the equalization of education resources, the integration of information technology and preschool education activities, and the modernization of preschool education management.
- (2) Utilize internet platforms to expand the scope and forms of preschool education services. Internet platforms can break the limitations of time and space and provide diverse educational services such as online education, mobile learning, and remote tutoring, meeting the learning needs of young children and families in different regions. For example, Zhang (2016) analyzed the teaching mode reform of the preschool education specialty based on Internet Plus technology and believed that a new teaching mode with "curriculum center-project driven-ability cultivation" as the core should be constructed in combination with the characteristics of internet technology.
- (3) Utilizing internet thinking to promote innovation in preschool education concepts and models. Internet thinking is a user-centric, data-based, value-sharing, and change-driven mindset. It can inspire and drive innovation in preschool education, promote the transformation and optimization of concepts and models. For example, Xiao-mei (2019) discussed the reform of preschool teacher education in the context of the Internet Plus era and believed that modern science and technology, humanistic spirit, artistic literacy, and preschool teacher education should be effectively integrated to improve the professional quality and innovation ability of preschool teachers.

The above practical exploration indeed provides new technical support, resource platforms, and development opportunities for preschool education innovation, but there are also some issues that need further consideration. First, although internet technology can enrich multimedia teaching resources and promote sharing and utilization of information resources, bolstering the quality and effectiveness of these resources remains a challenge. Therefore, it is necessary to strengthen the management and screening of information resources in preschool education, ensuring the authenticity, scientific credibility, and suitability of educational resources. Second, when using internet platforms to expand the scope and form of preschool education services, issues such as online security, privacy protection, and online fraud need to be fully considered. Third, although internet thinking can stimulate the inspiration and power of preschool education innovation, education itself has a profound humanistic nature. How to effectively reflect and inherit the traditional value of preschool education in the Internet Plus era is particularly important. Therefore, it is necessary to fully recognize the balance between internet thinking and the application of preschool education, to ensure that the humanistic value of preschool education can be better realized with the help of technology. The practical exploration of preschool education innovation in the Internet Plus era needs to be viewed rationally, and the advantages and disadvantages should be fully weighed in order to promote the sustainable development of preschool education. With the rapid development of information technology, the Internet has profoundly changed people's life and work style. In this context, the arrival of the this new era has also brought many new opportunities and challenges to preschool education.

The imbalance between technical level and application ability is an urgent problem to be solved. In the field of preschool education, many regions, schools, and kindergartens lack infrastructure and technical support, resulting in their inability to integrate into the Internet Plus era. This, to some extent, limits the development and innovation of education and teaching (Yang et al., 2021). At present, artificial intelligence technology is still in its early stages of development and cannot replace traditional preschool education methods. In practical applications, it is necessary to combine traditional education methods.

With the rapid development of internet technology, it is increasingly common for children to use the Internet and smart devices. Protecting children's personal privacy and information security has become an important issue. In addition, due to children's interest in the Internet and new technologies, parents are faced with the problem of how to balance their children's study and entertainment and how to manage their children's use of the Internet.

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Preschool education in the era of Internet Plus needs to pay attention to children's physical and mental health development. Although the adoption of new technology has provided more opportunities and resources, excessive reliance on the Internet and smart devices may have a negative impact on children's physical and mental health, especially for children who use electronic products excessively (Xue & Li, 2019). For example, excessive use of intelligent devices can affect children's physical functions such as vision and hearing, while excessive learning pressure and anxiety can affect children's mental health.

#### Countermeasures

The basic elements of innovation-driving development of preschool education in the Internet Plus era include three major elements: 1) a network sharing platform, 2) a network technology development team, and 3) a network education development model. In order to better cope with the above challenges and problems, preschool education should pay attention to the innovation and application of technology to adapt to the rapidly developing social and economic environment. This means that the traditional model of preschool education also needs to be adjusted from a single traditional education form to a more diversified and personalized form.

Building a professional team includes retraining existing preschool education administrators; redeploying network technology professionals; and transferring parents or community personnel to form a service-oriented integrated support team of administration, guidance, and supervision. In addition, a professional research and development team including experts and scholars in network technology development and preschool education should be established to develop knowledge packages of important educational concepts and promote them nationwide.

In this context, preschool education in this new era has gradually developed. On the one hand, education institutions and teachers have begun to actively apply information technology and the Internet, trying to effectively combine internet technology with preschool education and create some innovative teaching models and methods. On the other hand, many innovative institutions have begun to rise, and through their own advantages and characteristics have created unique models and achieved certain results.

The collaborative education and social group education models help or compensate for the shortcomings of the traditional teaching model with the shadow of collective teaching system, and ensure the transmission of advanced education concepts. The collaborative and mutual aid model is mainly based on a public network collaboration platform, presenting numerous intuitive and rich preschool education resources and information to achieve the goal of educational mutual assistance. Through the Internet, the influence of adult groups on collective education for children is brought into play, and the group education model is realized.

Only through continuous innovation and practice can we better meet the needs of parents and society, promote the healthy development of preschool education, cultivate more outstanding talents with innovative spirit and practical ability, and make contributions to the future development of the country.

# THEORETICAL BASIS OF PRESCHOOL EDUCATION INNOVATION

# **Theoretical Basis**

Preschool children have a strong curiosity, and this period in their development is the best time for them to improve their knowledge and cognitive abilities. Therefore, preschool education needs to be updated to include practical activities that will help further children's development and prepare them for more rigorous educational work. Preschool education needs innovative spirit and adaptability to keep up with the development and changes of the times (Li et al., 2019).

Innovation is a new way of thought and behavior. It is a process of reconstructing and improving existing things. Innovation means finding new methods and ideas through continuous thinking, practice, and trial, so as to create more excellent results and values. The connotation of innovation includes many aspects, the most important of which are innovative thinking mode, innovative technology, innovative products, and innovative services (Phoyen & Boonroungrut, 2021).

In preschool education, innovation refers to breaking the traditional education mode and creating a mode and environment more suitable for children's growth through innovative thinking modes and methods. Innovative educational methods include more flexible and diversified teaching methods, more creative and interactive teaching contents, and more personalized and differentiated educational programs (Agolla, 2018).

Under the current social background, preschool education innovation has become an inevitable trend. First of all, the goal of preschool education is to cultivate children's abilities in many aspects including cognition, language, social emotion, and so on. This requires constant trial and practice. Second, children's growing environment and social environment are constantly changing, which requires preschool education to constantly adapt to the changes and keep pace with the times. Third, the arrival of the Internet Plus era has provided a broader development space and more advanced educational technology and means for preschool education, which also requires continuous innovation and reform of preschool education (Hu, 2021).

# **Principles and Methods**

The principles and methods of preschool education innovation are important. First of all, preschool education innovation needs to focus on children and pay attention to their development needs and characteristics, so as to meet their diverse learning needs. Traditional preschool education pays attention to the universality of education, while preschool education innovation pays more attention to individual differences and diversity to promote children's all-round development (Zhu, 2019). This requires educators to constantly understand and master children's individual needs and performances in the teaching process, so as to better meet children's learning needs (Wagner & Dintersmith, 2015).

Second, the innovation of preschool education needs to consider teaching methods. Traditional preschool education addresses teaching through oral explanation and written training. More diversified teaching methods should be adopted. For example, electronic media, virtual reality, and other technical means make the teaching content more intuitive and interesting, thus improving children's interest and learning effect. Game-based teaching methods can be adopted to get closer to children's cognitive and emotional characteristics and stimulate their enthusiasm for learning.

Furthermore, the innovation of preschool education needs to be based on practice, as well as being problem-oriented. The innovation of preschool education is not a theoretical study of castles in the air, but a continuous exploration in practice to promote development by finding, analyzing, and solving problems. And the innovation needs to be based on cooperation and aimed at co-construction and sharing. Preschool education is a systematic project which requires the cooperation of teachers, parents, schools, and communities to jointly build and share preschool education resources and promote its innovative development.

Finally, the theoretical basis of innovation should be children-centered, put education and teaching quality as the core, and have practice and cooperation as the basis. Through the implementation of these basic ideas, we can promote the development of preschool education innovation and provide a better educational environment and educational resources for children's all-round development.

#### **Innovation Model**

The Internet has become an important part of preschool education, providing a wide range of space and possibilities for innovation. The innovative model based on the Internet has become one of the hot spots in current research, which can greatly enrich the teaching forms and meet the needs of Volume 19 • Issue 1

different families and students (Zhang & Zhou, 2021). Following are several innovative modes of preschool education based on the Internet.

The first is the online classroom mode. A network classroom uses internet technology to build a virtual teaching environment through the internet platform and realize online classroom teaching. In the field of preschool education, an online classroom is a more free and flexible learning method. It also better meets the needs of parents and their work schedules (Zhao, 2019). Through online teaching, students can receive education anytime and anywhere, and teachers can manage and master students' learning situation more easily.

Second is the game-based learning mode. The gamification learning mode integrates game elements into learning, making learning more interesting, meaningful, and effective. In preschool education, the game-based learning model can improve students' enthusiasm and interest in learning and promote students' initiative and creativity. For example, using virtual game scenes, students can learn knowledge and skills in the game and improve the learning effect (Xin & Yuan, 2019).

The final mode we discuss is the mobile learning mode. Mobile learning uses mobile terminal devices such as smart phones and tablet computers to access learning platforms from any location. In the field of preschool education, mobile learning provides students with a more convenient learning method, so that students can receive education in various environments such as family, community, and public places. Teachers can also update the curriculum and materials at any time through the mobile learning platform (Azorín, 2020).

# INNOVATIVE STRATEGIES FOR PRESCHOOL EDUCATION IN THE INTERNET PLUS ERA

# Give Full Play to Scientific and Technological Advantages

In the era of Internet Plus, the development of science and technology has become an important driving force for preschool education innovation. Institutions and educators should seize the opportunity of information integration and scientific and technological innovation, give full play to the advantages of science and technology, and promote the innovation of preschool education (Luo, 2021).

Institutions can establish an information platform for preschool education and provide various forms of learning resources including online courses, teaching videos, and interactive teaching materials. These resources can be published and used through internet platforms and mobile applications, which is convenient for both children and parents. These institutions can also develop various interesting educational games for children to stimulate their interest and motivation in learning (Chen, 2023).

Additionally, preschool education institutions should use artificial intelligence technology to customize personalized education programs according to children's interests and abilities. Through big data analysis and a deep learning algorithm, children's learning behavior can be tracked and analyzed, providing more scientific and accurate guidance for preschool education.

Finally, institutions should strengthen information security and privacy protection to ensure that children's personal information cannot be leaked and abused. It is also necessary to pay attention to the safety of children's use of the Internet, strengthen network security education, and improve children's self-protection ability.

# **Innovate Teaching Method**

The innovation of teaching methods in preschool education has become particularly important (Rajaram, 2021). In this era, the teaching method does not refer to a single classroom teaching setting, but covers more educational resources, technology, and services.

The following points outline the teaching method innovation of preschool education in the era of Internet Plus from multiple angles (Liu et al., 2022).

- (1) The innovation of integrated teaching methods. Integrated teaching refers to a teaching method that combines traditional teaching with modern information technology. In preschool education, the use of integrated teaching methods provides children with richer educational resources and experiences in various forms, and make education more personalized and in-depth. For example, by means of digitalization and multimedia, various educational resources can be integrated and presented to children in a more diversified way, so as to enrich children's learning content and enhance their interest. Through network technology, synchronous teaching in different places can be realized, so that children can learn and explore in a broader knowledge space.
- (2) Innovation of interactive teaching methods. Interactive teaching refers to the communication and interaction between students and teachers or between students and peers in the teaching process. This method can enhance students' interest in learning, improve their learning effect and self-control ability, and enhance their innovative thinking ability and teamwork spirit. In the era of Internet Plus, the continuous development and popularization of educational technology provides better technical support and means for interactive teaching. For example, using online learning platforms and social media can facilitate communication and interaction between students. And teachers can better manage students' learning situation and provide personalized support. The scale of online education users in China from 2014 through 2022 is shown in Figure 4.

# **Promote the Reform of the Education System**

In the development of preschool education, there is a need to promote the reform of the educational system, optimize the allocation of educational resources, and improve the efficiency and quality of educational services.

First, the establishment of public preschool education resource sharing platforms, integration and optimization of various education resources, and improvement of resource utilization efficiency is necessary. These platforms can be established at different levels according to different standards,

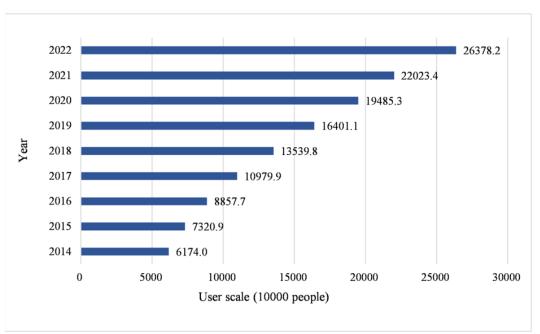


Figure 4. Online education users in China, 2014-2022

forming multi-level network ties between urban and rural areas, villages and towns, transnational, kindergarten, family, community, maternal and child health centers, kindergartens, children's hospitals, universities, education authorities, and other departments to achieve information interaction and sharing. It is also vital to strengthen the regulation and supervision of preschool education institutions and educators to ensure the quality and safety of educational services.

Second, it is essential to strengthen the construction of the public service system for preschool education and improve its inclusiveness and equality. The government should increase investment in preschool education, expand its coverage, and promote the balanced development of resources.

Finally, strengthening the connection between preschool education and other education stages, and establishing a mechanism and platform for connecting education needs to be addressed. The connection between preschool education and primary and secondary school stages is extremely important and plays a decisive role in children's growth and development. Therefore, it is necessary to establish a linkage mechanism between preschool education and other stages of education, strengthen the linkage between educational content and teaching methods, and the linkage between the teaching staff. It is also necessary to establish an information sharing platform for preschool education and other education stages, promote the sharing and utilization of resources, and facilitate the seamless connection of children.

For a long time, in China's education system, the preschool system has been in a weak position due to minimal financial investment. The gap in funding for preschool education between China and developed countries, and among those in the Asia Pacific region, is large. Before 2010, the percentage of preschool education funds in China's overall education funds has hovered around 1.3%. Increasing government investment in preschool education can reduce future education costs, social service costs, and health care investment costs. In the construction of the public service system for preschool education, the government should increase investment and provide educational subsidies and preferential policies for children with financial difficulties. In addition, the government should formulate relevant policies to encourage social forces to participate in the development and construction of preschool education to improve its view of importance in society.

Parents can establish good interactive relationships with preschool institutions and teachers, understand their children's performance and needs, and discuss educational issues and solutions with teachers. Parents should stay tuned to their children's learning situation, keep abreast of their children's progress and problems, collaborate with teachers, and provide personalized educational services for their children.

The innovation of preschool education in the era of Internet Plus requires the joint effort of the government, schools, and families to achieve all-round innovation in technology, education, and management. Only in this way can we better meet the developmental needs of children and promote the continuous improvement of the quality and level of preschool education. Several studies have shown the positive impact of technology on early childhood education, particularly in promoting personalized and diverse learning (see, e.g., Drigas & Papanastasiou, 2014; Kokkalia et al., 2017). Our research has added new content to this research field through in-depth understanding of the specific strategies and methods of early childhood education innovation in the Internet Plus era. We further explored the theoretical basis of early childhood education innovation such as constructivism and sociocultural theory and discussed how these theories can be applied in the context of Internet Plus early childhood education. In general, we believe that our research provides important enlightenment for policy makers, educators, and parents to promote innovation in early childhood education in the Internet Plus era.

#### CONCLUSION

In the Internet Plus era, preschool education faces new opportunities and challenges. In this paper, we take the innovation-driven development strategy of preschool education in the Internet Plus era

as the research object, analyze the current problems faced by preschool education, expound upon the theoretical basis of preschool education innovation, summarize the practical exploration of preschool education innovation in the Internet Plus era, and put forward the strategies and paths of preschool education innovation.

The development of preschool education requires a focus on children, paying attention to their physical and mental development and characteristics, adopting a variety of teaching methods, and creating an interesting learning environment. We should strengthen technological innovation, apply new technologies and tools, develop and utilize high-quality preschool education resources, and improve the effectiveness and quality of education and teaching. Moreover, preschool education needs to optimize educational management, establish a scientific and effective management mechanism and evaluation system, and improve the quality of education and the level of teachers. It is necessary to strengthen the construction of the public service system, improve inclusiveness and equality, and promote the balanced development of resources. Finally, preschool education should be connected with other stages of education. A complete education system should be established from preschool education to achieve an organic connection between preschool and compulsory education, laying a solid foundation for the comprehensive development of children.

Limitations of this research include the sample size and the scope of the study. The research was conducted on a limited number of participants and in a specific geographic area, which may limit the generalizability of the findings.

Additionally, the study focused primarily on the use of technology in early childhood education and did not explore other factors that may impact outcomes. Assumptions and constraints included the availability of technology and resources, as well as the willingness of educators and parents to adopt new approaches. The success of the proposed strategies may depend on these factors and further research is needed to address their impact. Future research should explore the effectiveness of specific technologies and approaches and the role of cultural and socioeconomic factors in early childhood education. It is also important to develop and implement comprehensive assessment tools to measure the impact of technology on learning outcomes. Efforts should be made to promote collaboration and knowledge sharing among educators, researchers, and policy makers to support ongoing innovation and improvement in early childhood education.

#### **AUTHOR NOTE**

There is no known conflict of interest to disclose.

The figures used to support the findings of this study are included in the article.

This work was not supported by any funds.

The author would like to express sincere thanks to those who have contributed to this research.

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Hongxia Cai was born in Zhumadian, China, in 1979. She received her master's degree from Henan University, where she studied from 2008 to 2011. She currently works at the Zhumadian Preschool Education College. She has published four papers, and her research interests include preschool and teacher education.