

Research on Strategies for Promoting High-Quality Education for Young Children through Artificial Intelligence Technology

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Abstract: Artificial intelligence (AI) technology has been developing rapidly recently. High-quality early childhood education has become the key focus of preschool development in current educational reform, and the integration of AI technology can bring new opportunities for progress in teaching practice that traditional methods cannot achieve. We examine the practical situation of early childhood education. Also, we outline the key principles of how AI can be adapted in this field based on current research and practical requirements that teachers face every day when they try to use new technologies in their classrooms. We analyze the compatibility logic and selection criteria. At the same time, we examine how AI applications align with children's physical and mental development in the education scenarios, which is very important for ensuring the teaching quality and safety in preschool education when technology is introduced to young learners. The study examines the value of AI for the physical education of young children. We propose some implementation strategies, such as optimizing AI application models, enhancing teacher competencies, strengthening full support for child development, and building a holistic support system that can work together to improve the overall effect of AI applications in preschools. These measures can support the deep integration of AI with early childhood education, overcome the limitations of traditional approaches, and drive the sector toward high-quality, personalized, and intelligent development that can meet the diverse needs of different children. It is worth noting that this can provide strong support for children's holistic growth and well-being in the long term when the system is implemented and maintained by professional teachers.

Keywords: Artificial intelligence; Early childhood; High-quality education

Online publication: June 8, 2026

1. Introduction

Early childhood education is an important stage. It can help the physical and mental growth of young children and lay the foundation for their life development. The quality of this stage is expected to affect the full growth and future development of young children, and this is why we should pay attention to it ^[1]. As artificial intelligence technology becomes popular, many new products for early childhood education are

emerging. These products can bring new vitality to education reform. Also, they provide new ideas to break through the limitations of traditional early childhood education. The traditional early childhood education has problems with scene adaptation and management efficiency. It is worth noting that the personalized supply is insufficient. Therefore, it is hard to meet the individual development needs of young children and the demand for high-quality education. In fact, artificial intelligence technology has advantages in convenience. It is precise and can be personalized. So we can use it in various aspects of early childhood education. It helps innovate the educational scenarios and teaching forms. Plus, the management models can be improved. Therefore, we should examine the core essence of adapting artificial intelligence to early childhood education. It is also necessary to explore its value in supporting physical education for young children. Then we can find feasible implementation paths. This can promote the high-quality development of early childhood education. Also, it can support the full growth of young children.

2. The core essence of adapting artificial intelligence to early childhood education

2.1. Based on the core of artificial intelligence adaptation

Early childhood education is about the daily life and growth needs of young children. It includes many related parts. Teaching activities are the core scenario, and we focus on children's cognitive enlightenment and interest cultivation ^{[2][1]}. It is worth noting that ability exercise is also considered. Through fun interactions, we guide children to understand nature and perceive art. They can develop language at the same time. The form is flexible and matches children's cognitive rhythm and it can help learning. The life care scene runs through the daily life of young children in the kindergarten. It includes details such as diet, nap time, and grooming. We focus on cultivating living habits and caring for physical health. It can provide a comfortable environment with good safety for their growth. The scenario of home-school coeducation connects children's growth in the kindergarten and at home. It conveys information about children's growth and communicates educational concepts. Also, it can consolidate the power of the home school to assist children's growth. Children can develop in a consistent educational atmosphere. In fact, the safety management scenario focuses on the personal safety of children in the park. It includes environmental inspections and monitoring of children's activities. We can avoid safety hazards and safeguard the healthy growth of children.

2.2. Adapting to the needs of early childhood education

Not all artificial intelligence technologies can be used in the field of early childhood education. We should screen the technology types, and those that do not conform to developmental laws of young children based on their growth characteristics and educational needs should be excluded ^[3]. The artificial intelligence technology suitable for this field should have easy operation and strong interactivity. It is worth noting that it should have high safety without adverse guidance, and it should match the cognitive level and interests of young children. Intelligent interactive technologies can help cognitive enlightenment through forms such as voice and animation for young children, and intelligent monitoring technology can capture real-time activity status of young children and provide feedback on abnormal situations, which is expected to help their safety ^{[4][2]}. Also, personalized companionship technology can push appropriate enlightenment content based on the interests of young children, and it can meet their personalized growth needs. Complex operations and obscure content are not suitable for early childhood education scenarios, and technologies that may have adverse effects on the visual and mental development of young children should be excluded. In fact, those

with reliance on complex algorithms and a lack of humanistic care need to be excluded.

2.3. The compatibility between artificial intelligence technology and the physical and mental development of young children

Young children grow in obvious stages. Their body and mind change in special ways and we should make sure the application of artificial intelligence technology can match these features so that it can play a role in helping children grow. It is worth noting that this adaptability can be seen in how children react and change during their growth. Children's cognitive development is fast at this stage. They cannot focus for a long time but they are curious about new and interesting things. Adaptive AI technology can use vivid forms to get children's attention and stimulate their desire to explore. Also, it avoids making them feel resistant or tired. Young children's hands-on ability and language skills are improving. The adapted technology should balance fun and education, exercise various abilities in interaction, and it should not burden physical development or violate the laws of mental development. In fact, adaptive technology can respect individual differences of young children, allow them to participate in interactions at their own pace, fit the growth speed and interests of different children, and integrate technology into the process of young children's growth. It becomes a helper for full development. It is not just a tool.

3. The value implications of empowering high-quality development of preschool physical education with artificial intelligence technology

3.1. Empowering young children to upgrade their physical education and parenting concepts

We try to help young children upgrade their physical education and parenting concepts. AI technology can be used in early childhood physical education. It can help break limitations of traditional parenting cognition and inject new ideas into this field. Adults can view the physical growth of young children from a more scientific and full perspective^[5]. It is not limited to simple physical exercise. Also, we should focus on coordinated development of physical fitness, sports interests, and other literacy aspects, which can make parenting concepts more in line with laws of physical and mental development, and physical education is expected to serve the growth of young children and nourish the foundation of their healthy growth^[3]. In fact, this new concept has freed early childhood physical education from limitations of singularity and places greater emphasis on coordinated development of body and mind, allowing every child to receive full nourishment in physical education and laying a solid foundation for future healthy growth. It is worth noting that physical education is an important component in helping children achieve full development. Then, the development of early childhood physical education can move towards a more scientific and reasonable direction.

3.2. Precise adaptation to personalized growth of children's sports

Young children's sports growth is personalized. Each child shows different physical conditions and interests, and their athletic talent is also different. We use AI technology to capture these individual differences. It can avoid the traditional one-size-fits-all model. By sensing the physical performance and condition, tailor-made sports growth plans are created for each child, allowing them to participate in activities at a pace that suits them, which helps improve sports ability and stimulates their potential. Then they embark on their own path of sports growth. It is worth noting that this model respects the uniqueness of young children. It makes

the physical education flexible and adaptable. Every child can find confidence in sports activities, and their physical literacy and full abilities are improved. And every child can achieve self-breakthrough, growth, and progress in physical education.

3.3. Building an intelligent management system for preschool physical education

We try to build an intelligent management system for preschool physical education using artificial intelligence technology, which can avoid the complexity and limitations of traditional models that have existed for many years in the field and caused many problems for teachers when they want to manage the class. Also, we form a system with good efficiency. It has accurate performance and full coverage. This management system covers all aspects of early childhood physical education, achieving an intelligent connection throughout the entire process of sports activities, and we can monitor children's conditions in real time, so that feedback on teaching effectiveness is obtained immediately by the system. It makes the physical education management more targeted^[4]. It is expected to be efficient, providing solid management support for the high-quality development of early childhood physical education so that every child can grow up in an orderly and scientific sports environment. In fact, the environment should be scientific and orderly. The intelligent management mode simplifies the tedious process and allows educators to devote more energy to early childhood physical education teaching itself, and they can pay attention to the growth status of each child in the class, which is expected to help promote high-quality early childhood physical education. Also, it provides strong guarantees for the orderly development.

3.4. Expanding the practical dimensions of preschool physical education

We examine how AI technology can expand practice dimensions of early childhood physical education. It can bring new possibilities to this field. This can enrich the forms and contents of physical education. We use a sports and health monitoring system. In fact, children's physical condition can be monitored in real time and this is expected to ensure the safety of sports activities, so children can participate in physical exercise in a safe environment. By using gamified learning experiences, we can stimulate children's interest in sports activities. Physical exercise becomes lively. Also, they can develop interests in sports. Through personalized teaching and activities, the individual needs of young children can be met. Each child receives sports guidance that suits them. By using virtual physical education scenes, we can break spatial limitations and the boundaries of physical education are expanded. It is worth noting that children's sports experience can be enriched and the efficiency of physical education is improved through intelligent management. We can make early childhood physical education more diverse.

4. Implementation paths of artificial intelligence technology promoting high-quality education for young children

4.1. Optimizing the application mode of artificial intelligence

We should optimize the application mode of AI in early childhood education. Technology itself should be improved so that it can better fit the real needs of kindergartens. Enterprises should be guided to focus on the physical and mental characteristics and understand their cognitive laws and growth needs. They should develop AI education products with low cost and easy operation. These products should have no negative guidance. Then, more kindergartens can introduce and use them without difficulty. They can play a positive

role without investing too much manpower and resources. At the same time, by combining the development needs of children's health, language, society, science, and art, we aim to build a diverse model that integrates technology with teaching, management, and home-school coeducation. This can help technology integrate into all aspects of early childhood education. It is not just a simple tool. Also, we should increase technical support for kindergartens in rural and remote areas, because these areas often lack resources and need help to catch up with urban kindergartens, and they require special attention from the government and society^[5]. By simplifying the operation process and reducing the cost, high-quality AI education resources can cover more children. This can help achieve balanced development. Every child can enjoy the educational dividends brought by technology. Technology should become a powerful force to promote high-quality development of early childhood education, and enable children in different regions to achieve full growth under the empowerment of intelligent technology.

4.2. Enhancing teachers' artificial intelligence literacy

Preschool teachers are key implementers for integrating AI technology into early childhood education. We should enhance their AI literacy. In fact, their literacy and abilities can affect the effectiveness of technology application and can help determine if young children can benefit from technology use in the long term. To build a full training system with different levels, targeted AI training should be carried out based on the basic level and actual needs of teachers, because different teachers have different starting points. We should avoid a single training mode. The training focuses on improving technical operation skills, teaching design skills, and how to integrate technology with teaching so that teachers can use intelligent technology to carry out teaching activities and design teaching plans suitable for young children. At the same time, we should establish a communication and sharing platform to encourage teachers to share experiences and insights in AI education practice. They can learn from each other. Through communication and discussion, they can broaden their thinking and enhance their abilities, and they can draw on excellent practical cases to optimize their own teaching methods. We also need to guide teachers to establish a correct concept. It is worth noting that teachers should have a clear understanding of the auxiliary role of AI. They should not rely too much on technology. This can avoid ignoring their own educational leading role. Also, they should not resist the development opportunities of technology application. We should achieve human-machine collaboration in teaching. We use technology to serve teaching. This can help teachers carry out early childhood education work and play a positive effect of technology in this field. Also, it promotes the continuous improvement of the quality of early childhood education.

4.3. Strengthening support for the comprehensive development of young children

We should use AI technology to support the full development of young children, and the technology should meet their growth needs and help them through the whole process of growing up. With AI big data analysis, we capture the learning characteristics and interests of young children, and we can understand the individual differences of each child to create personalized learning plans so that education can match their individual differences and each child can grow at their own pace. It is worth noting that each child has different developmental needs. At the same time, we integrate AI technology with the five major areas of early childhood education, and we use new teaching methods to enrich the teaching forms. This can break the limitations of traditional models and make activities more interesting. It is expected to attract young children to participate in learning and help them achieve full development in health, language, and society, as well as

in science and art. Also, we should clarify the application boundaries of AI technology. This can avoid the adverse effects of technology abuse on children's growth. In fact, we should focus on cultivating children's interpersonal skills and hands-on practical abilities while using technology to carry out education and children can achieve physical and mental coordinated development under the empowerment of technology. This is expected to achieve full and healthy growth and lay a solid foundation for future development.

4.4. Building a comprehensive support system

Building a full support system is important for orderly AI technology application in early childhood education. We need a sound support system to make technology applications standardized and efficient, and it can serve high-quality education for young children. We can strengthen information security protection for young children and establish a sound information protection mechanism. Also, we should standardize data collection and use the process of AI products because clarifying the boundaries of data use is important. It is worth noting that safeguarding the privacy and security of young children makes technology applications more secure and reliable, so parents and educators can avoid worries. At the same time, we use AI technology to build a convenient home-school communication platform. It helps break down the barriers of home-school collaboration. Parents can understand the learning and growth status of their children in the kindergarten in time. Also, we can guide parents to have a correct understanding of AI education. They can participate in early childhood education. A strong educational synergy of home-school collaboration can be formed, so children can receive consistent educational guidance both in the kindergarten and at home. Also, it is necessary to establish a scientific evaluation system for AI education applications. We can track the effectiveness of technology applications in real time and adjust application plans based on the growth needs of young children. In this way, technology applications can always meet the needs of early childhood education. It can provide guarantees for high-quality education of young children and promote the integration and healthy development of AI technology and early childhood education.

5. Conclusion

Artificial intelligence technology is developing very fast. This brings new chances for high-quality early childhood education. When AI is integrated with early childhood education, it can break limitations of traditional methods and promote innovation in education concepts, teaching forms, management models, and evaluation methods that can improve the overall quality of the education system in practice. We discuss basic principles of adapting AI to early childhood education. Also, we examine the value in supporting high-quality development of physical education for young children and propose an implementation path to optimize technology application, enhance teacher literacy, strengthen support for full development of young children, and build a support system. It is worth noting that this can help achieve precise adaptation of the AI technology to early childhood education. The application of AI in early childhood education can meet the personalized growth needs of young children. It can help develop high-quality and intelligent early childhood education. Also, it can provide support for the full and healthy growth of young children. In fact, as AI technology updates, its application in early childhood education is expected to become more mature in the future, promoting the development of higher-quality early childhood education.

Disclosure statement

The author declares no conflict of interest.

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