Proceedings of the 2023 International Conference on Machine Learning and Automation
DOI: 10.54254/2755-2721/32/20230206

Ethical research on the artificial intelligence training system for preschoolers under the guidance of child-centered theory

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Abstract. In recent years, with the rapid development of artificial intelligence technology, early childhood artificial intelligence training systems have gradually been applied in the field of education. However, there is still a lack of systematic research and exploration on the ethical issues of artificial intelligence training systems for young children. This study is guided by the child-centered theory and aims to explore the ethics of artificial intelligence training systems for young children, and propose corresponding solutions. Firstly, the development status and ethical issues of artificial intelligence training systems for young children were analyzed through literature review. Then, based on the principle of child centeredness, an ethical evaluation was conducted on the design and use of artificial intelligence training systems for young children. Finally, specific suggestions were proposed to protect children's rights and promote their development in the early childhood artificial intelligence training system, and future research was prospected.

Keywords: child-centered theory, early childhood artificial intelligence training system, ethical research, children's rights, children's development.

1. Research background and purpose

1.1. Child-centered theory and its application in education

Child-centered theory is a theoretical perspective based on the rights and needs of children, emphasizing the centrality of children in education and social development, and promoting their comprehensive development by respecting their rights and paying attention to their needs and interests. In education, child-centered theory guides child-centered educational practices, including the application of the following aspects: firstly, respecting children's subjectivity. Children are considered to have the ability to think independently, express themselves, and participate in decision-making. Educators establish equal cooperative relationships with children, fully respecting their opinions and ideas. Secondly, pay attention to the developmental characteristics of children. The physical and mental development of children has certain patterns and differences. Educators need to understand the cognitive, emotional, and social development characteristics of children, teach them according to their aptitude, and provide suitable learning environments and resources. Thirdly, protect the rights and interests of children. Children enjoy a series of rights in the education process, such as receiving equal educational opportunities, being respected, and being protected from abuse and discrimination.

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Educators should take measures to ensure that children's rights are effectively protected. Finally, cultivate children's awareness of participation and provide personalized support and assistance. Children are encouraged to participate in school and community affairs by participating in decision-making, expressing opinions, and showcasing their abilities, cultivating their sense of participation and responsibility, and enhancing their self-confidence and social adaptability [1].

1.2. Concept and development of artificial intelligence training systems for young children

The early childhood artificial intelligence training system refers to an educational tool or platform designed and developed specifically for young children using artificial intelligence technology, aiming to provide a personalized, interactive, and autonomous learning environment, promoting the cognitive, language, emotional, and social development of young children. With the rapid development of artificial intelligence technology, artificial intelligence training systems for young children are constantly emerging and widely used. The artificial intelligence training system for young children can provide personalized learning content and paths based on their learning needs and levels, helping them better develop and learn. The system interacts and communicates with children through various media forms such as images, sounds, and videos, arousing their interest and participation, and stimulating their learning motivation [2]. The early childhood artificial intelligence training system encourages young children to actively explore and learn, provides opportunities and resources for self-directed learning, and cultivates their self-directed learning and thinking abilities. The system can monitor young children's learning progress in real-time, provide timely feedback and guidance based on their performance and needs, and help them correct mistakes and deepen understanding. The artificial intelligence training system for young children not only focuses on cognitive development, but also integrates educational content from multiple fields such as language, emotion, and social interaction, promoting the comprehensive development of young children. The development of artificial intelligence training systems for young children is based on research on the laws of children's development and exploration of the application of artificial intelligence technology. By combining artificial intelligence technology with theories in fields such as child psychology and education, the artificial intelligence training system for young children continues to innovate, providing more effective and interesting learning experiences for young children. At the same time, this field still faces a series of challenges such as technological maturity, ethics, and privacy protection, which require further research and regulation [3].

1.3. Research purpose and importance

This study aims to conduct an in-depth study on the ethics of artificial intelligence training systems for young children, guided by the child-centered theory. By evaluating and analyzing the design, application, and impact of early childhood artificial intelligence training systems, this study explores how to protect children's rights and promote their development, and proposes corresponding solutions and suggestions.

The popularization and use of artificial intelligence training systems for young children may involve ethical issues such as children's privacy, data security, and information protection. Studying the ethics of early childhood artificial intelligence training systems can help formulate relevant policies and regulations to ensure that children's rights are fully protected The design and application of artificial intelligence training systems for children need to consider their cognitive, emotional, social and other developmental needs. Studying ethics can help optimize systems and ensure that they have a positive impact on children's learning and development, rather than a negative impact. The application of artificial intelligence in the field of education has great potential, but it also faces ethical challenges. By conducting ethical research on early childhood artificial intelligence training systems, reference and guidance can be provided for artificial intelligence education in other fields, promoting the sustainable development of artificial intelligence education. The artificial intelligence training system for young children may play an important role in both schools and families [4].

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2. The principles and values of child-centered theory

2.1. The core principles of child-centered theory

The core principle of child-centered theory is to place children at the center, respect and pay attention to their rights and needs. The following are several core principles of child-centered theory:

1. Respect the subjectivity of children: Children are seen as subjects with the ability to think independently, express themselves, and participate in decision-making. Their opinions and voices should be fully listened to and respected, and educators should establish equal cooperative relationships with children.

2. Pay attention to the developmental characteristics of children: Children's physical and mental development has certain patterns and differences. Educators need to understand children's cognitive, emotional, and social development characteristics, and provide corresponding learning support and guidance based on their individual differences.

3. Protection of children's rights: Children enjoy a series of rights in the education process, such as equal educational opportunities, respect, protection from abuse and discrimination. Educators should take measures to ensure that these rights are effectively protected.

4. Cultivate children's sense of participation: Children are encouraged to participate in school and community affairs, and cultivate their sense of participation and responsibility by participating in decision-making, expressing opinions, and showcasing their talents. Educators should provide opportunities for children to actively participate.

5. Provide personalized support and assistance: Children oriented education emphasizes personalized attention to each child. Educators should provide corresponding support and assistance based on children's needs and learning characteristics, to stimulate their learning potential and development abilities.

2.2. The importance of children's rights, participation, and inclusion

The principles and values of child-centered theory focus on children's rights, participation, and inclusion, emphasizing that children should be respected, listened to, and included in education and society. Children are independent individuals who enjoy a range of rights. The child centered theory emphasizes that children's rights should be protected and respected, including equal educational opportunities, physical and psychological protection, and freedom of speech. The importance of children's rights lies in ensuring their health, safety, and development, and providing them with equal opportunities. Children have the right to participate in social affairs and decision-making processes. Their viewpoints and opinions should be fully listened to and respected. By encouraging children to participate in decision-making, express opinions, and showcase their talents, it is possible to cultivate their sense of participation and responsibility, and enhance their confidence and autonomy. The child centered theory advocates for full attention and tolerance to the individual differences of each child. Educators should provide personalized support and assistance based on the needs and learning characteristics of children, ensuring that every child can realize their potential and achieve success. The importance of child inclusion lies in establishing a diverse and inclusive educational environment, allowing every child to have the opportunity to receive fair and just education. By adhering to the principles and values of children's rights, participation, and inclusion, we can promote the comprehensive development and growth of children. These principles and values provide guidance for educators, families, and society, guiding them to pay attention to children's rights and needs in educational practice, ensuring that children have positive learning experiences and a good development environment. At the same time, respecting children's rights, promoting their participation and inclusion are also key factors in building a more fair and equal society.

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3. Ethical considerations for the artificial intelligence training system for young children

3.1. Privacy protection and data security

Ensuring privacy protection and data security is a very important ethical consideration in the design and application of artificial intelligence training systems for young children. The personal privacy of young children should be fully protected. The system should take appropriate technical measures to ensure the legality and security of collecting, storing, and processing personal information of young children. Educators and developers should clearly inform young children and their parents about the purpose of data collection and use, and obtain legal consent. The data generated by children using artificial intelligence training systems needs to be securely protected to prevent unauthorized access, use, or leakage. The system should have advanced data encryption and storage measures, and appropriate technical measures should be taken to prevent data from being damaged or tampered with. When possible, the system should adopt Data anonymization or de identification to process children's data to reduce the risk of personal identification information. This will help reduce the risk of personal information abuse among young children. Children and their parents should understand how the system collects, uses, and processes child data, as well as how this data will be shared. The system design should provide accessible privacy policies and clear data usage regulations, while allowing young children and their parents to access, correct, and delete personal data. Educators should take responsibility for protecting children's privacy and data security when using artificial intelligence training systems for young children.

3.2. Child participation and authorization

In the design and application of artificial intelligence training systems for young children, child participation and authorization are important ethical considerations. Early childhood artificial intelligence training systems should encourage children to participate in the learning and use process. The system design should make children feel interested and engaged, and stimulate their learning motivation through interactive and personalized methods. The design and use of the system should respect children's decision-making rights. Children should be empowered to set learning goals, choose learning content and methods, and have the right to decide whether to continue using the system. Due to the fact that young children may not be able to fully understand and evaluate the risks and impacts of using artificial intelligence training systems, explicit authorization from parents or guardians is required. Parents or guardians should understand the functionality, data collection, and usage of the system, and have the right to decide whether children should use the system. The system design should strive to protect the personal information security of young children. Educators and developers should take appropriate measures to ensure that children's personal information is not accessed, used, or leaked without authorization. At the same time, the system should also allow children and their parents to access, correct, and delete personal information. Children and their parents should have transparency and comprehensibility in the system's functions, working principles, and data usage. The system design should provide an easy to understand and clear interface and explanation, so that young children and their parents can understand the impact of the system on their learning and data. By considering children's participation and authorization, it is possible to ensure that young children fully participate in the use of artificial intelligence training systems and protect their rights and privacy. Educators and developers should establish transparent and trustworthy communication channels, actively communicate and cooperate with children and their parents, ensure that the use of the system complies with ethical and legal regulations, and provide children with a good learning experience.

3.3. Emotional recognition and attitude shaping

Emotional recognition and attitude shaping are ethical considerations in the design and application of artificial intelligence training systems for young children. The artificial intelligence training system for young children may recognize and analyze their emotions through methods such as sound and images. However, emotional recognition for young children should be based on reasonable methods and

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guidelines, and ensure respect for their privacy and personal space. Artificial intelligence training systems often influence young children's emotions and attitudes through interaction and feedback. When designing a system, special attention should be paid not to excessively interfere or shape the emotions and attitudes of young children, in order to avoid affecting their autonomy and authenticity. Designers and users of early childhood artificial intelligence training systems should find a balance between educational goals and commercial interests. The system should not be used for excessive marketing or manipulation of young children's emotions, but should prioritize education as the primary goal. In the process of emotional recognition and attitude shaping, attention should be paid to and respect for the diversity and individual differences of young children. The system design should fully consider the impact of different cultures, backgrounds, and values on emotions and attitudes, to avoid generating bias or discrimination. Children and their parents should have sufficient transparency in how the system identifies emotions and shapes attitudes. The system design should provide clear explanations and interfaces to enable them to understand and participate in this process. By considering ethical issues related to emotional recognition and attitude shaping, it can be ensured that the use of artificial intelligence training systems for young children is in accordance with ethical principles and children's rights. At the same time, educators and developers should also establish mechanisms to monitor the emotional recognition and attitude shaping functions of the system, ensuring its legitimacy and effectiveness, in order to maximize the development of positive emotions and attitudes in young children.

3.4. Fairness and social impact

In the design and application of artificial intelligence training systems for young children, fairness and social impact are important ethical considerations. The artificial intelligence training system for young children should ensure equal opportunities and resources for all young children. The system design should avoid bias and discrimination, and should not unfairly evaluate or treat young children based on race, gender, social status, or other factors. The training data of artificial intelligence systems may have bias or bias, which may lead to unfair results when treating young children. Measures should be taken in system design to identify and correct these biases, ensuring fair and objective results. The use of artificial intelligence training systems for young children has an impact on society, so it is necessary to consider whether these impacts are positive, beneficial, and in line with social values. The system should encourage positive social interaction and cooperation, and avoid potential negative impacts such as increased competition and isolation. The artificial intelligence training system for young children should provide diverse learning content and methods, and promote multiple aspects of their development, such as cognition, language, emotion, and social interaction. The system design should focus on the overall educational goals and the comprehensive development of young children, rather than just focusing on narrow skill training. Children and their parents should have transparency and comprehensibility in the feedback and evaluation provided by the system. The system design should provide clear guidelines and explanations to ensure that the feedback and evaluation process is fair and objective, and to enable young children and their parents to understand and participate. By considering ethical issues of fairness and social impact, it can be ensured that the use of artificial intelligence training systems for young children is fair and ethical. Educators and developers should actively pay attention to these issues to ensure that the design, use, and evaluation of the system are fair, reasonable, and have a positive social impact. At the same time, regular ethical reviews and social impact assessments should be conducted to ensure continuous improvement and social recognition of the system.

4. Conclusion and suggestions

4.1. Conclusion

This ethical study on the artificial intelligence training system for young children, guided by the child-centered theory, delves into the ethical principles and values in system design and application. By

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evaluating and analyzing the design, use, and impact of early childhood artificial intelligence training systems, we have come to the following conclusion: firstly, in the design and application of early childhood artificial intelligence training systems, it is necessary to fully respect and protect children's rights, including privacy protection and personal data security. The system should encourage children's participation and autonomous learning, and provide personalized support and assistance to promote their comprehensive development and self realization. Secondly, the system design should be transparent and understandable, allowing children and their parents to understand how the system operates, how data is collected and used, and enhancing trust in the system. At the same time, the system design should consider children's diversity and individual differences, avoid bias and discrimination, and promote an equal and inclusive learning environment.

4.2. Suggestions

1. Strengthen privacy protection and data security: Designers and developers should take appropriate technical measures to ensure the security and privacy of children's personal information are fully protected. In addition, there is a need to strengthen legal and policy protection.

2. Emphasis on children's participation and autonomous learning: The system design should fully consider children's awareness of participation and autonomy, provide personalized support and encouragement, and provide opportunities for children to actively participate and learn.

3. Improve the transparency and comprehensibility of the system: The system design should provide clear interfaces, explanations, and mechanisms to enable children and their parents to have a clear understanding of the system's functions, operating methods, and data usage.

4. Focus on diversity and inclusivity: System design should consider children's diversity and individual differences, avoid bias and discrimination, promote an equal and inclusive learning environment, and respect different cultures and values.

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