

Research on the path of AI to help reduce the burden and increase efficiency of primary and secondary education

Xianfei Ke

Abstract—Artificial intelligence (AI) technology is widely used in four core areas: intelligent teaching system (classroom behavior analysis and teaching strategy adjustment), personalized learning platform (personalized learning route planning and accurate resource delivery), intelligent evaluation tool (automatic scoring ability and real-time tracking of learning situation), and VR/AR virtual on-site education, which significantly improves the efficiency of primary and secondary school education, promotes differentiated learning practices, and effectively improves student participation. The main problems in the current promotion process include insufficient equipment resources, insufficient digital literacy of teachers, data scattering, "island" situation, and biased algorithms. Many difficulties need to be solved, and a comprehensive response plan should be formulated: improve top-level planning, coordinate the allocation of regional funds and the use of special funds; Eliminate data barriers, help create an open sharing and exchange platform, and promote industry-university-research collaboration to carry out research and improvement; Initiate the implementation of teacher training plans by level and category, focusing on supporting backward schools; Formulate a data security supervision system and establish an algorithm fairness evaluation system. The next development trend will focus on emotional communication and support, cross-disciplinary innovation, and high-quality resource sharing and sinking, so as to better achieve the strategic goals of educational equity and quality improvement.

Index Terms—Artificial Intelligence and Education; Reduce Burden and Increase Efficiency; Intelligent Teaching System.

I. INTRODUCTION

In recent years, the application research of artificial intelligence (AI) in the field of education has shown a significant growth trend. Many empirical studies have shown that the proper use of AI technology can greatly improve students' learning enthusiasm and academic performance, and can also significantly reduce the teaching burden of teachers. At present, although AI technology has made preliminary attempts in primary and secondary education, it still faces many problems to achieve large-scale promotion, such as high technology investment costs, limited teacher capacity, and ethical privacy risks. With the help of innovative teaching models such as gamified learning and virtual reality technology,

AI can transform abstract knowledge into more interactive and interesting teaching resources, thereby effectively improving students' classroom participation and optimizing learning effects(Nemani, 2025). Artificial intelligence-enabled educational games rely on the contextualized teaching concept, skillfully integrate the main knowledge points into the narrative, and encourage students to actively use the knowledge they have learned in interactive activities to solve problems, to achieve efficient knowledge absorption. It allows students to intuitively perceive the practical application scenarios of knowledge, which further stimulates their interest in learning and improves the overall teaching effect.

The research framework of this paper is as follows: firstly, the four major application scenarios of AI in primary and secondary education (intelligent teaching system, personalized learning platform, intelligent evaluation tool, and VR/AR teaching) are systematically sorted out, and the application effect is verified by combining empirical cases such as domestic Ape AI and Chengdu No. 7 Central and Eastern Schools. secondly, it analyzes the existing challenges from the four dimensions of "hardware-teacher-data-ethics", paying special attention to the disadvantages that AI may cause students to over-dependence; Finally, based on localized cases, a systematic path of "top-level design-data integration-teacher training-ethical supervision" is proposed, which is different from the existing policy-oriented review research, and highlights the original contribution of "case-driven + quantitative support".

II. THE APPLICATION STATUS OF 2.AI IN PRIMARY AND SECONDARY EDUCATION

2.1 Research on classroom behavior analysis and teaching strategy optimization

The intelligent teaching system relies on artificial intelligence technology to conduct in-depth analysis and comprehensive evaluation of multi-dimensional data such as student performance, homework completion, and classroom behavior.

Taking the intelligent teaching platform used by a primary school as an example, the system can collect and store students' learning status information (such as attention allocation, interactive participation, etc.) in real time, and then adjust the difficulty of the course in a timely manner

according to the students' learning situation. Relying on accurate data feedback, teachers can identify weak links in teaching in a timely manner and take corresponding remedial measures to improve curriculum planning. Once the system finds that students generally have difficulty understanding a certain knowledge point, teachers can adjust their teaching strategies in time, use some typical examples or more novel teaching methods to deepen students' understanding of knowledge, improve their learning effect, and then improve the quality of teaching.

2.2 Adaptive learning path and precise resource push strategy

The personalized learning platform relies on artificial intelligence technology to deeply analyze the key elements of students' learning behavior, knowledge mastery, and ability development. Taking the personalized learning system of the empirical results of Xiaoyuan AI at the China Service Trade Fair as an example, the platform will integrate students' initial assessment information with their usual learning path to tailor a learning plan for each user(Wei & Liu, 2023). During the learning period, the system can keep abreast of students' mastery of various knowledge points and progress trends, and then adjust the difficulty of the course in a timely manner according to these situations, and accurately push learning materials such as appropriate practice questions and teaching videos. This approach fully meets the needs of individual differences and significantly improves the overall learning effect and efficiency.

In order to verify the actual supporting role of adaptive learning paths in "reducing burden and increasing efficiency", empirical cases of domestic education technology enterprises provide a quantitative basis. The figure below compares the core efficiency indicators of Ape AI and the traditional learning model, which shows that AI significantly shortens the time of ineffective practice by accurately matching learning conditions, and at the same time improves students' willingness to actively learn.

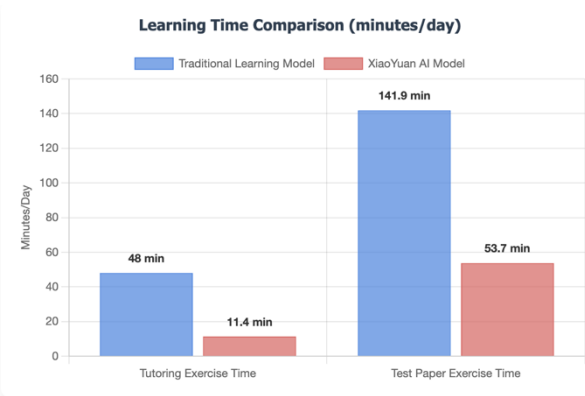


Figure 1 Comparison of learning duration

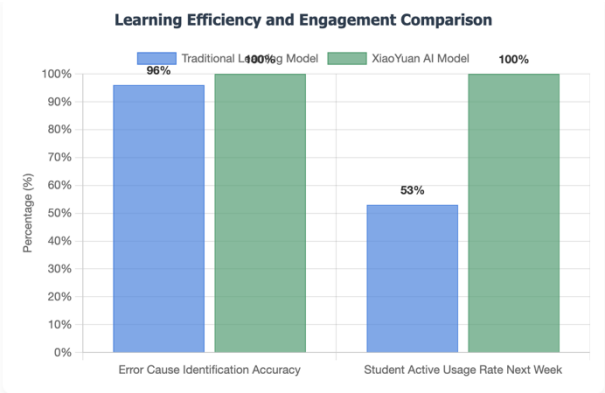


Figure 2 Learning Efficiency and Engagement Comparison

Indicator	Traditional Learning Model	XiaoYuan AI Model	Improvement/Reduction	Sample Description
Tutoring Exercise Time (minutes/day)	48	11.4	Reduced by 76.25%	Random sample of primary and secondary students n=2000
Test Paper Exercise Time (minutes/day)	141.9	53.7	Reduced by 62.16%	Random sample of primary and secondary students n=2000
Error Cause Identification Accuracy	96%	Close to 100%	Significantly Improved	All-subject homework correction data
Student Active Usage Rate Next Week	53%	Close to 100%	Significantly Improved	Platform user behavior statistics

Table 1 Empirical data on the optimization of the AI adaptive learning path of Xiaope (Data source: Jintai Information, 2025)

In summary, it shows that the optimization of Xiaope's AI adaptive learning path has significantly improved in key indicators compared with the traditional learning mode: the teaching aid and test paper practice time have been shortened by 76.25% and 62.16% respectively, and the accuracy of error cause localization and the active use rate of students are close to 100%. In terms of interactive experience, it supports mouse hover to view data, legend click to switch display, and adopts responsive design to ensure optimized browsing effects on different devices. The overall data is clearly labeled, fully reflecting the positive impact of AI technology on learning efficiency.

2.3 Automatic correction and academic situation diagnosis

The intelligent assessment system integrates natural language processing and machine learning technology to automatically assess students' academic performance. It can accurately identify and label grammatical errors, spelling mistakes, and logical problems in the composition, and give detailed feedback and scoring. Its main function is to comprehensively and objectively analyze students' academic performance, and then form a learning report covering many aspects such as knowledge mastery and ability growth path, providing data support for teachers' decision-making(L. Kong et al., 2025). This tool greatly reduces the workload of teachers' manual review, allowing them to focus more on improving instructional design and developing personalized instructional

plans, thereby improving the quality of education and promoting the healthy growth of students.

2.4 VR/AR scenario-based teaching

Virtual reality (VR) technology has brought an innovative learning model to the field of primary and secondary education. Relying on special equipment, students can more deeply integrate into multi-dimensional teaching situations. In the history subject, with the help of VR devices, students can "immerse" themselves in specific historical scenes and truly feel the atmosphere of that era; In science classes, students deepen their understanding by visually observing the motion trajectories of planets in the solar system or the internal structure of cells in virtual scenarios(Y. Kong, 2021). Such an immersive teaching method not only stimulates students' desire for knowledge, but also significantly improves students' academic performance and comprehensive quality.

The scenario-based benefits of VR/AR technology can be further verified by student engagement data. The chart below shows that after the introduction of VR interactive teaching in Beijing No. 2 Experimental Primary School, core indicators such as students' active questioning rate and reading time have increased significantly, confirming the stimulating effect of AI technology on students' learning initiative.

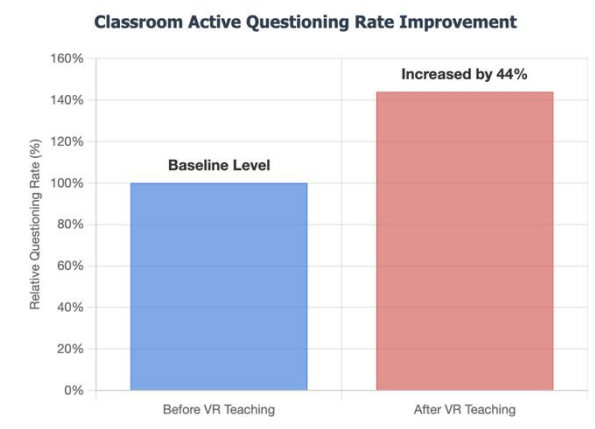


Figure 3 Comparison of the increase in the rate of active questioning in the classroom

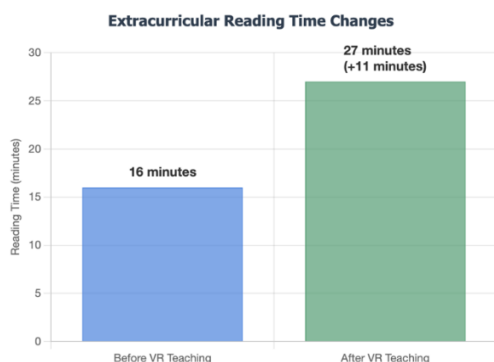


Figure 4 Comparison of changes in extracurricular reading time

Indicator	Before VR Teaching	After VR Teaching	Improvement	Explanation
Preschool Children's Active Questioning Rate	Baseline Level	Increased by 44%	+44%	Through Robots + VR Scenario Teaching
Daily Extracurricular Reading Time (Primary/Middle School Students)	16 minutes	27 minutes	+11 minutes (68.8% growth)	VR scenarios stimulate interest
Student Recognition of VR Teaching	-	89%	-	Believe VR scenarios "help understand abstract knowledge"

Table 2 Comparison of student participation before and after VR teaching in Beijing No. 2 Experimental Primary School (data source: Digital China Construction Summit, 2025).

The chart intuitively shows the significant increase in student participation of Beijing No. 2 Experimental Primary School after "robots into the campus + VR scene teaching", among which the active questioning rate of preschool children increased by 44%, the extracurricular reading time of students increased by 11 minutes (growth rate of 68.8%), and the students' recognition of VR teaching reached 89%; At the same time, the charts have practical interactive functions (mouse hover to display detailed data, legends can click to toggle the show/hide of data series) and responsive design (can automatically adjust the layout on different screen sizes and optimize the display effect on mobile devices), all data is directly marked on the chart, making it easy to understand the positive impact of VR teaching on students' learning enthusiasm.

III.AI CORE ADVANTAGES OF EDUCATION

3.1 Reduce teachers' repetitive labor

After artificial intelligence technology has been widely used in the field of education, the efficiency of education management has been significantly improved. Relying on intelligent teaching platforms and automated evaluation tools, large amounts of teaching data can be quickly processed and repetitive tasks such as homework grading and grade statistics can be completed, which can free up more time and energy for teachers. Based on this, teachers can pay more attention to core matters such as curriculum design, learning situation analysis, and personalized guidance(Afifah et al., 2022). Through the in-depth mining of teaching big data, the AI system can not only provide teachers with accurate teaching suggestions, help teachers optimize classroom teaching plans, assist teachers in making decisions, but also improve the quality of education and improve teaching effectiveness.

The substitution effect of AI technology on teacher repetitive labor can be quantified through data from regional educational practices. The figure below takes the digital intelligence homework system in Jinniu District, Chengdu as an example, showing the effect of AI on shortening teachers' working hours in the three major links of homework correction, lesson

preparation, and paper grouping, providing empirical support for "burden reduction".

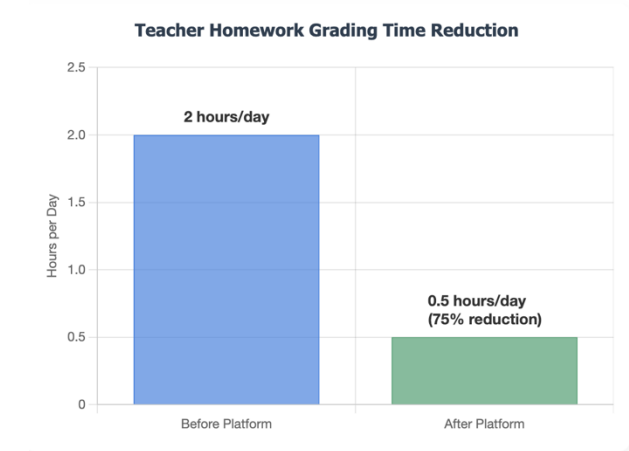


Figure 5 Comparison of teachers' homework correction time shortened

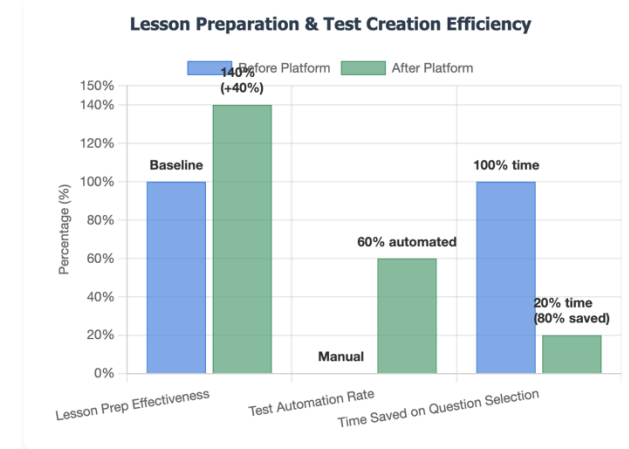


Figure 6 he efficiency of lesson preparation and paper organization has been improved

Indicator	Before Implementation	After Implementation	Improvement
Homework Grading Time (hours/day)	2 hours	0.5 hours	75% reduction
Lesson Preparation Effectiveness	Baseline	40% improvement	+40%
Test Creation Automation Rate	Manual process	60% automated	60% automation
Manual Question Selection Time	100% time required	20% time required	80% time saved

Table 3 Implementation effect of personalized "smart workbook" in eastern schools of Chengdu No. 7 Middle School (Data source: China Education News Network, 2025)

Jinniu District has achieved efficiency improvement through the smart education cloud platform, including a 75% reduction in homework correction time (from 2 hours to 0.5 hours/day), a 40% increase in lesson preparation, a 60% increase in paper automation rate, and an 80% reduction in manual topic selection time; At the same time, the chart has the interactive function of mouse-hover display of detailed data, the interactive function of clicking the legend to switch the show/hide data series, and the responsive design of

automatically adjusting the layout under different screen sizes and optimizing the display effect on mobile devices.

3.2 Teach students according to their appropriateness and adjust dynamically

Through in-depth mining and analysis of learning behavior data, the intelligent system can accurately grasp the cognitive characteristics, strengths and weaknesses of students, and then plan targeted teaching plans and course content. This improves the overall learning efficiency and self-efficacy, and the system can monitor the dynamic changes in the learning process at any time, feedback the learning results in a timely manner, and promote the internalization of knowledge and optimize the learning path.

3.3 Gamification and contextual design

With the help of novel teaching forms, such as gamified learning and virtual reality, artificial intelligence technology transforms boring knowledge content into attractive interactive experiences, which greatly stimulates students' enthusiasm for classroom participation. Represented by AI-driven educational games, which integrate learning objectives into stories, prompt students to use what they have learned to solve practical problems in game scenarios, and unconsciously deepen their understanding of knowledge, these games often have instant feedback and reward mechanisms, which can arouse students' sense of competition and satisfaction, and then mobilize their enthusiasm for active learning(Ahmed, 2024). Virtual reality technology creates an immersive teaching environment for students, allowing them to intuitively feel the practical application value of knowledge, thereby stimulating students' interest and participation in learning.

IV KEY CHALLENGES FACED

4.1 Insufficient hardware investment and infrastructure

The application of artificial intelligence technology in the field of primary and secondary education needs to rely on the support of hardware equipment and software platforms, but there are still many problems such as technology investment and infrastructure construction, schools in economically underdeveloped areas are often unable to purchase AI-related equipment, and it is difficult to bear the follow-up maintenance costs, the normal operation of the AI system must have a stable network environment and a complete information technology support system, but some remote schools have poor network conditions and cannot meet the basic needs of technology application. These situations collectively limit the promotion and development potential of AI technology in primary and secondary education.

4.2 Lack of training system

To give full play to the potential of artificial intelligence technology in primary and secondary education, teachers need

to continue to improve their digital literacy and professional skills to achieve the effective use of intelligent tools.

Nowadays, many primary and secondary school principals lack knowledge accumulation and technical support related to the field of artificial intelligence, and their understanding of artificial intelligence technology is obviously insufficient. Although a few teachers show a strong desire for knowledge, they still face many difficulties in teaching practice due to the lack of systematic training resources. Establishing a sound scientific training mechanism to improve teachers' digital literacy and artificial intelligence operation ability is a major task to promote the application of AI technology in basic education(Yang et al., 2021). At present, the field of artificial intelligence education is dominated by technology companies, and the participation of educational institutions is low. In the research on the deep integration of robots and education, most of the relevant achievements are robot-driven teaching models, focusing on cultivating students' inquiry spirit, practical ability and operational skills through robots, while there is little research on how to reduce the burden on teachers and students and improve the learning experience.

4.3 Data scattering and algorithmic bias

In our country, artificial intelligence education is in an important period of transformation from assistance to value creation, and a complete personalized application ecosystem has not yet been established. Its development difficulties are mainly concentrated in two aspects: first, the integration of data resources is low and scattered; Second, there is a lack of data governance system, resulting in uneven data quality, low credibility, and rising secondary development costs.

Especially for primary school students, when deploying AI systems on a large scale, from information collection, storage to analysis, etc., people's continuous attention to the rationality of ethical norms and privacy security protection has aroused people's continuous concerns, and related concerns have become increasingly prominent(Acevedo, 2025). In this case, any potential safety hazards may have a serious impact on the legitimate rights and interests of this group. The latent bias of AI algorithms can undermine the objectivity and fairness of students' academic performance evaluation and personalized recommendations(Almethen, 2024). The in-depth application of AI technology has made related ethical issues more and more prominent, such as whether over-reliance on AI will have a negative impact on students' independent learning ability and innovative thinking cultivation. It is urgent to form a complete ethical norm system and establish a regulatory mechanism to protect students' privacy rights and reasonably limit the scope of application of AI technology, which is the main issue that must be paid attention to at present.

The ethical risks of AI technology have shown the dual characteristics of 'dependency degradation' and 'algorithmic discrimination' in practice. A multinational experiment at the University of Pennsylvania showed that improper use of generative AI can significantly weaken students' ability to learn independently - although the basic AI tool improved grades by 48% in the short term, students' test scores dropped

by 17% after the tool was withdrawn, and 32% of students experienced a blunt ability to think, confirming the existence of the 'AI crutch effect'. The figure below shows how generative AI causes students' "learning dependence" and knowledge grasp deterioration (international empirical research)

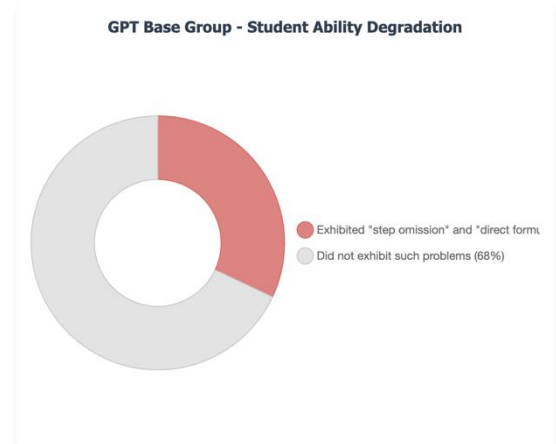


Figure 7 The ability deterioration of students in the GPT Base group

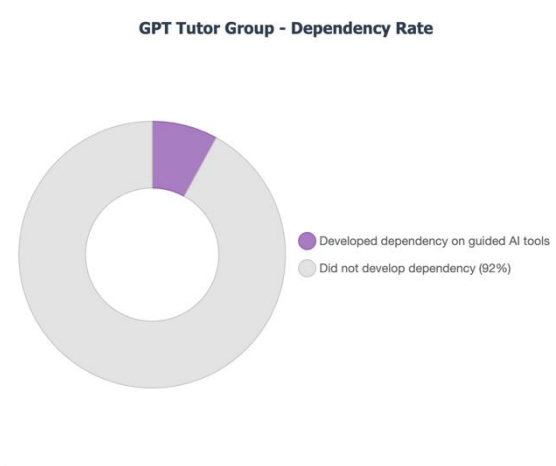


Figure 8 Dependence rate of students in the GPT Tutor group

Algorithmic bias directly impacts educational equity: due to the imbalance of training data, the admission recommendation system developed by the IIPSC in the United States has resulted in a 76% referral rate of students from low-income families to weak high schools, a gap of nearly 50 percentage points compared to students from wealthy families. Both types of cases show that AI ethical governance needs to take into account the dual dimensions of "usage guidance" and "data fairness". The high school admission recommendation system developed by the Institute for Selection and Innovation (IIPSC) in American public schools has been specially analyzed by the National Intelligent Social Governance

(Education) Characteristic Experimental Base of Peking University(Herold, 2013).

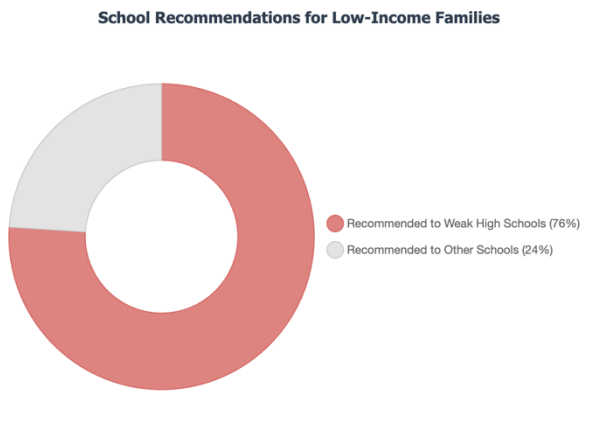


Figure 9 Distribution of recommended schools for students from low-income families

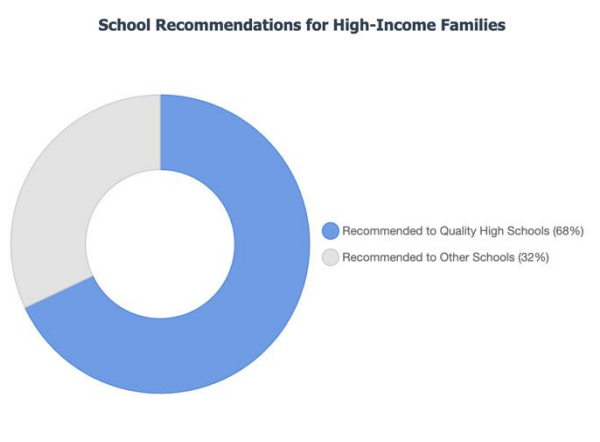


Figure 10 Distribution of recommended students from high-income families

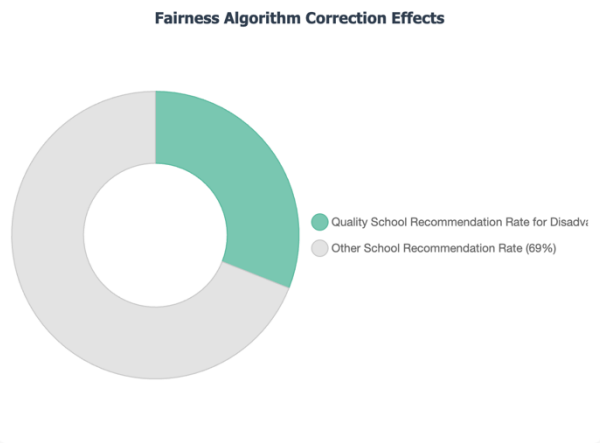


Figure 11 Correction effect of fairness algorithm

Fig. 11

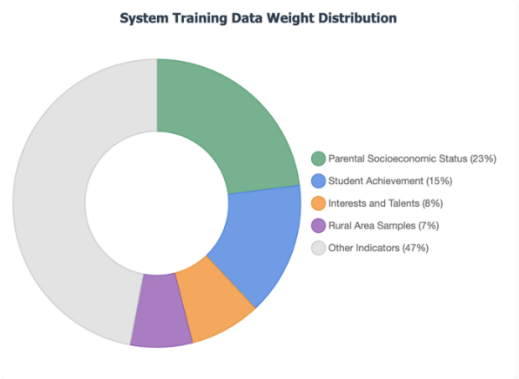


Figure 12 Weight distribution of system training data

In summary, the problem of algorithmic bias in the education system and the correction effect after the introduction of the fairness constraint algorithm are as follows: 76% of low-income families recommend weak schools, 68% of high-income families recommend high-quality schools, 23% of parents have a weight of socioeconomic status, and only 7% of the sample in rural areas, while the corrected recommendation rate of high-quality schools is 31%.

V. SYSTEMATIC DEVELOPMENT COUNTERMEASURES

5.1 Top-level design and policy support

5.1.1 Formulate regional development plans

Build a systematic top-level design framework to promote the coordinated development of education big data and artificial intelligence. According to the development plan and actual needs of Changsha's education industry, the "Guiding Opinions on the Integration and Application of Education Big Data and Artificial Intelligence in Changsha" is formulated to clarify the rights and responsibilities of the government, schools, enterprises and individuals in data collection, processing, storage, and sharing, and improve the whole life cycle management system of education data, covering key links such as data collection, cleaning, analysis, mining, and application(Gerlich, 2025). At the same time, it will promote universities, research institutes, and enterprises to strengthen cooperation, focusing on the scientific collection, in-depth analysis and innovation of machine learning algorithms of student learning behavior data, and developing intelligent tools such as "Doctor maths" to achieve accurate evaluation of students' academic performance and provide personalized learning plan suggestions.

5.1.2 Establish specialized industrial funds

Set up the "Education Big Data Industry Guidance Fund" to support leading education enterprises to establish industry-finance collaboration mechanisms(Chou et al., 2022). Use market-oriented means such as equity financing of smart education enterprises to integrate capital market resources,

promote the deep integration of the smart education industry chain, and build an internationally competitive core cluster of the domestic smart education industry.

5.2 Data integration and ecological construction

5.2.1 Build a sharing platform to solve the problem of data silos

Breaking down data barriers and promoting the open, sharing and deep integration of educational data resources, Changsha became a national pilot city for education informatization reform in 2018(Wu et al., 2022). Taking this opportunity, Changsha City strives to promote the standardization and standardized development of education data, clarify data management responsibilities, build a cross-departmental and multi-level educational data resource sharing platform, and systematically sort out the data resources of various educational institutions at all levels to achieve comprehensive data optimization and accurate governance, so as to promote the efficient collaboration and comprehensive application of business data within the education system.

5.2.2 Establish industry-teaching-research alliances

Create the "China Big Data and Artificial Intelligence Education Industry Maker Alliance" to help its sustainable development(Davis, 2024). Government departments should work closely with the alliance to jointly establish the "Smart Education Industry Expert Advisory Committee" and the "Smart Education Technology Innovation Research Base" and formulate the "Smart Education Industry Development Report", "Smart Education Technology Specification Guidelines" and "Smart Education Innovation and Entrepreneurship Evaluation Standards", so as to improve the industrial planning and performance evaluation mechanism.

5.3 Teacher training and resource balance

5.3.1 Hierarchical training system

Establish a systematic AI education and training framework for teachers, and form a comprehensive curriculum plan according to the differences in rank and actual needs, and the relevant training content should cover the basic principles of AI, technical operation methods and application scenarios, and interdisciplinary integration applications. The online part provides digital data support and interactive communication functions(Cheshmehzangi & Tang, 2024)to promote self-learning and experience exchange, and the offline link deepens the understanding of professional knowledge through expert lectures, special seminars, practical training, etc., and integrates the results of artificial intelligence training into the teachers' work performance evaluation system, which is linked to job promotion, so as to enhance the enthusiasm to

participate in training and drive the continuous improvement of their own skills.

5.3.2 Tilt support weak schools

The government should increase financial investment and support for artificial intelligence education, set up special funds to fund schools to purchase hardware equipment and software resources, so as to significantly reduce implementation costs, rely on incentives to promote in-depth cooperation between science and technology enterprises and basic education institutions, develop suitable products according to the characteristics of primary and secondary education, and provide services to target groups at reasonable prices to ensure that artificial intelligence technology achieves comprehensive coverage and regular application in primary and secondary schools.

5.3.3 International case reference

Singapore's "Smart Education Program" - AI-driven cross-regional balance of teachers and resources. In 2023, Singapore's Ministry of Education launched the "Smart Education Program" to build a national educational resource database through knowledge graph technology, supporting an AI teacher training system, and focusing on solving the problems of "urban-rural teacher gap" and "insufficient resource adaptation". The Education Statistics Summary (ESD) provides essential statistics on education in Singapore. It includes statistics on schools, enrollment rates, teachers, educational outcomes, employment outcomes, and finances.



Figure 13 Comparison of teacher training, resource balance and fairness indicators in Singapore

International practice provides a replicable paradigm for AI-empowered teacher training and resource balance, and Singapore's "Technology Toolkit + Graded Training" model is a typical example - this model not only promotes the improvement of teacher capabilities through customized AI training toolkits (such as teaching adaptation modules for teachers of different subjects), but also relies on resource balancing AI algorithms to optimize the allocation of

educational resources, from the perspective of specific quantitative results, its primary school teacher-student ratio is 15.2, middle school teacher-student ratio is 12.6, and the average class size of primary school is controlled at 33.6 students. The proportion of P1 cohorts admitted to universities, polytechnics, and ITE (Singapore Institute of Technology Education) is 42.9%, 48.5%, and 26.1% respectively, and the relevant charts reflecting the above-mentioned resource allocation and further education path selection can provide intuitive data support for education policy formulation and resource optimization and adjustment, which not only enriches the practical dimension of AI-enabled education balance, but also provides "hierarchical teacher training" and "resource tilt support" in the paper. and other countermeasures provide international empirical reference.

5.4 Ethical supervision and standard construction

5.4.1 Data security regulations

Build a systematic legal system for data security and privacy protection, clearly define the boundaries of power and responsibility of educational institutions and enterprises for the collection and processing of student information, ensure the security of data storage and transmission, and improve the ethical review system of artificial intelligence education products (Dieterle et al., 2024). Implement strict algorithm technology evaluation of application software within the scope of basic education to ensure the fairness and interpretability of algorithm design, so as to effectively prevent the risk of bias, strengthen the supervision of intelligent education tools, establish an independent professional supervision organization, regularly carry out comprehensive inspections of the application status on campus, quickly deal with ethical compliance issues, increase investment in public data literacy education, and improve the data security awareness and privacy protection level of teachers, students and parents.

5.4.2 Algorithm review mechanism

Promote the close integration of education big data research and application, create a core industrial ecosystem around education big data, rely on the built big data industrial park, plan a separate education big data functional area, rely on policy encouragement, financial support and other means, promote more capital to join and gather senior talents, bring together the strength of education, management, computer science, statistics and other disciplines, carry out collaborative research and development on key issues and technical difficulties in the application of education big data, and accelerate the transformation and promotion of scientific research results. In accordance with the national education development master plan, establish a cross-regional data sharing system, strengthen basic theoretical research, improve

decision-making support capabilities, and build a professional think tank with international influence on education big data.

VI. FUTURE PROSPECTS

6.1 Affective computing and interdisciplinary integration

With the help of affective computing technology, the system can instantly detect students' mood fluctuations (anxiety, tiredness or excitement), adjust the teaching plan according to the student's emotional state, and once learning fatigue is detected, it will automatically give interesting content or arrange appropriate rest periods, thereby improving learning outcomes and satisfaction. The system will also combine students' learning process with knowledge mastery to formulate personalized teaching plans and learning materials to provide more accurate support for educators.

Artificial intelligence technology is booming, the achievement of personalized learning experience has been strongly supported, can create accurate educational resources and support systems for individual differences, rely on the continuous tracking of students' learning behavior data and in-depth analysis, intelligent algorithms can continue to improve the teaching plan, so that it meets the characteristics of students at different stages, in the actual teaching process, the system can adjust the course content and its difficulty level according to instant feedback, to ensure that students are always within the appropriate cognitive test range, With interdisciplinary integration, artificial intelligence helps students break through the constraints of a single discipline and achieve the integration of multi-faceted knowledge, so as to cultivate their comprehensive quality and sense of innovation.

6.2 Resource sinking and special needs support

Artificial intelligence technology may become the main driving factor in promoting educational equity, after the online education platform combined with the intelligent assisted teaching system, high-quality educational resources can break geographical limitations and benefit more teachable people, in remote areas and rural school environments, students have the opportunity to use AI technology to obtain the same curriculum resources and services as urban children, so as to significantly narrow the gap between urban and rural education; For some students with special needs, AI technology can also implement personalized assistance solutions, such as configuring learning devices with voice interaction functions for visually impaired students, tailoring personalized improvement plans for students in need, etc., to ensure that every child can receive equal and comprehensive development opportunities. With the help of intelligent teaching systems, personalized learning platforms, virtual reality technology and other ways, AI not only improves teaching efficiency, but also enhances students' interest in independent inquiry, enhances the enthusiasm of classroom interaction, and forms a solid foundation for cultivating innovative talents that meet the needs of future social

development. At present, the promotion of AI technology in primary and secondary education still faces many problems such as insufficient technical investment, lack of teacher capacity, ethics and privacy protection, and it is urgent for the government, schools, enterprises and all sectors of society to work together to explore scientific and effective ways to solve existing problems.

VII. Conclusion

With the continuous development of artificial intelligence, its application fields continue to expand, and will be more widely used in primary and secondary school teaching in the future, artificial intelligence will be more deeply integrated into the field of primary and secondary school teaching, and artificial intelligence will develop towards intelligence, personalization and fairness. As a tool for teachers to carry out teaching work, artificial intelligence can tailor personalized learning plans for students, and to a certain extent, it can also promote the balanced allocation of educational resources and contribute to the fair development of educational resources. In the face of the development of AI technology, the education sector should seize the opportunity to tap the potential of AI technology to achieve sustainable development of primary and secondary education.

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