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Exploration and thinking on the new paradigm of AI empowering talent cultivation

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Abstract: With the rapid development of artificial intelligence and other new technologies, the higher education with the goal of talent training is experiencing unprecedented changes. Artificial intelligence has brought new opportunities and challenges to talent training. The purpose of this paper is to discuss how AI can empower talent cultivation, and put forward thoughts and suggestions on building a new paradigm of AI enabling talent cultivation. Through the actual case analysis, this paper shows the remarkable achievements of AI technology in improving teaching efficiency and quality, promoting personalized learning, optimizing education resources, building intelligent education system, promoting lifelong learning habits, cultivating interdisciplinary comprehensive ability. The research work provides important theoretical and practical guidance for the future development of higher education.

1. Introduction

With the continuous progress of information technology, artificial intelligence has become a key force to promote the change in all fields of society. Education, as the cradle of cultivating future talents, it is urgent to apply AI technology to innovate the traditional talent training mode. AI-enabled talent training can not only improve the quality and efficiency of education, but also promote students' personalized development and the formation of lifelong learning ability. Therefore, exploring how AI plays a role in the field of education is of great significance for building a new paradigm of talent training that meets the needs of future social development.

The development of AI technology has gone from rule-driven to data-driven to the current deep learning stage. At present, artificial intelligence technology has been widely used in various fields and has achieved remarkable results. In the field of education, the application of AI is also increasing. From robot intelligent auxiliary tools to customized learning platforms, AI technology is gradually changing the way of teaching and learning. In the traditional talent training mode, teachers are taken as the center and the transmission of knowledge and students' memory ability are emphasized. However, with the advent of knowledge economy and the improvement of social requirements for innovation ability, this model has gradually been unable to meet the needs of modern society. Modern education pays more attention to cultivating students' critical thinking,

problem-solving ability and lifelong learning ability. The introduction of AI technology provides the possibility for this transformation, enabling more personalized and efficient talent training through intelligent teaching and management means.

AI enabling education has great advantages for the problems existing in traditional education, such as unbalanced resources, lack of personalized education, and heavy burden of teachers. A series of advances have been made in AI-enabling education. Zhao Yuxin et al.[1] integrated artificial intelligence technology into the teaching, and built an iterative professional system and curriculum system of observation, judgment, decision and execution, so as to improve teaching efficiency and boost the development of new quality productivity. Liu Junxia et al.[2] took AI-powered computer network courses as the research object, carried out the research on undergraduate teaching reform with the goal of cultivating students' innovation ability. The research has important theoretical and application value for improving teachers' teaching level and students' innovation ability. Liu Yidong et al.[3] proposed the establishment of an objective AI evaluation system to promote the transformation from academic education to ability education. Combining the advantages of AI technology, Lin Jieru[5] has built a personalized innovation training education platform including learning path recommendation, intelligent tutoring, innovation practice, etc., aiming at improving students' learning efficiency and the innovation ability. Lin Peiyuan et al.[5] analyzed the current situation and shortcomings of civil engineering integration into AI undergraduate education in domestic and foreign universities, and put forward the reform strategy of talent training program.

Scholars have conducted a lot of research on the AI enabling talent training, and obtained a lot of achievements. However, there is still insufficient research and evaluation on the long-term impact of artificial intelligence on talent training. Most of the current research focuses on technical description and analysis of preliminary application cases, and there are relatively few studies on how AI profoundly affects educational concepts, teaching methods and evaluation system. In this study, we analyzed the current application situation of AI technology in the field of education, explored its potential and challenges in talent training, discussed how AI technology enables a new paradigm of talent training, and put forward specific implementation suggestions.

2. The construction of a new paradigm of AI-enabling talent training

2.1 Construction of an intelligent education system

The construction of intelligent education system is the key to AI enabling talent training. The intelligent education system mainly includes the intelligent teaching platform, the intelligent learning resource database, the intelligent evaluation system and other components, and each parts are combined organically to realize the optimal allocation and efficient utilization of educational resources. Through the continuous iteration and upgrading of AI technology, the education system is kept dynamic and innovative. AI technology can integrate the latest scientific research achievements and industry trends to provide students with cutting-edge discipline information. Through AI technology, students can participate in practical projects, or they can operate virtual simulation experiments which can improve students' practical ability and the innovative thinking level.

2.2 Exploration of new learning modes

Personalized learning mode is an important direction of AI enabling talent training. By analyzing students' learning behaviors and needs, AI technology provides personalized learning resources and paths to meet students' differentiated learning needs. At the same time, AI technology can also

dynamically adjust the difficulty and progress suitable for students according to students' learning ability and learning progress. The new personalized learning model enabled by artificial intelligence mainly includes the following three stages.

First, Preview before class. Using the AI teaching platform, students can obtain personalized learning resources through the intelligent preview system before class, and understand the course content in advance. The AI system provides personalized preview materials according to students' personal conditions, such as learning progress and comprehension ability so as to help students prepare for classroom learning.

Second, Classroom teaching. In classroom teaching, AI can act as an intelligent teaching assistant to answer students' questions in real time and provide immediate feedback. Teachers can use AI technology for classroom interaction, such as through the intelligent question and answer system to stimulate students' participation and improve classroom efficiency.

Third, Review after class. After class, the AI system can provide students with personalized review plans and exercises to help students consolidate their knowledge. AI can also provide teachers with students' learning details which can help teachers grasp students' learning situation and adjust their teaching plans in time.

2.3 Interdisciplinary talent training

Interdisciplinary talent training is an important trend in the AI era. AI technology provides strong support for interdisciplinary education. Through the intelligent teaching assistant, the virtual laboratory and other teaching methods, AI technology can help students to cross the disciplinary boundaries and realize the integration and innovation of interdisciplinary knowledge. At the same time, AI technology can also provide intelligent guidance and support for students' practical projects to improve students' practical ability and innovation ability.

2.4 Development of a lifelong learning ability

Lifelong learning ability is an important quality for talents in the AI era. AI technology provides intelligent learning resources and platforms, providing students with the opportunities and channels of continuous learning. AI technology can also recommend suitable learning resources and courses for students by analyzing students' learning behaviors and needs, help students maintain interest and motivation in learning, and develop lifelong learning habits and abilities.

2.5 Establishment of a variety of assessment methods

AI enabling talents training should be established with diversified assessment methods, mainly including the following aspects.

First, Regular learning and evaluation. The AI learning platform can monitor students' learning behavior and learning results in real time, and provide detailed regular learning evaluation reports. These reports include students' preview, classroom participation, homework completion, etc., providing teachers with a comprehensive student learning situation.

Second, Team experiment results. In team projects, the AI can assess the contribution and performance of each student, providing objective team experimental scores. Through the intelligent evaluation system, teachers can better understand the role and contribution of each student in the team, ensuring the fairness and effectiveness of teamwork.

Third, Final exam results. In the final exam, the AI can provide an intelligent marking and scoring system to ensure the objectivity and accuracy of the scoring. At the same time, AI can also provide teachers with students' performance analysis in exams through data analysis, and

help teachers to grasp students' learning difficulties.

3. Case Analysis of AI enabling talent training

3.1 Construction of a smart teaching platform in University of Shanghai for Science and Technology

The University of Shanghai for Science and Technology has built a smart classroom direct recording and broadcasting cloud platform, fully implemented the artificial intelligence strategy, and deeply integrated artificial intelligence technology into the links of the teaching and management. The scientific talent training program, the personalized learning mode, the digital teaching resources, the refined teaching management and the comprehensive teaching evaluation are realized through the development of education and teaching integration platform, the intelligent classroom platform, the virtual simulation experimental teaching platform. This practice and exploration not only improve the teaching quality and efficiency, but also promote the all-round development and personalized growth of students.

3.2 Pilot course of AI enabling teaching in Tsinghua University

Tsinghua University, as a leader in higher education in China, launched the "Tsinghua University AI Enabled Teaching Pilot Course Work Program" in 2023. Through the development of vertical application of large language model, diversified teaching scenarios such as intelligent teaching assistant and knowledge map are created, which has injected new vitality into higher education. This practice and exploration not only improves the efficiency and quality of teaching, but also cultivates students' innovative thinking and interdisciplinary ability.

3.3 Practice and exploration of teacher training in East China University of Science and Technology

East China University of Science and Technology focuses on the high-quality development of talent training in the era of digital intelligence, the teaching and reform of AI enabling courses. The university has held many symposiums, providing a platform for teachers to communicate and learn, and promoting their in-depth understanding of the integration of artificial intelligence technology and education and teaching. The school also works with NVIDIA to carry out a series of AI teacher training, inviting industry experts and technical backbone to teach teachers, so as to enhance teachers' initiative of the digital practice of education. Through the training, teachers can master the latest AI teaching methods and tools, and apply them to practical teaching for promoting the talent training of new quality productivity.

4. Thinking and making suggestions

First, Strengthening AI technology research and development in the field of education. The government should introduce relevant policies and regulations to promote the healthy development of AI technology in the field of education. The research and development of AI technology in the field of education should be strengthened to promote the deep integration of AI technology and education and teaching. Attention should be paid to the security problem of AI technology to avoid the illegal infringement of students' personal information.

Second, Improving teachers' ability to apply AI technology. The training of AI technology application ability should be strengthened to help teachers master the basic operation and

application methods of AI technology. Teachers should be encouraged to actively participate in the practical exploration and innovative research of AI enabling talent training to improve the teaching quality and effect; related teachers should be organized regularly to participate in professional training on AI technology to improve their ability to use new technologies.

Third, promoting the reform and innovation of the education evaluation system. The reform and innovation of the educational evaluation system should be promoted to meet the needs of the AI era. This evaluation system should pay attention to students' personalized development, the innovation ability cultivation and the social responsibility cultivation to provide strong support for students' all-round development and personalized growth. A set of scientific and reasonable evaluation index should be developed to measure the actual effect of AI-assisted teaching.

Fourth, guarantee of data security. The protection of personal information should be paid attention on to ensure that all data on AI-enabled talent training are properly managed and used. The protection of teachers and students' personal data should be carried out, and a sound data management and use norms should be established.

5. Conclusion and expectation

The application of artificial intelligence in the field of education brings new opportunities and challenges for talent training. This paper discusses the new paradigm of AI enabling talent training, mainly including establishing intelligent education system, promoting the development of personalized learning mode, strengthening the cultivation of interdisciplinary talent, cultivating students' lifelong learning ability, and establishing diversified assessment methods. Through the case analysis of AI enabling talent training, feasible suggestions are given, mainly including strengthening the research and development of AI technology in the field of education, improving the application ability of teachers' AI technology, promoting the reform and innovation of education evaluation system, and ensuring the data security in the process of artificial intelligence enabling education. In the future, AI enabling talent training will present broader prospects to serve the development and progress of human society. However, there are still many issues to be further studied in order to better achieve the goal of AI-enabled talent training. In terms of ethics, with the wide application of AI in education, how to ensure that the decision-making and behavior of AI system conform to the ethical and moral norms, is an urgent problem to be solved. In terms of technology, it is necessary to further improve the reliability and stability of AI technology and reduce the interference of technical faults to teaching. In terms of education and teaching, how to further optimize the integration of AI and teaching so that AI technology can better serve the teaching objectives, is also an important direction of future research. AI enabling talent training is a field full of opportunities and challenges, it requires the joint efforts of educators, technology developers, policy makers and all sectors of society to realize the deep combination of AI technology and talent training for cultivating high-quality compound talents.

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