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Construction and Application of College Blended Teaching System under the AI Background from the Perspective of School-Enterprise Collaboration

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Abstract: With the rapid development of artificial intelligence (AI) technology, its application in the field of education has become increasingly widespread, bringing new opportunities and challenges to the teaching reform in colleges and universities. This paper focuses on the reform of college blended teaching under the AI background, and deeply explores the construction and application of curriculum systems based on school-enterprise collaboration. By analyzing the impact of AI on college teaching, this paper expounds the importance of school-enterprise collaboration in the construction of curriculum systems, puts forward corresponding solutions to current problems, and illustrates the practical effects with actual cases. It aims to provide useful references for colleges and universities to improve teaching quality and cultivate innovative talents who meet social needs in the AI era.

Keywords: Artificial intelligence; College blended teaching; School-enterprise collaboration; Curriculum system

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1. The impact of artificial intelligence on college teaching

1.1. Providing abundant teaching resources

Artificial intelligence (AI) technology promotes the digitalization and diversification of educational resources. Through intelligent search engines and educational resource platforms, teachers can quickly obtain a large amount of teaching materials, such as multimedia courseware, virtual experiments, and case libraries [1]. These resources cover various disciplinary fields and different knowledge levels, providing sufficient materials for teachers to design diversified teaching activities. For example, in science and engineering teaching, virtual simulation experiment software can simulate complex experimental scenarios with the help of AI technology, allowing students to conduct experimental operations in a virtual environment. This not only reduces the experimental

cost but also improves the safety and repeatability of experiments. In liberal arts teaching, intelligent assisted reading tools can recommend personalized reading materials according to students' reading habits and levels, and provide functions such as intelligent translation and voice reading to enhance students' reading experience [2].

1.2. Reshaping personalized teaching and teaching methods

AI technology brings dual innovations to the field of education, both helping to realize personalized teaching and promoting the innovation of teaching methods. Traditional teaching is difficult to adapt to individual needs, while AI-based learning analysis systems can collect and analyze students' learning data (such as learning time and answer performance) in real time. This helps teachers grasp students' learning progress, knowledge mastery, and learning styles, and then provide personalized guidance [3]. Adaptive learning systems can dynamically adjust the difficulty of content according to students' answer performance, and intelligent tutoring systems can answer questions at any time, like an exclusive teacher. In terms of teaching methods, AI supports online live teaching to realize real-time interactions such as bullet-screen questions and group discussions. The flipped classroom model, which combines "online knowledge imparting + in-class problem-solving," improves students' autonomous learning and problem-solving abilities. At the same time, AI teaching tools such as smart whiteboards and smart pens make teaching more vivid, effectively attract students' attention, significantly improve the effect of classroom teaching, and comprehensively optimize the process of teaching and learning [4,5].

2. The impact of school-enterprise collaboration on college teaching

2.1. Aligning with market demands and improving practical teaching

Colleges and universities aim to cultivate high-quality talent. School-enterprise collaboration enables enterprises to deeply participate in curriculum design, integrating industry trends, technical requirements, and professional standards. Enterprise experts can also optimize courses based on job requirements; for instance, computer majors can adjust courses on programming and frameworks according to industry needs to enhance students' employability. Meanwhile, colleges and universities have limited practical resources. Enterprise workshops and R&D centers can serve as practical training bases. Students' participation in real projects helps transform theoretical knowledge into practical skills, and one-on-one guidance from enterprise mentors also assists them in transitioning into professional roles [6].

2.2. Enhancing teachers' competence and feeding back to teaching quality

Teachers' practical capabilities affect course effectiveness. School-enterprise collaboration provides teachers with opportunities to take temporary positions in enterprises, allowing them to participate in project R&D and master new industry technologies. For example, engineering teachers can introduce practical problems from enterprise projects into classrooms to cultivate students' engineering thinking.

Furthermore, teachers' collaboration with enterprise experts in scientific research can improve their own professional level and enrich teaching cases, making teaching more vivid. This ultimately forms a positive cycle of "teacher development → teaching optimization → student benefits," promoting the improvement of talent cultivation quality [7].

3. Current problems in the construction of school-enterprise collaborative curriculum systems under the AI background

3.1. Insufficient depth of technology application

Although AI technology has been applied in college teaching to a certain extent, some teachers have limited understanding and mastery of AI technology, resulting in superficial application of the technology [8]. For example, some teachers only use online teaching platforms to upload course videos and assign homework, without fully utilizing the platforms' intelligent analysis functions to understand students' learning status or using AI tools to carry out personalized teaching. In addition, when some colleges and universities introduce AI teaching tools, they lack systematic training and technical support for teachers. This makes it impossible for teachers to solve problems promptly during use, affecting the effective application of AI technology in teaching [9,10].

3.2. Inadequate depth of school-enterprise cooperation

Currently, the cooperation between some colleges and enterprises remains at a superficial level, mainly focusing on student internships and enterprise lectures. There is a lack of in-depth mechanisms for joint curriculum development and talent co-cultivation. During the construction of the curriculum system, enterprises have low participation, leading to a disconnect between curriculum content and the actual needs of enterprises. Some school-enterprise cooperation projects lack long-term and stable cooperation plans and effective communication and coordination mechanisms. Issues such as inconsistent interest demands between the two parties during cooperation affect the in-depth development of school-enterprise cooperation [11].

3.3. Lack of systematicity in the curriculum system

Under the AI background, college curriculum systems need systematic reconstruction to adapt to the development of new technologies and changes in social demands. However, the current curriculum system construction of some colleges and universities lacks overall planning, with problems such as unreasonable course settings and repeated course content. For example, some AI-related courses are repeatedly offered in different majors, but the teaching content and objectives lack pertinence and differentiation. At the same time, due to insufficient attention to emerging technologies and interdisciplinary fields, the proportion of emerging technology courses and interdisciplinary courses in the curriculum system is low, which cannot meet students' diversified learning needs and future career development requirements.

4. Construction strategies for college blended teaching curriculum system based on school-enterprise collaboration

4.1. Establishing professional teams and reconstructing content

Colleges and universities need to jointly build curriculum development teams with enterprises. The team members should include professional teachers from colleges, technical experts from enterprises, and educational technology experts. Enterprise experts provide industry cases and skill requirements. College teachers transform these demands into teaching content and design courses. Educational technology experts use AI to optimize teaching methods and resources. For example, when developing an AI course, the three parties respectively take charge of case sharing, practice design, and intelligent teaching tool development. The development of curriculum content is oriented to the job workflow. First, it conducts research on enterprise positions to identify typical tasks and competency requirements. Then, these requirements are

decomposed into learning fields and further transformed into curriculum modules. Each module must include theoretical knowledge, practical skills, and professional literacy content. Taking the software development major as an example, the curriculum is divided into modules such as demand analysis according to the workflow, and project case teaching is adopted. At the same time, AI is integrated into each module—for instance, using AI for research in demand analysis and AI automation tools for software testing.

4.2. Building an online-offline integrated teaching model

Make full use of AI technology and online teaching platforms to build a blended teaching model that integrates online and offline elements organically. Online teaching focuses on students' independent learning. Teachers release learning tasks such as teaching videos, learning materials, and online tests through the online platform, and students learn independently according to their own progress and needs [12]. Meanwhile, an AI intelligent tutoring system is used to provide students with real-time Q&A and learning guidance. Offline teaching focuses on classroom interaction and practical teaching. Teachers conduct centralized explanations and discussions on problems encountered by students during online learning, and organize activities such as group project practice and case analysis to cultivate students' teamwork and innovation abilities. For example, in the teaching of a professional course, teachers can make teaching videos for basic knowledge and theoretical explanations for students to learn online independently. In class, they can check students' learning effects through group discussions and project presentations, guide students to conduct in-depth discussions on relevant issues, and cultivate students' critical thinking and problem-solving abilities. At the same time, technical means such as virtual simulation experiment platforms and AI intelligent laboratories are used to provide students with a more realistic practical teaching environment and improve their practical operation abilities [13].

4.3. Establishing a diversified teaching evaluation system

To meet the needs of college blended teaching and school-enterprise collaborative curriculum systems in the AI context, a diversified teaching evaluation system must be developed. The evaluation subjects include teachers, students, and enterprise mentors; the evaluation content covers not only knowledge mastery but also practical abilities, innovative capabilities, teamwork skills, and professional literacy. The evaluation methods combine formative and summative assessments: the former relies on online platforms to record data such as learning duration, discussion participation, and homework completion, so as to evaluate students' learning attitudes and processes; the latter assesses learning outcomes through examinations and project result presentations. Course scores can be allocated as follows: 30% from online learning, 30% from classroom performance and homework, and 40% from project practice. The evaluation of students' internship and practical training performance by enterprise mentors serves as a key component of the practical course score. This system can comprehensively and objectively evaluate learning effects, providing support for teaching improvement and student development [14].

5. Practical case analysis of college blended teaching curriculum system based on school-enterprise collaboration

5.1. Case background

A certain college has carried out school-enterprise cooperation with a well-known software development enterprise to jointly build a blended teaching curriculum system based on AI technology. The goal is to

cultivate high-quality applied talents with a solid computer theoretical foundation, proficient AI technology application capabilities, and innovative practical capabilities. To achieve this goal, the two parties have comprehensively reformed and optimized the curriculum system based on the current industry's demand for talent and combined the advantageous resources of the college and the enterprise.

5.2. Curriculum system construction process

A joint curriculum development team was established by the college and the enterprise. The college selected experienced professional teachers, while the enterprise sent senior technical experts and project managers. Through discussions, they clarified the goals and ideas of the curriculum system construction. The team conducted in-depth research in the enterprise, analyzed the work processes of positions such as software development and data analysis, and identified typical tasks and professional capabilities. Based on this, the curriculum was divided into modules, including theoretical foundation, artificial intelligence technology, and practice. Each module designs content around work tasks and improves students' practical operation and problem-solving abilities through project cases. At the same time, an online-offline integrated teaching model was built. An online platform containing resources such as teaching videos and virtual experiments was set up, and laboratories and training bases were jointly constructed. In the classroom, difficulties were explained based on online learning content, practical activities were organized, and enterprise mentors provided regular guidance. In addition, a diversified evaluation system was established, with the participation of college teachers, enterprise mentors, and students. It comprehensively and objectively evaluates learning effects from multiple aspects, such as learning attitude and practical ability, combining process evaluation and summative evaluation, so as to provide a basis for teaching improvement [15].

5.3. Practical effects

Improvement of students' abilities: Through the implementation of the blended teaching curriculum system based on school-enterprise collaboration, students' professional knowledge and practical abilities have been significantly improved. Students have achieved excellent results in various discipline competitions and innovation and entrepreneurship activities. For example, in the statistical modeling competition, many students won national and provincial awards; in the innovation and entrepreneurship projects, the project results of students have been recognized by enterprises and society, and some projects have achieved industrial application.

Enhancement of employability: Due to the close alignment of the curriculum system with enterprise needs, students can quickly adapt to job positions after graduation and are widely praised by employers. Many students enter related fields after graduation, engaging in work related to software development, data analysis, government services, and artificial intelligence algorithm research.

Improvement of teachers' teaching level: In the process of curriculum system construction and implementation, teachers have gained a deep understanding of industry development trends and enterprise actual needs through cooperation and communication with enterprise experts, integrated enterprise practical experience into the teaching process, and enriched teaching content and methods. At the same time, teachers' participation in enterprise project research and practice has improved their own scientific research capabilities and practical abilities.

6. Conclusion and prospects

AI technology brings opportunities for the reform of college blended teaching and curriculum construction, and school-enterprise collaboration can connect with the market and cultivate talents. By establishing a cooperation team, developing curriculum content, building an integrated teaching model, and establishing a diversified evaluation system, a scientific curriculum system can be created, with remarkable practical effects. However, there are still shortcomings that need to be improved.

In the future, colleges and universities should deepen school-enterprise integration, improve the curriculum system, pay attention to AI education ethics and security, help cultivate high-quality talents, and promote the sustainable development of education.

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References

[1] Lu ZL, Yin L, Huang ZJ, 2023, Research on the "Dual e+" Government-School-Enterprise Collaborative Blended Teaching Model. Jiangsu Education, 26: 46–50.

[2] Yao Y, 2022, Exploration and Practice of Online-Offline Blended Teaching Model——With the Pedagogy of Computer-Aided Design (AI) Courses as an Illustration. Wireless Internet Technology, 19(08): 164–165.

[3] Zhang L, Wu Y, 2024, Research on the Construction of AI Intelligent Blended Advanced Mathematics Courses Based on Knowledge Graphs. Advances in Education, 14(12): 359–365.

[4] Ruan RH, Qian GL, 2025, AI Empowerment and Learning Alienation: The Dual Impact of Artificial Intelligence on Ideological and Political Course Teaching in Colleges and Universities. Education Exploration, (08): 46–51.

[5] Su XH, Miao QG, Chen WY, 2023, A Personalized Teaching Model for Improving Programming Ability Based on AI Empowerment and Industry-Education Integration. China University Teaching, 6: 4–9.

[6] Nan YX, 2024, Exploration of College English Teaching Reform in Colleges and Universities under the AI Background. East, West, South and North, 22: 0101–0103.

[7] Shan QC, 2024, Innovative Application and Practice of AI Technology in the Teaching of Computer-Related Courses in Colleges and Universities. Trendy Electronics, 11: 274–276.

[8] Feng LL, 2025, Practice and Reflection on the AI-Based Online-Offline Blended Teaching Model—Taking the Course of Linux Network Operating System as an Example. China Computer & Communication, 37(13): 242–

244.

[9] Xing Y, et al., 2024, Exploration and Practice of Industry-Education Integration Teaching Model for Artificial Intelligence Courses—Taking the “Pattern Recognition” Course of Guangdong University of Technology-Huawei Intelligent Base as an Example. Research in Higher Education of Engineering, 3: 73–78.

[10] Lei YF, 2024, Research on the Application of AIGC Technology in Higher Vocational Cultural and Creative Design Courses under the Background of Industry-Education Integration. Screen Printing Industry, 11: 102–104.

[11] Mo LM, 2021, A Brief Discussion on the Application of the Online-Offline Blended Teaching Model in Computer Basics Teaching. Computer Knowledge and Technology, 17(03): 163–164.

[12] Tang LW, Li XQ, 2024, “Artificial Intelligence +” Professional Courses in Higher Vocational Colleges in the AIGC Era: Logical Approach and System Construction. Chinese Vocational and Technical Education, (35): 3–13.

[13] Xiao L, Shan X, Deng ML, 2024, A Computer Programming Curriculum System Based on AI-Assisted Teaching. Computer Education, 7: 134–139.

[14] Xiong BQ, 2024, Establishing a Teacher Management and Evaluation System Adapted to AI + Education. Shanghai Journal of Educational Evaluation, 13(05): 42–44 + 66.

[15] Xie YB, 2024, Research on Optimization Strategies of AI Technology in the Teaching Evaluation of High School Political Smart Classrooms, 32: 27–29.

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