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Application of Intellectual Educational Technologies in Vocational Education

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Annotation. This article discusses the application of intelligent education technology in vocational education and its impact on teaching models, content, concepts, and evaluation methods. Facing the rise of the information age and the knowledge economy, educators of various countries are actively exploring and using modern information technology to innovate education to meet the needs of future social development. With the deepening of vocational education reform, how to effectively use modern education technology has become an urgent problem. The article first defines the basic concept of modern education technology, pointing out that it not only covers traditional teaching media and technical equipment, but also emphasizes learning and improvement through the establishment, use and management of appropriate technical processes and resources. On this basis, the article analyzes the specific application of intelligent education technology in vocational education, including new teaching models such as classroom multimedia combination teaching, satellite TV broadcast long-distance teaching, and Internet-based remote communication teaching. Enrich the advantages of teaching content, support personalized learning paths, and realize interactive learning. In addition, this article also discusses the positive impact and potential challenges brought by intelligent education technology. On the one hand, it greatly improves students' learning interest and efficiency, and enhanced their practical ability and innovation ability; on the other hand, it also proposes new issues such as technical dependence and data privacy protection. In order to cope with these issues, the article puts forward several suggestions for improvement and calls on all parties to work together to build a vocational education ecosystem that is both cutting -edge and full of humanistic care. Finally, this article summarizes the potential of intelligent education technology in improving the effectiveness of vocational skills training, emphasizes the importance of cultural heritage, and looks forward to the future development direction. Through the study of successful cases at home and abroad, the article shows how intelligent education technology helps to modernize vocational education, and provides new ideas and methods for cultivating high -quality professional talents.

Keywords: intelligent education technology, vocational education, campus design

1. Introduction

Background introduction

With the advent of the information age and the rise of the knowledge economy, the field of education is undergoing unprecedented changes. The development of information technology not only

changed the way people acquisition and processing information, but also profoundly affected the education model and teaching methods. In this context, vocational education is facing new challenges and opportunities as an important way to cultivate high -quality and skillful talents. First of all, it is difficult for traditional vocational education and training to meet the requirements of social needs and technological progress of rapid changes. The globalization process accelerates the needs of cross -cultural exchanges, so that vocational education must pay more attention to cultivating students' international perspective and social adaptability. Facing the above challenges, the emergence of intelligent education technology has become a key force to promote the modernization of vocational education. Intelligent education technology refers to the use of artificial intelligence (AI), big data analysis, virtual reality (VR), augmented reality (AR) and other advanced technical means to optimize teaching processes, enrich learning resources, support personalized learning paths, and provide immersive type A new type of education model of experience. It can not only overcome the restrictions of time and space in traditional teaching, but also can tailor the most effective learning solution for each student through accurate data analysis, which significantly improves the effect of vocational skills training.

Research purpose

This article aims to discuss the potential of intelligent education technology in improving the effectiveness of vocational skills training. Specifically, we will analyze the application advantages of intelligent education technology and the positive impact it brings in detail, and will also examine its possible limitations. On this basis, in combination with actual case research, a series of practical and feasible improvement suggestions are proposed in order to provide useful references for the development of vocational education in the future.

Overview of the article structure

The full text is divided into five main parts:

1. Chapter 1: The concept and development of intelligent education technology

- Definition of the core elements and technical means of intelligent education technology;
- In discussion of modern education theory and scientific principles that support intelligent education technology.

2. Chapter 2: The specific application of intelligent education technology in vocational education

- The examples of vocational colleges that successfully use intelligent education technology at home and abroad;
- Can analysis of the technical forms (such as VR/AR, AI auxiliary teaching) and their results used in these cases;
- How to integrate intelligent education technology in the existing curriculum system provides specific implementation plans.

3. Chapter III: Advantages and Challenges of Smart Education Technology

- Sum the positive contribution of intelligent education technology to students' learning experience and efficiency of teachers;
- The quote statistical data or empirical research to prove its effectiveness;
- For the problems of potential obstacles, such as technical dependence, privacy protection, and explore solutions.

4. Chapter 4: Cultural Heritage and Campus Design

- Endening how to maintain traditional cultural characteristics in an intelligent environment;
- In discussion on how to use intelligent education technology to improve the physical environment of the campus and create space that is conducive to learning;
- Pre the idea of the design of the new classroom.

5. Chapter 5: Conclusion and Outlook

- At review the main research results and reiterate the value of intelligent education technology;
- In the direction of further development in the future;

- In specific suggestions for government, educational institutions, and personal levels to promote the application and development of intelligent education technology;
- Pivot for all parties to cooperate to jointly promote the modernization of vocational education.

Chapter 1. Concept and Development of Intelligent Educational Technology

1.1. Definition and Historical Evolution

Review of the Development of Educational Technology

The history of educational technology can be traced back to the early 20th century, when teaching was mainly assisted by media such as slides and movies. With the advancement of science and technology, especially the popularization of computers and the Internet, educational technology has gradually developed from a simple audio-visual tool to a comprehensive discipline covering multimedia, network communications, virtual reality and other forms (Saettler, 2004). Modern educational technology not only includes hardware equipment and technical systems, but also involves software design, curriculum development and related theoretical research. Since the beginning of the 21st century, intelligent educational technology, as the result of the deep integration of new generation information technology and education, is leading a profound educational revolution (Huang, 2019).

Explain the specific meaning of intelligent educational technology

Intelligent educational technology refers to a new educational model that uses advanced technologies such as artificial intelligence (AI), big data analysis, Internet of Things (IoT), virtual reality (VR), augmented reality (AR) to optimize the educational and teaching process. Its core elements are:

- Personalized learning path: Provide customized learning plans based on individual differences of students.
- Data-driven decision-making: Use big data to analyze students' learning situation and develop precise teaching strategies for teachers.
- Immersive experience: Create a highly simulated virtual environment to enhance the realism and participation of learning.
- Interactive collaboration platform: Build an online and offline learning community to promote communication and interaction between teachers and students and between classmates.

These technical means work together to make education no longer limited to traditional classroom teaching, but to move towards a more flexible and efficient direction (Collins & Halverson, 2010).

1.2. Theoretical basis

Discussion of modern educational theories supporting intelligent educational technology

The theoretical foundation of intelligent educational technology is based on a variety of modern educational concepts, the most important of which include constructivism, connectivism and socio-cultural theory.

Constructivism emphasizes that knowledge is a process of active construction by individuals, rather than passive acceptance. Guided by this concept, intelligent educational technology is committed to creating situations that can stimulate students' thinking and encourage them to discover new knowledge through exploration (Smaldino et al., 2008).

Connectivism believes that in the context of the information explosion era, people need to learn how to effectively screen and integrate knowledge fragments scattered at different nodes. Therefore, intelligent educational technology focuses on cultivating students' networked thinking ability and helping them find valuable content in complex information networks (Lesgold, 2012).

Social and cultural theory points out that learning is a socialized process influenced by a specific cultural background. Intelligent education technology respects the differences of diverse cultures and

strives to create an inclusive and open learning environment so that students can grow in cross-cultural communication (Yuskovych-Zhukovska et al., 2022).

Analyze the scientific principles and technical support behind intelligent education technology

The successful implementation of intelligent education technology is inseparable from solid scientific and technological support. For example:

Machine learning algorithms are widely used in adaptive learning systems, which can automatically adjust the difficulty level or recommend appropriate learning resources according to the learning progress of each student (Shanguo Zhao et al., 2024).

Natural language processing (NLP) technology helps to develop intelligent tutoring systems, realize human-computer dialogue functions, and enable computers to understand and respond to questions raised by students (Jingyi Duan et al., 2024).

Cloud computing services provide powerful computing power and storage space, ensuring the stable operation of large-scale online education platforms, while also reducing the cost of schools purchasing expensive hardware facilities (Suhan Wu et al., 2024).

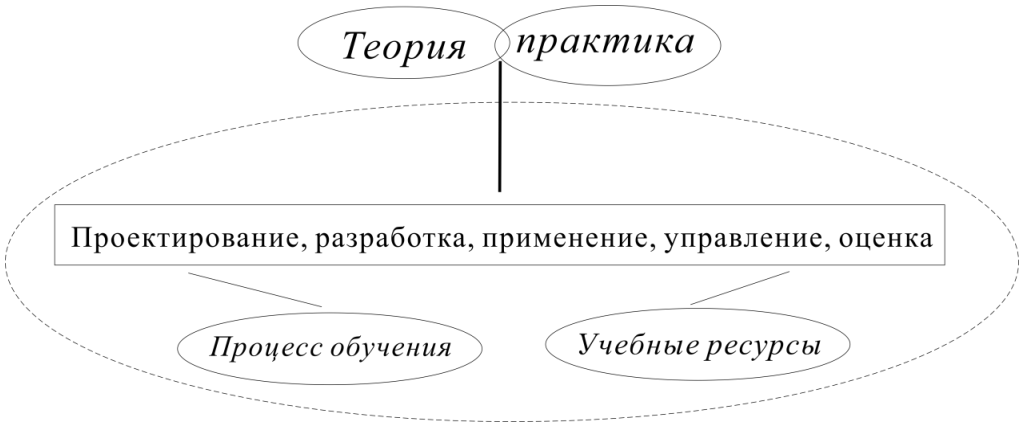

Fig. 1. Contents of the research on modern educational technology

According to Figure 1: Research content of modern educational technology, the application and development of intelligent education technology also reflects the response of the vocational education system to social needs. According to Jin Long (2023), the vocational education systems in Russia and China are actively adjusting their structures to better meet the needs of social development and have proposed corresponding strategic plans. In his book "Corresponding to Social Demands and the Development Strategy of the Vocational Education System — A Comparison of the Vocational Education Systems in China and Russia from the Perspective of Educational Sociology", Jin Long mentioned that in order to cope with the rapidly changing social and economic environment, the vocational education systems of the two countries are exploring how to more effectively combine market demand for talent training (Jin Long, 2023, p. 263).

Chapter 2. Specific Application of Intelligent Education Technology in Vocational Education

2.1. Describe the successful application of intelligent education technology in vocational schools at home and abroad

In order to better understand the practical application of intelligent education technology in vocational education, this section will select several successful cases at home and abroad for detailed description. These cases not only show how different countries and regions use advanced technology to improve the quality and effectiveness of vocational education, but also provide valuable lessons and lessons for other vocational schools.

Case 1: Pennsylvania State University

- Technology Forms: Virtual Reality (VR) and Augmented Reality (AR)
- Results: By creating a realistic virtual laboratory environment, students can conduct experimental operations without physical equipment, significantly reducing experimental costs and improving safety. In addition, AR technology is used to enhance classroom explanations and make abstract concepts more intuitive and understandable (Collins & Halverson, 2010).

Case 2: Nanjing University, China

- Technical Form: Artificial Intelligence (AI) assisted teaching system
- Results: Nanjing University has introduced an intelligent tutoring platform based on natural language processing, which can answer students' questions in real time and provide personalized suggestions based on each student's learning progress. This initiative has greatly improved students' learning efficiency and satisfaction. In addition, the school has also developed a series of online courses that combine multimedia resources and interactive exercises to further enrich teaching content and enhance students' sense of participation and independent learning abilities (Huang, 2019; Jingyi Duan et al., 2024).

Case 3: Helsinki City College, Finland

- Technical form: Big data analysis supported by cloud computing
- Results: Use big data analysis tools to conduct in-depth exploration of students' learning behaviors, helping teachers identify potential problems and adjust teaching strategies in a timely manner. At the same time, resource sharing is achieved through the cloud platform, which promotes communication and cooperation between schools (Björk Åman & Ström, 2024).

Case 4: Royal Melbourne Institute of Technology, Australia

- Technical form: Blended learning model combined with online course platform
- Achievements: A complete online course system has been developed, covering all aspects from basic theory to practical skills. This flexible learning method meets the needs of working personnel to continue their studies, and also attracts more international students to study (Atikah Tri Budi Utami et al., 2024).

Case 5: Vocational Training Center in Berlin, Germany

- Technical form: Intelligent manufacturing training base supported by Internet of Things (IoT) technology
- Achievements: A highly simulated Industry 4.0 production scenario was constructed to allow students to experience the latest manufacturing technology and management processes. This not only enhances their practical ability, but also lays a solid foundation for future employment (Peter Ehnold et al., 2024).

2.2. Analysis of the technical forms used in these cases and their effectiveness

In order to more clearly present the specific circumstances of each case, the following table not only lists the name of the vocational school, the country/region where it is located, the main technical form and application scenario, but also provides a detailed description of the main achievements of each case. In addition, annotations are provided for the data in Table 1 to help readers better understand the relevant information (see Table 1).

Data Annotation

Pennsylvania State University (Case 1)

Virtual Reality (VR) and Augmented Reality (AR): By creating a realistic virtual laboratory environment, students can perform experiments without physical equipment, reducing the cost of purchasing experimental equipment and improving safety. AR technology is used to enhance classroom

explanations, making abstract concepts more intuitive and easy to understand, enhancing students' understanding and memory (Collins & Halverson, 2010).

Table 1. Analyze the technical forms used in the case and their effectiveness

№	Vocational school name	Country / Region	Main technical forms	Specific application scenarios	Main achievements
Case 1	Pennsylvania State University	USA	VR/AR	Virtual labs, enhanced classroom instruction	Reduce costs, improve safety and understanding
Case 2	Nanjing University	China	AI-assisted teaching	Intelligent tutoring platform, online courses	Improve learning efficiency and satisfaction, and enrich teaching content
Case 3	Helsinki City College	Finland	Big Data Analysis	Learning behavior analysis, resource sharing	Adjust teaching strategies in a timely manner and promote communication
Case 4	RMIT University	Australia	Blended Learning Model	Online course system	Meeting the needs of employed people and attracting international students
Case 5	Vocational Training Center Berlin	Germany	IoT	Intelligent Manufacturing Training Base	Enhance hands-on skills and employment competitiveness

Nanjing University (Case 2)

Artificial Intelligence (AI) Assisted Teaching System: Nanjing University introduced an intelligent tutoring platform based on natural language processing, which can answer students' questions in real time and provide personalized suggestions based on each student's learning progress. This move has greatly improved students' learning efficiency and satisfaction. In addition, the school has developed a series of online courses that combine multimedia resources and interactive exercises to further enrich the teaching content and enhance students' sense of participation and autonomous learning ability (Huang, 2019; Jingyi Duan et al., 2024).

Helsinki City College (Case 3)

Big Data Analysis Supported by Cloud Computing: Use big data analysis tools to deeply explore students' learning behaviors, help teachers identify potential problems and adjust teaching strategies in a timely manner. At the same time, resource sharing through the cloud platform promotes inter-school exchanges and cooperation, ensuring the maximum utilization of educational resources (Björk Åman & Ström, 2024).

Melbourne Royal Institute of Technology (Case 4)

The hybrid learning model combined with the online course platform: a complete online course system has been developed, covering all aspects from basic theory to practical skills. This flexible learning method meets the needs of working people to continue their studies, and also attracts more international students to study, expanding the influence of the school (Atikah Tri Budi Utami et al., 2024).

Berlin Vocational Training Center (Case 5)

Smart Manufacturing Training Base Supported by Internet of Things (IoT) Technology: A highly simulated Industrial 4.0 production scene has been built to allow students to experience the latest manufacturing technology and management processes firsthand. This not only enhances their hands-on ability, but also lays a solid foundation for future employment, making graduates more in line with the needs of modern manufacturing (Peter Ehnold et al., 2024).

2.3. Discuss how to integrate intelligent education technology into the existing curriculum system and provide specific implementation plans

2.3.1. Clarify goals and plans

Set clear goals: First, you need to determine the specific goals you want to achieve by introducing intelligent education technology, such as improving teaching quality, increasing student participation, or optimizing resource allocation. Ensure that all stakeholders have a consistent understanding and support for the goals (Lesgold, 2012).

Develop a detailed implementation plan: Including timetables, responsibility allocation, budget arrangements, etc. Considering the challenges and risks that may be encountered, prepare countermeasures in advance (Yuskovych-Zhukovska et al., 2022).

2.3.2. Build infrastructure

Upgrade hardware facilities: Ensure that the campus network bandwidth is sufficient to support high-definition video transmission and complex computing tasks; purchase necessary servers, workstations and other specialized equipment (Jingyi Duan et al., 2024).

Build software platform: Select appropriate operating system, database management system and various applications to build a stable and reliable technical support environment (Suhan Wu et al., 2024).

2.3.3. Develop high-quality content

Customized textbook writing: In combination with professional characteristics and industry development trends, invite a team of experts to jointly create teaching materials that meet actual needs (Shanguo Zhao et al., 2024).

Multimedia resource integration: Widely collect learning resources in various forms such as pictures, audio, and video to enrich classroom teaching methods (Ding Xiaoxi & Lyu Jikun, 2024).

2.3.4. Promote training activities

Teacher training: Organize regular professional development seminars and technical lectures to help teachers master the application skills of new technologies and encourage them to boldly try in daily teaching (Jingyi Duan et al., 2024).

Student guidance: Carry out popular science publicity and technical training for all students to improve their understanding and use of new technologies (Guantao Wang & Jinyu Shi, 2024).

2.3.5. Continuous evaluation and improvement

Establish a feedback mechanism: Set up a special suggestion box or online forum to collect teachers and students' opinions and suggestions on the new system so as to find and solve problems in time (Doreen Barigye, 2024).

Regular evaluation of effects: Conduct a comprehensive effect evaluation at the end of each semester, compare the changes in various indicators before and after the introduction, summarize the experience and lessons, and continuously optimize the plan (Zhexi Zhang, 2024).

Chapter 3. Advantages and Challenges of Intelligent Educational Technology

3.1. Summarize the positive contributions of intelligent education technology to student learning experience, teacher work efficiency, etc.

Intelligent educational technology has shown significant advantages in improving student learning experience and teacher work efficiency. The following is a summary of its positive contributions:

Personalized Learning Path: Through the AI-assisted teaching system, intelligent education technology can provide customized learning plans based on each student's learning progress and interests, thereby improving learning efficiency and effectiveness (Huang, 2019).

Immersive Learning Environment: Virtual reality (VR) and augmented reality (AR) technologies create highly simulated learning scenes, making abstract concepts more intuitive and understandable, and enhancing students' sense of participation and understanding (Collins & Halverson, 2010).

Real-time feedback mechanism: The intelligent tutoring platform supported by big data analysis and natural language processing (NLP) technology can instantly answer students' questions and provide personalized suggestions to help them master knowledge faster (Jingyi Duan et al., 2024).

Resource Sharing and Collaboration: Cloud computing services enable educational resources to be efficiently shared globally, promoting interaction between teachers and students, and forming an open learning community (Suhan Wu et al., 2024) .

Teacher workload reduction: Automated assessment tools and online course management systems reduce teachers' workload in grading homework, managing classes, etc., allowing them more time to focus on improving teaching quality (Björk Åman & Ström , 2024).

3.2. Cite statistical data or empirical research to prove its effectiveness

In order to verify the effectiveness of intelligent education technology, we cited some of the latest statistical data and empirical research results. The following table shows the details of these data: (see Table 2).

Table 2. Effectiveness of Intelligent Educational Technology

Research topics	Source Literature	Key findings
The impact of personalized learning on academic performance	Shanguo Zhao et al. (2024)	Students who use adaptive learning systems have achieved 15% to 20% higher scores than those using traditional teaching methods.
Application of VR/AR in vocational education	Atikah Tri Budi Utami et al. (2024)	Students who use VR/AR technology in on-the-job training have an average improvement of 25% in practical skill scores, and their hands-on ability is significantly enhanced.
The effect of intelligent tutoring platform	Jingyi Duan et al. (2024)	More than 80% of students said that the instant feedback provided by the intelligent tutoring platform helped them better understand complex concepts.
Online course satisfaction survey	Doreen Barigye (2024)	70% of students who participated in the blended learning model believed that this method was more conducive to independent learning and personal development.
Improvement of teachers' work efficiency	Suhan Wu et al. (2024)	After using the online course management system, teachers reduced the time they spent on grading homework by about 40% each week, allowing them to devote more energy to teaching design.

3.3. Reflection on potential obstacles and solutions

Although smart education technology has brought many benefits, it also faces some challenges in its actual application. The following is a reflection on its potential obstacles and corresponding solutions:

Technology dependence problem

Problem description: Over-reliance on technology may lead to students' lack of basic hands-on skills and critical thinking training, and may also weaken teachers' teaching flexibility.

Solution: Establish a balanced technology use strategy to ensure a teaching model that combines online and offline, and encourage students to consolidate their knowledge in practice; at the same time, provide teachers with sufficient professional development support to help them flexibly use various teaching tools.

Privacy protection issues

Problem description: With a large amount of personal data being collected and analyzed, how to protect students' privacy has become an important issue.

Solution: Formulate a strict data protection policy, clearly inform students of the purpose of data, and obtain their consent; strengthen network security measures to prevent unauthorized data access; regularly review data management processes to ensure compliance.

Insufficient infrastructure

Problem description: Some vocational schools may not have sufficient hardware equipment and technical support, which limits the application scope of intelligent education technology.

Solution: The government and all sectors of society should increase investment in the construction of vocational education infrastructure, especially vocational schools in remote areas; promote school-enterprise cooperation, introduce external resources and technical forces, and jointly build a modern teaching environment.

Teacher training needs

Problem description: Not all teachers have the ability to operate new technologies, which may affect the effective implementation of intelligent education technology.

Solution: Organize regular professional development seminars and technical lectures to help teachers master the application skills of new technologies; develop easy-to-use teaching tools and platforms to lower the technical threshold; encourage teachers to share experiences and best practice cases.

Chapter 4. Cultural Heritage and Campus Design

In order to present the research content more intuitively, the following Table 3 summarizes relevant research and statistics to prove the effectiveness of intelligent educational technology in cultural heritage and campus design.

Table 3. The effectiveness of intelligent educational technology in cultural heritage and campus design

Research topics	Source Literature	Key findings
The effect of integrating traditional culture into intelligent education	Ding Xiaoxi & Lyu Jikun (2024)	After incorporating traditional cultural elements into the curriculum, students' sense of cultural identity increased by about 20%, and their memory of what they learned was better.
The impact of immersive learning environment on students' interest	Collins & Halverson (2010)	Historical and cultural scenes created using VR/AR technology significantly improved students' interest in learning and increased participation by 35%.
Usage of cross-cultural communication platforms	Yuskovych-Zhukovska et al. (2022)	On the online communication platform, more than 70% of students expressed their willingness to share their culture with students from other countries and benefited greatly from it.
Progress in Digital Protection of Intangible Cultural Heritage	Zhexi Zhang (2024)	The digitization project has enabled the effective recording and dissemination of some handicrafts that were on the verge of being lost, and has attracted more young people to pay attention to traditional culture.
The impact of smart classroom layout on student satisfaction	Suhan Wu et al. (2024)	After adopting flexible classroom layouts, more than 85% of students believe that this helps improve their learning efficiency and comfort.
Multifunctional space improves students' innovation ability	Jingyi Duan et al. (2024)	In schools with maker spaces and laboratories, students' practical and innovative abilities increased by an average of 25%.
The impact of green building design on students' environmental awareness	Björk Åman & Ström (2024)	Students who grow up in a green building environment pay more attention to environmental protection issues, and their participation in environmental protection activities is 15% higher than that of ordinary schools.
Improvement of resource utilization efficiency by intelligent management system	Peter Ehnold et al. (2024)	After introducing the facility management platform supported by IoT technology, the utilization rate of various resources on campus has increased by about 30%.

4.1. Explore how to maintain traditional cultural characteristics in an intelligent environment

In the context of globalization, the introduction of intelligent education technology has brought unprecedented opportunities to vocational education. However, how to maintain and promote traditional cultural characteristics in this process has become an urgent problem to be solved. The following are several strategies:

Integrate traditional elements: Integrate local cultural symbols, historical stories, etc. into intelligent education content, so that students can learn modern knowledge while also gaining a deep understanding of local cultural heritage (Ding Xiaoxi & Lyu Jikun, 2024).

Multimedia display: Use virtual reality (VR), augmented reality (AR) and other technologies to create an immersive experience environment, so that students can feel as if they are in a historical and cultural scene and feel the charm of traditional culture (Collins & Halverson, 2010).

Cross-cultural communication: Promote communication and interaction between students from different cultural backgrounds through online platforms, encourage them to share their respective cultural characteristics, and enhance mutual understanding and respect (Yuskovych-Zhukovska et al., 2022).

Protection of intangible cultural heritage: Use digital technology to record and disseminate intangible cultural heritage such as folk art and handicrafts to ensure that these precious treasures are passed on (Zhexi Zhang, 2024).

4.2. Discuss how to use smart education technology to improve the physical environment of the campus and create a space conducive to learning

Smart education technology has not only changed the teaching methods, but also put forward new requirements for the physical environment of the campus. The following are some specific measures:

Smart classroom layout: Adopt flexible and changeable desk and chair arrangements, combined with adjustable lighting and temperature control systems to create a comfortable learning atmosphere (Suhan Wu et al., 2024).

Multifunctional space design: Set up special maker spaces, laboratories and other areas, equipped with advanced instruments and technical support to meet students' practical needs (Jingyi Duan et al., 2024).

Green building design: Apply energy-saving and environmentally friendly materials and technologies to create a low-carbon and environmentally friendly campus, and cultivate students' environmental awareness and social responsibility (Björk Åman & Ström, 2024).

Intelligent management system: Introduce a facility management platform supported by the Internet of Things (IoT) technology to achieve effective allocation of various resources on campus, improve management efficiency and service level (Peter Ehnold et al., 2024).

4.3. Share ideas about new classroom design

In order to better meet the needs of intelligent education, the design of new classrooms needs to take into account a variety of factors. Here are some innovative design concepts:

Modular furniture: Use furniture that is easy to move and reorganize to quickly adjust the classroom layout according to different teaching activities and provide a variety of learning scenarios (Ding Xiaoxi & Lyu Jikun, 2024).

Multimedia interactive wall: Install a large touch screen or projection screen as the main interface for teachers to teach and students to interact, enhancing classroom participation (Collins & Halverson, 2010).

Natural lighting and ventilation: Optimize the building structure to ensure sufficient natural light and good air circulation to create a healthy and pleasant learning environment for students (Yuskovych-Zhukovska et al., 2022).

Personalized learning corner: Set up quiet and comfortable reading corners, discussion areas and other personalized learning spaces to meet the learning preferences and needs of different students (Shanguo Zhao et al., 2024).

Accessible design: Take full account of the requirements of students with special needs, ensure that all facilities meet accessibility standards, and ensure that every student can equally enjoy high-quality educational resources (Björk Åman & Ström, 2024).

Conclusion and Outlook

In summary, this study demonstrates its important value in improving student learning experience, teacher work efficiency, promoting cultural inheritance and optimizing campus design by in-depth exploration of the application of intelligent educational technology in vocational education. Intelligent education technology not only provides the possibility of personalized learning paths, but also significantly improves teaching effects through immersive learning environments, real-time feedback mechanisms and other means. For example, VR/AR technology creates highly simulated learning scenarios, enhancing students' sense of participation and understanding; intelligent tutoring platforms supported by big data analysis and natural language processing technology can instantly answer students' questions and provide personalized suggestions, helping them master knowledge faster. In addition, cloud computing services enable educational resources to be efficiently shared globally, promoting interaction between teachers and students, and forming an open learning community.

Looking to the future, deepening personalized learning, strengthening interdisciplinary integration, expanding application scenarios, improving user experience, and strengthening data security and privacy protection will become key directions for further development. Specifically, continue to optimize the adaptive learning system to more accurately meet the needs of each student; encourage cross-cooperation between different disciplines, and use advanced technologies such as artificial intelligence and the Internet of Things to build a more comprehensive vocational education system; Apply intelligent education technology to more vocational fields, especially in emerging industries and technological frontier fields, to provide students with more practical opportunities; continuously improve user interface design and technical performance to ensure that the intelligent education platform is easy to use, stable and reliable; As a large amount of personal data is collected and analyzed, more stringent data protection policies are formulated to ensure the security of student information. In order to better promote and apply intelligent education technology, the government should provide policy support and standard formulation, increase investment in the construction of vocational education infrastructure, especially vocational schools in remote areas; issue relevant policies and regulations to clarify the development of intelligent education technology Goals and supporting measures; establish unified technical standards and evaluation systems to standardize the research and development and market access of intelligent education products; strengthen the protection of intellectual property rights and encourage enterprise innovation. Educational institutions need to strengthen teacher training and organize regular professional development seminars and technical lectures to help teachers master the application skills of new technologies; make full use of existing resources and combine their own characteristics to create distinctive smart education brands; strengthen school-enterprise cooperation and introduce Use external resources and technical forces to jointly build a modern teaching environment; establish and improve a quality assessment mechanism, regularly check the implementation and effects of smart education projects, and timely adjust and improve relevant strategies to ensure continuous improvement in education quality.

At the personal level, establish the concept of lifelong learning, actively participate in various online and offline learning activities, and continuously improve your knowledge and skills; cultivate the ability to think independently and critically, learn to distinguish the authenticity of information, and avoid blind reliance on technology; Pay attention to hot social issues, actively participate in public welfare activities, use the knowledge you have learned to give back to the society, and contribute to the realization of sustainable development goals. We call on all parties to work closely together to jointly promote the modernization process of vocational education. The success of intelligent education technology cannot be separated from the joint efforts of all sectors of society. Governments, educational institutions, enterprises and individuals should work together to promote this process. Through policy guidance, technological innovation, resource sharing and other methods, we will jointly create a good ecosystem that is conducive to the development of intelligent education technology. It is hoped that in the

days to come, intelligent education technology can play a greater role in the field of vocational education and contribute to the cultivation of more high-quality professional talents. Let us welcome the arrival of the intelligent era together and create a better future together!

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Применение интеллектуальных образовательных технологий в профессиональном образовании

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Аннотация. В этой статье обсуждается применение интеллектуальных образовательных технологий в профессиональном образовании и их влияние на модели обучения, содержание, концепции и методы оценки. Столкнувшись с ростом информационной эпохи и экономики знаний, педагоги разных стран активно изучают и используют современные информационные технологии для инноваций в образовании, чтобы соответствовать потребностям будущего социального развития. С углублением реформы профессионального образования эффективное использование современных образовательных технологий стало актуальной проблемой. В статье сначала определяется основная концепция современных образовательных технологий, указывая на то, что она не только охватывает традиционные средства обучения и техническое оборудование, но и подчеркивает обучение и совершенствование посредством создания, использования и управления соответствующими техническими процессами и ресурсами. На этой основе в статье анализируется конкретное применение интеллектуальных образовательных технологий в профессиональном образовании, включая новые модели обучения, такие как комбинированное мультимедийное обучение в классе, дистанционное обучение с использованием спутникового телевидения и дистанционное коммуникационное обучение через Интернет. Обогатите преимущества учебного контента, поддержите персонализированные пути обучения и реализуйте интерактивное обучение. Кроме того, в этой статье также обсуждаются положительное влияние и потенциальные проблемы, возникающие при использовании интеллектуальных образовательных технологий. С одной стороны, это значительно повышает интерес и эффективность обучения студентов, а также повышает их практические способности и способность к инновациям; с другой стороны, это также предлагает новые проблемы, такие как техническая зависимость и защита конфиденциальности данных. Чтобы справиться с этими проблемами, статья выдвигает несколько предложений по улучшению и призывает все стороны работать вместе, чтобы создать экосистему профессионального образования, которая является одновременно передовой и полной гуманистической заботы. Наконец, эта статья суммирует потенциал интеллектуальных образовательных технологий в повышении эффективности обучения профессиональным навыкам, подчеркивает важность культурного наследия и с нетерпением ждет будущего направления развития. Изучая успешные случаи в стране и за рубежом, статья показывает, как интеллектуальные образовательные технологии помогают модернизировать профессиональное образование и предоставляют новые идеи и методы для развития высококачественных профессиональных талантов.

Ключевые слова: интеллектуальные образовательные технологии, профессиональное образование, проектирование кампуса