

# The Connotation, Mode and Path of Talent Training in Higher Vocational Education in the Era of Artificial Intelligence

Yingxuan Jia<sup>1\*</sup>, Shuo Yan<sup>2</sup>

<sup>1</sup>School of Artificial Intelligence, Beijing Institute of Economics and Management, Beijing 100102, China

<sup>2</sup>Urban Construction and Rail Transit Design Institute, JSTI GROUP, Nanjing 210000, China

\*Corresponding author: Yingxuan Jia, [yingxuanjia@biem.edu.cn](mailto:yingxuanjia@biem.edu.cn)

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**Abstract:** In the era of artificial intelligence, a new form of economy has appeared. Accordingly, it is necessary to adapt to the new era of technical skills, compound and innovative talents. As an important position for training technical talents, higher vocational colleges show new characteristics in the era of artificial intelligence and need to innovate the training mode of talents. Based on this, the article will analyze the difference between higher vocational education and undergraduate vocational education, and focus on the analysis of the innovative path and strategy of higher vocational education to train talents in the era of artificial intelligence, to cultivate innovative skilled talents who adapt to the era of artificial intelligence and meet the needs of the development of society and the era <sup>[1]</sup>.

**Keywords:** Artificial intelligence; Higher vocational education; Personnel training

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## 1. Introduction

The National Vocational Education Reform Implementation Plan proposes to adhere to the types and characteristics of vocational education, enhance the adaptability of vocational education, and better support the continued and healthy development of the country's economy and society. In the era of artificial intelligence, the social economy has undergone fundamental changes, forming new demands for intelligence, and giving birth to new technologies and new industries. The rapid progress of artificial intelligence is profoundly changing the structure of the demand for talent in the labor market, which poses new challenges to vocational education, requiring it to keep pace with the era in personnel training, and constantly adjust and optimize education programs <sup>[2]</sup>.

## **2. Connotation of talent training in higher vocational education in the era of artificial intelligence**

Traditional higher vocational education focuses on the imparting of professional skills and the cultivation of practical ability, but under the wave of artificial intelligence, this connotation has been expanded and deepened unprecedentedly. On the one hand, skill training is no longer limited to the skilled operation of a single job or field, but emphasizes the integration and application of knowledge across fields and disciplines. Students need to master core AI technologies including but not limited to programming, data analysis, and machine learning, and be able to flexibly apply these technologies to multiple fields such as intelligent manufacturing, smart agriculture, and smart cities to achieve technological empowerment and innovation. On the other hand, innovation ability has become the core competitiveness of talent training. Higher vocational education should encourage students to dare to explore the unknown and cultivate critical thinking and problem-solving abilities. Through project-driven, case analysis, industry-university-research cooperation and other diversified teaching modes, students' innovative potential is stimulated, and they are encouraged to find and solve problems in practice and be able to transform innovative results into practical applications to promote social progress. Finally, the education of humanistic quality and professional ethics should be emphasized. In the era of artificial intelligence, the speed of technological development often exceeds the speed of the improvement of ethics and laws. Therefore, higher vocational education also needs to pay attention to the cultivation of students' humanistic literacy, including non-technical factors such as responsibility, ethics and teamwork to ensure that the development of technology does not deviate from the fundamental value of human society.

## **3. The artificial intelligence era of higher vocational education personnel training model**

In the face of challenges and opportunities in the era of artificial intelligence, higher vocational education needs to build a more flexible and diversified talent training model to meet the needs of new technologies and new industries for talent.

### **3.1. Integration of production and education, deepening cooperation between schools and enterprises**

In the era of artificial intelligence, the traditional school-enterprise cooperation model needs to be further deepened to achieve a seamless connection between school education and industrial needs. Through the joint construction of training bases and research and development centers, real projects of enterprises are introduced, so that students can have access to the most cutting-edge technologies and market demands during the learning process<sup>[3]</sup>. At the same time, enterprise experts come into the classroom and jointly develop the curriculum with teachers to ensure that the teaching content is updated in sync with industry standards. This deeply integrated model not only improves students' practical ability but also promotes the transformation and application of scientific research results.

### **3.2. Interdisciplinary integration education**

The wide application of artificial intelligence technology requires talents to have interdisciplinary knowledge structure and ability. Therefore, higher vocational education should break the traditional discipline barriers and promote the cross-integration of computer science, mechanical engineering, data science, economics and

other disciplines <sup>[4]</sup>. Vocational colleges can cultivate students' comprehensive ability and innovative thinking by setting up interdisciplinary courses and organizing joint projects so that they can cope with complex and changeable practical problems.

### **3.3. Lifelong learning and online education platforms**

In the era of artificial intelligence, the speed of knowledge updates is accelerating, and lifelong learning has become an inevitable trend. Higher vocational education should build a complete online education platform, provide rich and diverse course resources and learning tools, and support students to learn anytime and anywhere. At the same time, the platform can also push personalized learning content and suggestions according to students' learning conditions and interests to improve learning efficiency and quality <sup>[5]</sup>. In addition, colleges and universities can share and complement high-quality educational resources through online education platforms to promote fair and balanced development of education.

## **4. Vocational education personnel training path in the era of artificial intelligence**

### **4.1. Take the initiative to change the concept of education**

In the era of artificial intelligence, industrial upgrading and social transformation have impacted vocational education. In this regard, higher vocational colleges need to change the concept of education and innovate personnel training programs. First of all, in the face of the challenges of the era of artificial intelligence, higher vocational education must re-examine and change its educational objectives, and shift the focus of talent training from a "skilled labor force" to cultivating new talents with innovative spirit and ability. In this era, the mode of production has gradually changed from standardization to individuation. Therefore, whether students have creative and innovative thinking has become the key to determining whether they can adapt to their future career development. To achieve this goal, higher vocational colleges should actively make use of artificial intelligence technology and information technology to deepen cooperation with enterprises and jointly create a talent training environment that meets the needs of the era. Such an environment will not only focus on the training of students' professional skills but also emphasize the cultivation of students' innovative ability and entrepreneurial spirit, so as to cultivate outstanding talents with both professional skills and innovative consciousness <sup>[6]</sup>.

Secondly, higher vocational education needs to focus on the development of students' emotions, spirit, creativity and other aspects. Artificial intelligence does not have a thought, but human beings have a soul, which can carry out emotional communication and reflect on progress. Based on this, in the process of talent training, higher vocational education should pay attention to the innovation of students' thinking and the growth of their spirit, promote students to shift from mechanical understanding and reciting knowledge to understanding and transfer of knowledge, and further turn to the creation of new things, to realize the organic unity of "technical" and "humanistic," "mechanical" and "creative" <sup>[7]</sup>. Take the Internet of Things major as an example, in the era of artificial intelligence, some work may be replaced by automation and intelligent technology, such as data collection and preliminary processing, etc.

In this regard, the Internet of Things major in higher vocational colleges should pay attention to cultivating students' innovation ability when training students, and encouraging students to participate in innovative projects by introducing innovative classes; Strengthening interdisciplinary education, and introducing computer science, electronic engineering and other contents into the teaching of the Internet of

Things; Providing students with more practice and internship opportunities, so that students can exercise their skills, find problems and solve problems in practice; Measures such as team cooperation and communication should be strengthened to cultivate students' innovative thinking and practical ability, critical thinking, courage to question, independent thinking and problem-solving ability, broaden students' horizons and knowledge, strengthen students' collaborative spirit and communication ability, so as to adapt to the development of the era of artificial intelligence <sup>[8]</sup>.

#### **4.2. Establish an interactive mechanism among schools, enterprises, and the government**

In the era of artificial intelligence, higher vocational colleges need to establish a multi-party interaction mechanism to train high-quality talents. First, further promote the integration of production and education. The integration of industry and education will help optimize personnel training programs and improve enterprise production efficiency. The integration platform of production and education builds a real working scene, creates a real situation for practical teaching, and promotes the integration of interests, technology, personnel, management and other aspects between higher vocational colleges and enterprises.

Second, improve the status of enterprises in personnel training. Because of its cross-border characteristics, higher vocational education needs cross-field teaching. In this regard, the government should actively advocate and promote the mixed-ownership school-running mode, and build a multi-dimensional school-running security system integrating "government guidance, enterprise cooperation and school leadership," to provide a solid institutional foundation for the training of cross-border integrated talents. To deepen the integration of industry and education, it is necessary to build a group of enterprises with high integration. Based on this, the government should formulate clear screening criteria for enterprises with the integration of industry and education and issue corresponding policies to ensure that enterprises can truly participate in the process of cultivating talents with the integration of industry and education <sup>[9]</sup>.

Third, higher vocational education will introduce artificial intelligence into the process of talent cultivation. The government needs to increase capital investment, apply intelligent technology in the research and development of teaching resources, promote higher vocational colleges and enterprises to jointly establish a virtual simulation practice platform, build an artificial intelligence technology application innovation practice platform, and innovate talent training methods. Through the interaction of schools, enterprises and the government, higher vocational education can form a positive aggregation effect, radiating new energy into each main body <sup>[10]</sup>. Taking the GIS major as an example, under the background of artificial intelligence, teachers in higher vocational colleges organically integrate theory and practical operation in the context of school-enterprise cooperation, innovate teaching methods, encourage students to practice, cultivate students' innovative thinking, and improve students' ability to solve practical problems. In addition, through government support and cooperation with enterprises, experts and scholars at home and abroad, higher vocational colleges have developed diversified GIS experimental teaching materials and training platforms, including basic knowledge of GIS and map making. The use of artificial intelligence technology to achieve GIS laboratory online remote access and practical operation, students at any time to enter the laboratory, improve teaching flexibility, broaden students' horizons, and stimulate students' inspiration <sup>[11]</sup>.

#### **4.3. Human-computer interaction in teaching mode to improve the level of wisdom**

In the era of artificial intelligence, education has undergone profound changes, and higher vocational education needs to establish a more modern and advanced education model. First of all, the teaching model has

been reformed, traditional teaching without the interaction between teachers and students, teaching activities cannot be talked about. In the era of artificial intelligence, the extensive establishment of intelligent teaching platforms is gradually changing the traditional education model. As a new teaching method, human-computer interaction has become a crucial teaching link. Students can use these platforms to independently access huge online teaching resources and carry out in-depth professional knowledge learning. At the same time, when students encounter doubts or difficulties in the learning process, artificial intelligence can also provide immediate help and answers, effectively improving the efficiency and depth of learning<sup>[12]</sup>. Secondly, in the era of artificial intelligence, teaching management is gradually moving toward wisdom. Vocational colleges have successfully built an intelligent management platform by using artificial intelligence technology, which can comprehensively and systematically analyze multiple information such as students' family background and learning status. Through this in-depth analysis, schools can detect and prevent abnormal situations or security risks that students may face in advance to ensure the physical and mental health of students and the stability of the learning environment. For example, the concept of a smart city has been continuously implemented, the degree of wisdom in the construction industry has been deepened, and the reform trend of architecture teaching in higher vocational colleges has been developing in the direction of intelligence and information. In traditional teaching, the application software and equipment of the construction industry are backward, which is not conducive to students' in-depth exploration of the professional knowledge of architecture. In the era of artificial intelligence, higher vocational colleges can build intelligent teaching platforms for architecture majors, actively use BIM technology and GIS technology to carry out teaching work, and build building holographic teaching models to stimulate students' interest in learning. Under the role of an intelligent teaching platform, under the guidance of teachers, students can read the building digital model, master the modeling method, and have a deeper understanding of the building<sup>[13]</sup>.

#### **4.4. Create a new classroom of “three education”**

In the era of artificial intelligence, talent training in higher vocational colleges needs to improve teachers' informatization ability, innovate teaching methods and innovate textbook content. First, at the teacher level, vocational colleges promote teachers' active learning of information technology, improve their intelligent literacy, and improve their digital teaching ability by carrying out activities such as intelligent teaching skills competitions. Higher vocational colleges across the country should strengthen cooperation, promote exchanges and learning among peers, and provide a broad space for teachers to improve their intelligent teaching ability. Vocational colleges can also establish a reasonable evaluation and reward mechanism by incorporating intelligent teaching ability into performance pay and evaluation and award indicators, so as to stimulate teachers' internal motivation<sup>[14]</sup>.

Secondly, at the level of teaching methods, teachers build online classes with the help of artificial intelligence devices and flexibly use simulation game teaching methods to highlight students' dominant position in class and create a relaxed learning atmosphere. Teachers can also use artificial intelligence to analyze students' learning effects and learning status and provide personalized guidance for students.

Third, at the level of teaching materials, the content of vocational teaching materials should point to the types of skills that are not easy to be replaced by artificial intelligence, highlighting factors such as perception and control, creativity and social intelligence, and updating and improving the teaching materials dynamically. For example, when teaching BIM, teachers update and expand the teaching content according to the emerging BIM technology application fields, social hot issues, and actual needs. The teachers adopt an open and

interactive teaching method and integrate virtual technology into practical teaching and theoretical teaching. Teachers develop teaching resources and combine VR, AR and other technologies to provide students with a more interactive and immersive learning experience so that students can master the engineering drawing knowledge of drainage direction, use BIM technology to draw engineering drawings, pipeline inspection and so on <sup>[15]</sup>.

## 5. Conclusion

In the era of artificial intelligence, higher vocational education personnel training is facing changes, teaching resources are more abundant and personalized, and service support is more intelligent and complete. Higher vocational education needs to reform personnel training programs to adapt to the needs of talents in the era of artificial intelligence, hoping to actively change the concept of education. Establishment of an interactive mechanism among schools, enterprises and the government, the teaching mode should move towards human-computer interaction to improve the intelligent level of student management. A series of measures to create a new classroom of “three education” can train innovative skilled talents to meet the needs of society and the era.

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