

# The New Situation of Employment under the Background of Artificial Intelligence and Its Countermeasures of Vocational Education

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## Abstract

**Under the new era and new background, artificial intelligence has a profound impact on people's life style and labor employment pattern. With the new changes in the job market, vocational education talents are also facing new challenges in the training mode. Starting with the connotation and characteristics of artificial intelligence, this paper expounds the opportunities and challenges brought by the development of artificial intelligence to employment, and deeply analyzes the problems existing in vocational education under the current employment situation of artificial intelligence, which are specifically manifested in three aspects: the professional setting does not match the employment situation; Talent training and employment development are not synchronized; Vocational education content and employment requirements do not fit. In order to better cultivate high-quality talents, adapt to the employment development of artificial intelligence and meet the demand of the market for talents, the countermeasures of vocational education are put forward from three aspects: educational concept and goal, educational system and educational content.**

## Keywords

**Artificial intelligence; New Situation of Employment; Vocational Education; Coping Strategies.**

## 1. Introduction

With the development of human society, technological progress has become an important driving force to promote social development, indicating that the wide application of new technology can play a profound role in promoting human life and social development, but also promote the current progress of science and technology and the intertwined development of the labor market. At present, artificial intelligence technology has become an important technical hot spot, with the continuous expansion of the scope of application of artificial intelligence, promote the labor market from labor-intensive to technology-intensive development, resulting in a series of changes such as job substitution and new job creation, at the same time, the development of artificial intelligence has also changed the current market employment structure, employment pressure is also increasing. It can be seen from this that the development of technology has a dual impact on society, and the impact of artificial intelligence on employment is also the same. The modern labor market is more inclined to high-tech talents, and the demand for middle-and low-end talents is decreasing, which directly affects the development of vocational education. It is necessary for vocational education to constantly update the educational concept and train compound talents with high quality in order to meet the needs of the market.

## 2. Connotation and Characteristics of Artificial Intelligence

### 2.1. The Connotation of Artificial Intelligence

Artificial intelligence is an important part of the computer field and a branch of computer science and technology. It is a new technical science that studies and develops the theory, method, technology and application system used to simulate, extend and expand human intelligence. [1] Under the background of big data development, artificial intelligence has become an important research field at present. It is to create a system similar to human intelligence by understanding the law of activity in the human brain, which can do some work and calculation instead of people. At present, the research direction of artificial system is mainly speech, image, natural language, computer and expert system. Artificial intelligence is a double-edged sword for social development. Human beings can not predict its future development path, nor can it accurately say whether the future of artificial intelligence is beneficial or disadvantageous to human society. As a new technology, artificial intelligence can realize the current information sharing and simulation creation, and then affect the current human activities, bring convenience and convenience to human beings, at the same time, it may also impact the current human society.

### 2.2. Characteristics of Artificial Intelligence

First of all, artificial intelligence has efficient learning ability. Artificial intelligence is different from human thinking. As an important core part of computer network, artificial intelligence can design more accurate and complete technology, and has a strong learning function. For the past operation of the program, key points and steps can be quickly mastered, and can even form a reverse effect, built with high intelligence operation program. [2] computer network technology has strengthened the continuous improvement and improvement of artificial intelligence, and the learning ability of artificial intelligence has been further developed, which can achieve faster processing speed from simple processing of information to the processing of current advanced programs.

Second, artificial intelligence can save current resources. The current information processing is an important complex process of extraction, decomposition, storage and dissemination. Without the support of advanced technology, it is difficult to be processed and disseminated in a short period of time. The advantages of intelligence and speed of artificial intelligence can save a lot of time and resources. Through the development and operation of artificial intelligence, people can extract information in a short period of time and speed up the solution of the problem, which not only saves resources, but also improves the efficiency of the whole operation.

Third, artificial intelligence has a strong ability to cooperate. Because people are sentimental animals, sometimes because of the support of personal emotions, it is inevitable that the technology is not up to standard or can not meet the expected requirements, and artificial intelligence can capture the process of events, data processing is faster, data can be presented to the public in a short period of time, and the consumption of human resources can be reduced at the level of cooperation. People can get more information at the same time, so as to achieve efficient office. [3]

### **3. Analysis of Employment Situation under the Background of Artificial Intelligence**

#### **3.1. New Employment Opportunities in the Context of Artificial Intelligence**

##### **3.1.1. Increased Employment Opportunities**

The emergence and development of artificial intelligence has greatly promoted the vigorous development of emerging industries and new business type, and achieved more new employment opportunities, so that new jobs continue to emerge. At present, the development of artificial intelligence in China is mainly reflected in three aspects of employment opportunities: first, the emergence of a large number of new R & D technology posts, which has greatly promoted the employment of technical talents. Taking the booming robot as an example, from raw materials to production, the design and development of parts department, the composition and sale of the whole product, and then to the maintenance of the system and service, artificial intelligence has directly created a large number of related professional jobs; [4] the second is that the traditional departments have been integrated and developed, and new industries and new development opportunities have emerged. The frequent appearance of unmanned workshop breaks the current theory of employment opportunities of artificial intelligence robbing rice bowls and has a positive impact on the whole employment; the third is the development of artificial intelligence, which makes peoples human resources use time relatively reduced, and improves the whole income level, so that people have more time to participate in leisure and entertainment activities, so as to promote the development of related service industries. From the current situation of our country, the number of enterprises of artificial intelligence in our country has reached more than 700, which directly or indirectly promotes the employment of millions of people, and the recruitment of artificial intelligence shows a normal trend. [5] to a certain extent, it also greatly promotes the development of artificial intelligence and provides more employment opportunities for the society.

##### **3.1.2. Employment Quality Promotion**

The development of artificial intelligence technology has gradually replaced some jobs. The robot created by the development of artificial intelligence has entered many manufacturing factories. The work procedure in these factories is complex, simple and rough, consuming a lot of manpower, and the overall working environment is relatively poor. Artificial intelligence liberates the people in these jobs from the dirty and disorderly working environment, and gradually replaces some people with higher risk coefficient and more complicated work. On the whole, it has promoted the improvement of the whole employment quality. [6] according to the reflection of some manufacturing enterprises, after the introduction of machines into the production line of the factory, some of the original work with low safety and tiring work have all been automated, and the working environment has also been improved to a certain extent. The labor force replaced by robots is not abandoned by enterprises, but transformed into technical workers, and their wages and wages have also been further improved.

#### **3.2. New Employment Challenges in the Context of Artificial Intelligence**

##### **3.2.1. Traditional Industry Jobs Demand Decline**

The production of many enterprises is gradually automated and intelligent, and some standardization and programming work is gradually replaced by robots. In some parts of the factory, robots take the place of people to work directly in production, reducing a large number of jobs. And this trend continues to spread, in the field of e-commerce, unmanned logistics and unmanned supermarkets and other unmanned labor gradually rise, the emergence of robots has led to great changes in the traditional industry, artificial intelligence applications from the production field to the field of circulation and consumption gradually spread, from

manufacturing labor to technical posts continue to extend, from manufacturing to service industry. [7] the influence of artificial intelligence on the traditional industry is deepening, which directly leads to the declining demand for talents in the traditional industry, the replacement of the middle and low end posts by artificial intelligence, the increase of peoples unemployment rate, and the technical posts are also facing a certain substitution crisis.

### **3.2.2. New Changes in Technical Skills Requirements**

Currently, in the context of artificial intelligence, social and business requirements for skills have changed. [8] First of all, AI has a certain impact on traditional industries, and some traditional operational skills can be replaced by AI. For example, in the express industry, the sorting of the express has been transferred from manual to robot. The robot can transport the express to a suitable sorting port through the express number identification system, which greatly reduces the labor cost. There are also some factory welding technology, the current robot welding technology can control the error in millimeters, the technical accuracy is higher than the technical level of middle talent. [9] Along with this, artificial intelligence has set new requirements for the capabilities of talented people related to traditional technologies. Need to improve the overall quality of talent, such as express delivery can use robots to decompose, but the urgent need for logistics management information talent, improve the logistics of information security and logistics transportation speed. Therefore, in the context of artificial intelligence, some of the traditional operational skills may be reduced, but related to the comprehensive quality of improved.

3. Personnel training lag Under the background of artificial intelligence, education also has a lag in talent training. With the development of artificial intelligence, the whole society needs a large number of complex talents such as computer, big data analysis and so on. At present, the number of students majoring in big data and cloud computing is relatively small, and the stamina of starting a business and mastering the front-end technology is insufficient, so it is difficult to meet the development needs of the current artificial intelligence background. [10] the development demand of artificial intelligence and the supply of talents are extremely unbalanced, especially in the peak period of employment, the problem of talent shortage is more prominent. Some e-commerce fields also show a large demand for artificial intelligence talents, and some enterprises are also in trouble when recruiting frontline workers who can operate robots. For example, in the maintenance, maintenance and operation of robots, enterprises have an awkward situation of one person is difficult to find when they treat talents. Many jobs can even pay tens of thousands of yuan, but they are still unable to recruit suitable talents. Some data show that in 2025, the gap of artificial intelligence talents in China will reach 10 million, therefore, the lag of talent training has brought a new crisis to the current employment.

## **4. Representation of Problems in Vocational Education under Artificial Intelligence Employment Situation**

At present, the employment situation under the background of artificial intelligence poses a new challenge to vocational education, and there is a certain gap between the two. There is a mismatch between the talents needed by artificial intelligence and the professional settings of vocational education, there is a lag between individual technical talents and social needs, and the coincidence between the content of vocational education and employment is not high.

### **4.1. Mismatch between Majors and Employment Situation**

In the context of artificial intelligence, specialty setting is an important premise of vocational education. Under the general trend of the current artificial background development, there is a certain gap between the professional setting in vocational education and the development

trend of artificial intelligence. Artificial intelligence needs high-quality talents, that is to say, it needs talents with unique analysis of automation, intelligence and big data. However, in the current vocational education, most of the professional settings tend to be first-line, mainly training first-line workers. [11] the demand for high-quality talents is increasing, but most of the talents trained in vocational education are suitable for middle and low end work, resulting in a mismatch between professional settings and employment needs. From the type of professional setting, the professional setting of vocational education is relatively narrow, and there are also some defects in professional design. The major related to artificial intelligence in professional setting is insufficient, and the integration of related specialties is not sufficient, so it is difficult to support the training needs of artificial intelligence talents. Artificial intelligence needs more high-end technology, but now the professional setting of vocational education mainly focuses on the training of skilled workers, such as early childhood education, welding, machine tools and so on, and artificial intelligence needs more and more high-tech types, which aggravates the dilemma of vocational education talents and affects the employment opportunities of talents. Therefore, there is a certain lag between vocational education and the development of artificial intelligence, vocational education in the professional setting can not fully meet the needs of the current artificial intelligence. In the professional planning, vocational education also has some shortcomings, artificial intelligence knowledge update speed is relatively fast, need to absorb a lot of knowledge in a short period of time, and vocational education is relatively shallow, pay attention to technical training, the education of theoretical knowledge is less, can not give students a certain amount of knowledge transmission in the fastest time, and it is difficult to quickly improve the quality of vocational education talents in a short period of time.

#### **4.2. Personnel Training Is Out of Step with Employment Development**

With the development of modern artificial intelligence, the content of employment has gradually become profound, and the speed of development is relatively fast, which greatly affects the current employment situation of artificial intelligence. In the current background environment, artificial intelligence, as an industry strongly supported by the state, has high requirements for technology and talents. There are still many shortcomings in vocational education in the training of talents, which can not keep up with the current pace of employment development. The main reasons are as follows: on the one hand, the degree of automation and intelligence of production is deepening, which makes the traditional jobs disappear gradually, or the traditional posts play a connecting role, and the talents gradually extend upward or downward in the aspect of employment. [12] on the other hand, the employment of artificial intelligence needs high-quality talents with technology. In addition to people can learn certain professional and practical technology, they also need to have profound thinking on the development of artificial intelligence. The continuous change of the current work situation requires people to improve their general ability and comprehensive quality. At present, vocational education pays attention to the cultivation of peoples basic technical skills, the cultivation of high-level technical skills and comprehensive quality is not enough, the training of high-level technical skills is insufficient, and the cultivation of peoples overall literacy is not sufficient, which results in a contradiction between supply and demand. Therefore, vocational education is facing a huge difficulty in talent training, unable to train high-quality talents, to meet the needs of the current artificial intelligence development, resulting in talent training and employment development is not synchronized.

#### **4.3. The Content of Vocational Education Does Not Accord with the Requirements of Employment**

From the end of last century to this century, in a short period of decades, according to incomplete statistics, domestic vocational education colleges and universities have been

continuously developed, and in a few years, its growth rate has reached more than 20. And with the development of artificial intelligence, many vocational education colleges have set up majors related to artificial intelligence, but there are problems in education: first, curriculum standards and the current artificial intelligence background of the industry new technology, new technology, new standards, new norms appear decoupling phenomenon, can not well reflect the needs of the industry, such as machine tool technology has shown semi-automation and even automatic operation technology However, some vocational schools are dominated by manual skills when setting up curriculum standards. [13] second, the curriculum knowledge content has not been fully integrated into the knowledge content from artificial intelligence jobs, and has not been effectively integrated with the original knowledge content. Many curriculum knowledge content is old-fashioned, the updating speed is slow, and appears out of touch with artificial intelligence, strong oneness, rarely integrated into diversified knowledge, such as computer technology in vocational education, closely related to artificial intelligence, but the teaching materials used in some schools are less involved in artificial intelligence. Third, the teaching content and process have not fully met the needs of artificial intelligence, the educational content of many vocational colleges and universities has failed to establish a good relationship between professional courses and basic courses, coupled with a variety of reasons, many professional students can not raise their skills to the standards needed by the market, resulting in many students leaving the specific operation in the process of practice, unable to start, unable to do so, and simply repeating. A process of data thinking and analysis of artificial intelligence is missing.

In particular, the current development of artificial intelligence has put forward higher requirements for the cultivation of talents. The current simple technical vocational education can not meet the needs of social development and artificial intelligence employment.

## **5. Strategies of Vocational Education in the Situation of Artificial Intelligence Employment**

Under the background of artificial intelligence, the employment situation has an impact on vocational education, and how to deal with this impact is particularly important for vocational education. Not only need to start from the existing vocational education ideas and objectives, but also need to start from the education system and personnel training mode to improve the overall quality of talent.

### **(1) Renew the Existing Education Idea, Set Up the Reasonable Education Goal**

The current development of artificial intelligence will have a profound impact on the future employment situation and lifestyle. On the whole, whether it is the long-term employment situation or the short-term employment situation, the impact of artificial intelligence on employment is generally positive and positive, and the arrival of new business type and the new industry makes the employment position far more than the employment position replaced by the current machine. Therefore, under the background of artificial intelligence, it is necessary to take the comprehensive development of talents as the core and put the development of human in an important position. In order to further ensure the sustainable development ability of talents themselves and adapt to the requirements of high-quality and high-tech talents under the current artificial intelligence background, vocational education should establish the cultivation of comprehensive talents, people-oriented educational concept, and increase attention to social talents. In terms of educational objectives, we should take the cultivation of human ideas and skills as a dual purpose, not only to improve the understanding of artificial intelligence, but also to increase the technical ability of talents, so that talents are more suitable for the needs of society. Under the background of artificial intelligence, the reasonable educational goal should follow the development of the times. Adjusting the goal

according to the background can not only train the talents who are more suitable for the needs of the society, but also form the reaction and promote the progress of technology. [14] therefore, technological progress and the development of education are in fact synchronous, especially in the process of vocational education, if vocational education can change the current educational concept and professional content, set up professional artificial intelligence education objectives, and timely adjust the educational content and professional content, make reasonable planning, introduce special talents to enhance the existing teacher resources. It can greatly enhance the training of artificial intelligence talents.

#### (2) Improve the Relevant Education System, Set Up Market Demand Professional

In the current artificial intelligence background and vocational education process, the cultivation of more high-quality talents to adapt to the development of artificial intelligence is the most important thing in the current vocational education, and then promote the coordinated development of artificial intelligence industrial structure and workers skills, so that high-quality artificial intelligence and high-quality employment promote each other. Therefore, vocational education colleges and universities should adhere to the mode of combining talent cultivation with talent introduction, support the industrial development of artificial intelligence industry with high-quality human resources, and create more employment opportunities. The first is to construct the mechanism mode of talent education system and industrial linkage, aim at the current trend of industrial reform and development, establish a good professional dynamic adjustment mechanism, actively develop some new professional disciplines such as robot technology transformation and computer control, and increase the proportion of vocational education in the curriculum of new fields such as computer. The second is to strengthen the interaction between schools and enterprises, vigorously develop the current technical education, speed up the construction of technical specialties oriented to artificial intelligence industry, cooperate with enterprises in professional practice, and provide practical opportunities for students. [15] the third is to improve the current professional withdrawal mechanism, in view of the current vocational education teachers and curriculum evaluation, timely do a good job of enrollment, to meet the development requirements of the current artificial intelligence industrial revolution, adjust some technologies and specialties that are not suitable, and promote the optimal allocation of resources in the current vocational education.

#### (3) Changing the Content and Mode of Education and Cultivating Comprehensive Talents

(4) With the current individualized development of students, under the background of artificial intelligence, the employment situation has also put forward higher requirements for personalized development. In addition to taking the current needs of students as the educational reference standard, the employment situation should also be taken as the reference system of training objectives. Vocational education should closely combine the current employment needs and improve the teaching content and curriculum objectives of the current major. [16] Vocational education is a professional education, but it is also necessary to fundamentally improve the comprehensive quality of students and construct the knowledge of various disciplines. In the process of education, students should be trained to understand things from a professional point of view, stimulate students creative and innovative ability, and realize the synchronous development of practical ability and professional ability. Cultivating students basic abilities, such as entrepreneurial thinking, cooperative planning and data analysis, is helpful for students to give full play to their professional advantages in the subsequent employment process and maintain the employment vitality of professionals in the field of artificial intelligence technology. In addition, we should also pay attention to the research and practice ability in the educational content, increase the practical opportunity in the curriculum, let the students practice and theory combine, further deepen the technology and theory they have learned, and let their students experience the work flow of artificial intelligence firsthand.

It can also carry out a variety of lecture contents, enrich students horizons, and expand students various abilities. [17]

(5) The development of all things are double-sided, artificial intelligence brings convenience to our life at the same time, which also has some problems to our employment. Yet artificial intelligence has both positive effects on employment, Also has the negative influence, the employment opportunity and the challenge vocational education should seize the opportunity, firmly grasps the talented persons comprehensive quality, trains adapts the artificial intelligence technology the high quality talented person, promotes more specialized talented person employment, promotes the artificial intelligence profession development speed.

## References

- [1] Li Xiaohua. Which jobs will be replaced by artificial intelligence [J]. Peoples Forum, 2018 (02): 56-62.
- [2] Xue Zaixing. The influence of artificial intelligence on college students employment [J]. Chinese Youth Social Sciences, 2018, 37 (04): 83-91.
- [3] Pan Wenxuan. The multiple influence of artificial intelligence technology development on employment and its countermeasures [J]. Huxiang Forum, 2018, 31 (04): 36-42.
- [4] Zhang Pengfei. New progress in artificial intelligence and employment [J]. Economist, 2018 (08): 64-71.
- [5] The fields. Labor Law encounters artificial Intelligence: challenge and response [J]. Journal of Suzhou University (philosophy and Social Sciences Edition), 2018, 39 (06): 68-74.
- [6] Xiao Xingzheng, ran Jingliang, long Chengchun. Research on the influence of artificial Intelligence on Human Resource Management [J]. Journal of Sichuan Institute of Technology (Social Science Edition), 2018, 33 (06): 15-18.
- [7] Xi Yanhui, Suni. Opportunities and challenges for the development of social work under the background of artificial intelligence [J]. Monthly Journal of Theory, 2019 (02): 45-48.
- [8] Zhang Yu Zhe. Artificial intelligence, robot employment effect and countermeasures [J]. Scientific Management Research, 2019, 37 (01): 87-94.
- [9] Cheng Chengping. Will artificial intelligence eventually completely replace employment [J]. Journal of Shanghai normal University (philosophy and Social Sciences Edition), 2019, 48 (02): 55-59.
- [10] Zhang Xueying. Labor and employment iteration and human capital investment under artificial intelligence [J]. Journal of Hebei normal University (Educational Science Edition), 2019, 21 (03): 87-94.
- [11] Li Hongbao, Yuan Mingyuan, Wang Haiying. The driving Force and New Guide of artificial Intelligence + Education Analysis and reflection on the report of UNESCO artificial Intelligence in Education [J]. Journal of distance Education, 2019, 37 (04): 86-97.
- [12] Wang Xiaocheng. The Challenge of Employment Equity in China in the era of artificial Intelligence and its Countermeasures [J]. Economic system Reform, 2020 (01): 16-20.
- [13] Xie Mengmeng, Xia Yan, Pan Jiaofeng, Guo Jianfeng. Artificial intelligence, technological progress and low-skilled employment: an empirical study based on Chinese manufacturing enterprises [J/OL]. China Management Science, 2020 (02): 37-47.
- [14] Xu Ye, Huang Yao. A study on the relationship between artificial Intelligence and higher Vocational Education [J]. Vocational and Technical Education in China, 2020 (24): 67-72.

- [15] Fang Zhongxiong, Geely, Cheng Cong. Coping strategies of vocational education in the era of industrial intelligence [J]. Journal of Beijing Vocational and Technical College of Industry, 2020, 19 (03): 42-46 ≤ 51.
- [16] Sha Yue, Ding Gang. The humanistic migration of vocational education in the era of artificial intelligence [J]. China Vocational and Technical Education, 2020 (18): 93-96.
- [17] Yuan Huiling. Some thoughts on the Development of Vocational Education under the current Employment situation [J]. Health Vocational Education, 2020, 38 (15): 17-18.