

Labor Education in the Era of Artificial Intelligence

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Keywords: Artificial Intelligence, New Type of Labor, Labor Education

Abstract: Strengthening labor education is crucial and long-term for the all-round development of individual students and the growth of the country since it holds a fundamental and overall important place in the entire national education system. In the current golden age of artificial intelligence (AI), the advent of new types of labor such as virtual labor, knowledge labor, and intelligent labor has led to profound changes in the meaning of labor and labor education, requiring workers to have high ability and literacy. On the one hand, labor outlook education must be enhanced, and labor spirit must be fostered, in order to overcome the challenges of labor education in the age of artificial intelligence, such as labor value deviation and physical weakness. On the other hand, the understanding of AI in education subjects should be improved and students' creative labor ability should be nurtured. Based on the advantages of traditional manual labor and public welfare labor education, labor education mediators should be actively explored, artificial intelligence technology should be developed and used to expand labor education channels, and labor education forms should be enriched and improved.

1. Introduction

Labor education is an important component of socialist education system with Chinese characteristics, as well as a crucial component of Marxist education. It has a fundamental and overall significant role in the educational system. Strengthening labor education is not only conducive to cultivating and preserving the core values of socialism and promoting the traditional Chinese virtues such as diligence and hard-working, but also conducive to cultivating students' correct labor concepts and active working spirit, as well as helping students develop good labor habits and improving labor abilities, knowledge and skills. Therefore, labor education indeed has an important and long-term significance for both the all-round development of students and the development and construction of the country. On March 20, 2020, the Central Committee of the Communist Party of China and the State Council issued Opinions on Comprehensively Strengthening Labor Education in Universities, Primary and Secondary Schools in the New Era,

stating that labor education must reflect the characteristics of the times by “adapting to technological development and industrial changes, paying attention to new changes brought by emerging technological support and social services, and improving creative abilities.”[1] In the current golden age of artificial intelligence (AI), the depth and breadth of labor are constantly extending and expanding. Human labor has gotten more creative as virtual labor, knowledge labor, and intelligent labor have become essential forms of labor. To carry out labor education and cultivate new types of workers, it is critical to first clarify the new changes related to "labor" and the challenges faced by labor education in the artificial intelligence era, and then to explore practical and effective labor education paths that meet the needs of the times.

2. New Changes Related to "Labor" in the Era of Artificial Intelligence

Labor forms have become more complicated and sophisticated in the age of artificial intelligence, and virtual labor, knowledge labor, intelligent labor and other new type of labor have emerged, as has the connotation of labor and labor education. AI replaces humans in tedious tasks, dramatically increasing work efficiency and freeing humans to focus on new forms of employment. On the one hand, it improves life and advances society; on the other hand, numerous new forms of hi-tech labor require people to have higher labor abilities and quality.

2.1 New Changes in Labor Patterns

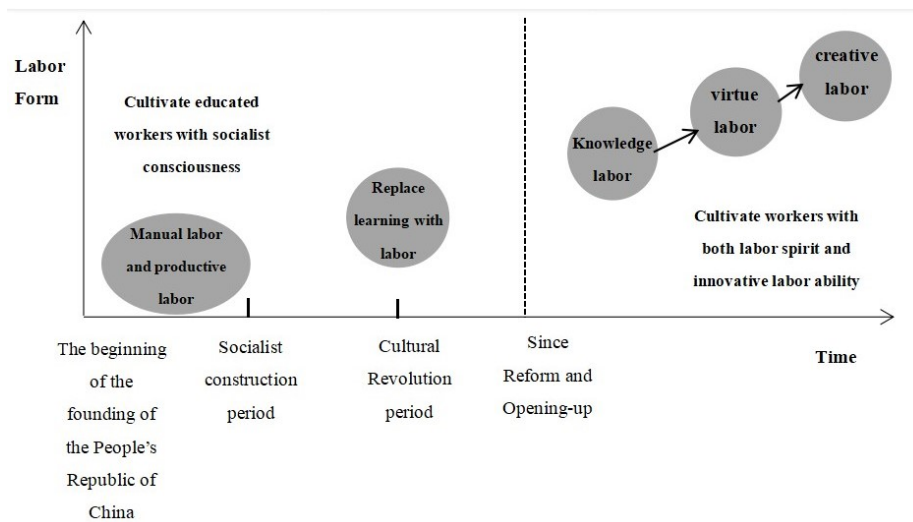


Figure 1: The Development and Change of Labor Forms since the Founding of New China

Artificial intelligence has the potential to replace humans in mundane tasks in industries, agriculture, transportation, communication, education, medical care, and home furnishings, among other areas, considerably enhancing work efficiency and working conditions. The ubiquitous information data, software products, and intelligent activities in production and life are manifestations of labor in modern civilization. These have an impact on or even change people's life at any time and place, as well as cause new labor patterns. In fact, Marx has long emphasized that, as time passes, the creation of wealth is increasingly dependent on scientific progress and the application of science and technology in production and labor, rather than on the amount of labor and labor time. Of course, Marx could not foresee the particular form of labor development in a

hundred years, but he did claim that the application of science and technology to labor created a new form of labor. The “manufacturing labor” of the industrialized era in which Marx lived was gradually supplanted by non-productive labor, non-material labor, and service labor in the era of artificial intelligence [2]. Non-material labor, according to Virno, P., and Hardt et al., refers to the labor of producing commodities information and cultural content, such as information, knowledge, relationship, communication, and emotional reaction labor [3]. In short, virtual labor, scientific and technological labor, information labor, and smart labor based on smart technology have all become new types of labor in the artificial intelligence era.

2.2 New changes in the Connotation of Labor and Labor Education

Confucius and Mencius, as representatives of the labor-despising philosophy, ruled and affected Chinese society for more than two thousand years in ancient China. From an etymological standpoint, the earliest English uses of "labour" are "laboure" and "toure," both of which are closely associated with hard labor and agony. It means "to plow the land" or "to plow on the land" as a verb [4]. It is clear that labor, whether in ancient China or the ancient West, is a difficult and inferior activity. Labor, according to Marxism, is not only an activity of human beings seeking to produce material and spiritual richness by consciously and purposefully transforming nature, but also an activity of self-confirmation and self-sublimation of the essence of existence. AI has had a significant impact on human labor, with computers serving as the material cornerstone. The form of labor has changed, as has the meaning of labor.

As previously said, labor in the age of AI encompasses not only traditional manual labor, but also knowledge-based, technological, and innovative labor. The essential content of labor education remains "performing the ideological and political education function of labor" and "cultivating the labor skills and capacities of the educated". The difference is that, in addition to emphasizing labor's philosophical role in shaping people and the importance of human development, as well as the educational value of labor, labor education must also focus on cultivating laborers' ability to innovate labor, and strengthening training on labor-related and AI-related knowledge and skills to better adapt to new needs to new forms of labor.

2.3 New Changes in Requirements for Workers

"The automation, informatization, and intelligence of human production and social services are continually advancing," Comrade Jiang Zemin said many years ago, “As a lot of heavy and repetitive manual labor is being replaced by various automated machinery and computers, the knowledge and skills requirements for workers are improving. [5]” At present, socialism with Chinese characteristics has entered a new period at the moment. The Communist Party of China's 19th National Congress report stated that in order to build a modern economic system, promote the in-depth integration of the Internet, big data, artificial intelligence, and the real economy, and build an innovative country, a science and technology power, a network power, and digital power, it is necessary to cultivate knowledgeable, skilled, and innovative workers [6]. Therefore, workers must master the means of labor in the information era, be adept in utilizing computers, and be able to fully utilize science and technology, the fundamental producing force, while also increasing their professional knowledge. As the country's talent shortage has resulted in additional criteria for school-based workforce education, future talents with correct labor viewpoints, strong labor habits, and solid labor knowledge and skills must be nurtured to adapt to new types of modern labor, which allows them to become innovative and technical workers.

3. Difficulties Facing Labor Education in the Era of Artificial Intelligence

3.1 Labor Value Deviation Caused by the Convenience of Artificial Intelligence

The popularity of AI has given great convenience to work and life, but it has also contributed to an increase in laziness and the practice of not completing one's own work, which is detrimental to the development of positive labor values. Smart sweeping "robots," drying washing machines, dishwashers, and other smart appliances are increasingly replacing housework. People are freed from arduous and automated manual labor, but there are fewer opportunities to engage in genuine housework. In the artificial intelligence era, the aboriginals and consumers of AI products are the students who will be the future laborers. Since social existence determines social consciousness, because of their reliance on clever instruments, some students have a poor understanding of labor, dislike physical labor, lack the spirit of effort and hard-working quality, and it is unsurprising that they do not respect the products of other people's labor. In short, artificial intelligence's convenience leads to people's reliance on objects, as well as skewing some people's labor values.

3.2 Severe Physical Weakness in Labor Education Caused by the Virtual Nature of AI

Students can learn to cherish the fruits of labor, respect the labor of others, and establish correct labor value by participating in a variety of physical labor, public welfare labor, and social practice activities that allow them to experience the hardships of labor firsthand, hone their will, and temper their character in real work. As a result, labor education can help to cultivate the virtue. However, as artificial intelligence advances, more and more labor are performed without bodily participation, with the brain serving as the primary body. "The separation of mind and body' is the typical crux of physical issues in labor education. [7]" A survey on the labor status of nearly 30,000 students from 30 provinces across the country conducted from January to March 2021 shows that the school conducts various labor that requires physical participation, such as cleaning, planting, breeding, hand-made, mechanical production, cooking, and technological production, the average participation time of primary and secondary school students in the school week is 85.77% for less than 2 hours, 69.87% for less than 1 hour, and 37.36% for less than half an hour. According to the research, primary and secondary school kids have a severe shortage of labor hours to physically participate in school activities. (See, for example, Figure 2) At the same time, the poll reveals that college students have a heterogeneous preference for mental and manual labor. The average desire to participate in manual work among the college students interviewed is 4.633, whereas the average readiness to participate in mental work is 7.519. (See Table 1) It demonstrates that most college students are averse to physically engaging in manual work professions yet enthusiastic about engaging in mental labor activities. The rise of artificial intelligence has resulted in a loss of physical participation in educational labor.

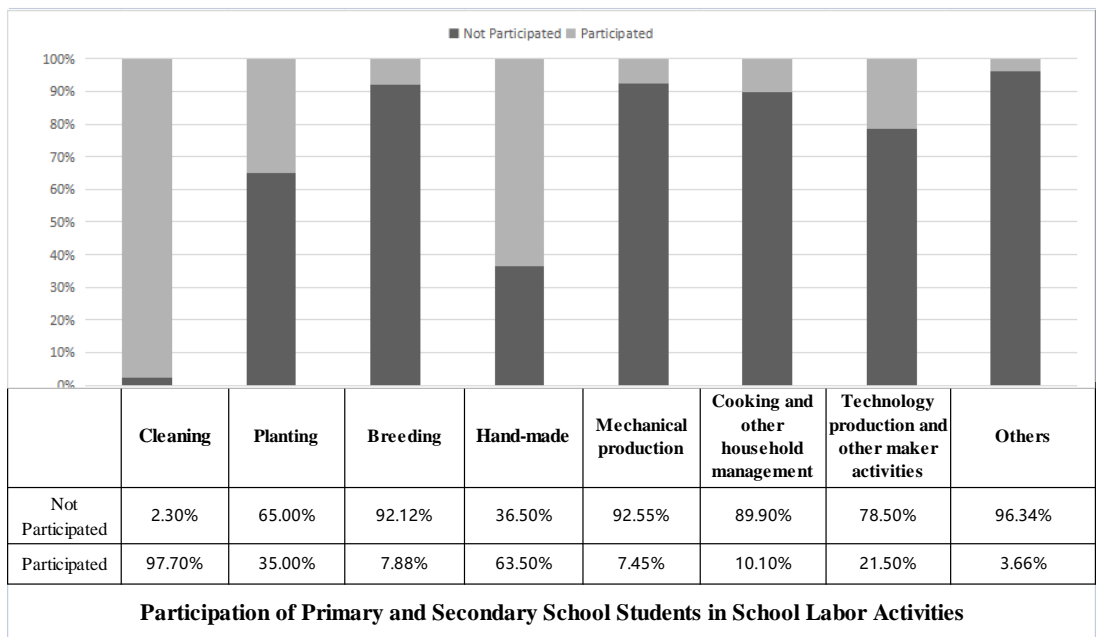


Figure 2: Participation of Primary and Secondary School Students in School Labor Activities [8]

Table 1: Labor Type Preference of College Students (N=3966)[9]

Labor Type	Mean	SD	Skewness	Kurtosis	Min	Max
Physical	4.633	2.654	0.155	2.34	0	10
Mental	7.519	2.057	-0.873	3.614	0	10

4. Analysis of Labor Education Path in the Era of Artificial Intelligence

The smooth growth of labor education necessitates the main body of education transmitting right labor perspectives, attitudes, information, and abilities to students one by one via an educational mediator who serves as a "bridge." In the age of artificial intelligence, it is critical to stick to the correct orientation of labor education. The right knowledge of artificial intelligence in the education subject must then be increased, as well as the training of the educational object's innovative labor ability. Finally, new labor education medium should be actively researched in order to foster more effective communication and interaction between the subject and the object, based on the traditional benefits of varied labor education.

4.1 Adhere to Positive Labor Education Content and Emphasize the "Four Most" Labor Values

China is a strong champion for the advancement of labor education, the spirit of labor, and the respect for labor and laborers. This is due to two factors: first, the importance of labor for the overall development of people, the country, and society, and second, the current state of labor education. Artificial intelligence has advanced swiftly in tandem with the development of new theories and technologies such as mobile Internet and big data, resulting in a rise in people's reliance on objects and a shift in labor values. The social ethos of despising labor has grown throughout time. Besides, young people, as the country's future builders, with fantastic material living conditions since childhood, have not faced life's trials, and lack proper labor perspectives and

appropriate labor habits. Once upon a time, Mao Zedong said: "People's thinking is influenced by their social environment. When the masses embrace the advanced class's true thinking, it becomes a material force that alters society and the world. [10]" It is still vital to adhere to the positive content of labor education in the age of AI by educating and leading young people with the "four most" labor concept. As a result, all young people can grasp the truth that "work is the most glorious, noblest, greatest, and most beautiful in the world [11]", establish healthy labor habits, and improve their practical and self-care abilities in life. They will be able to advocate for labor, respect workers, and work honestly and diligently in the future if they do so.

4.2 Conform to the Trend of the Times and Improve the Correct Understanding of Artificial Intelligence of Education Subjects

The smooth growth of labor education and its success is closely tied to the quality of the subject of labor education, including the subjects' own viewpoint, attitude, ability, and other labor-related elements. Teachers from various fields are included in the core subject of labor education, in addition to labor education teachers. Under the rapid development of science and technology, the subject of labor education must have a correct knowledge of artificial intelligence in the era of AI. They should increase their understanding and mastery of artificial intelligence in addition to understanding the duties and requirements of labor education, actively following the trend of the times, developing their own labor literacy, and mastering professional knowledge. However, in order to foster students' labor spirit and creativity, it should be clear that education subjects should be value-oriented rather than just technologically-oriented by combining nurturing labor spirit and teaching labor technology, and harmonizing value rationality and instrumental rationality.

4.3 Cultivate Innovative Labor Ability and Strengthen the Training of Students' Knowledge and Skills in Artificial Intelligence

It is also vital to promote students' inventive labor ability and provide artificial intelligence knowledge and skills training on the basis of guiding students with correct labor concept education. Labor was originally defined as the act of creating things with wisdom. "Creative intelligence is mankind's most important ability for comprehending and improving the material and spiritual worlds [12]". As intelligent machines steadily replace mechanical and general technical labor, future societies will increasingly require workers with innovative abilities and creative wisdom, as well as those skilled in artificial intelligence knowledge and technology. It is critical to concentrate on developing students' innovative spirit and creative abilities, as well as their creative wisdom. Simultaneously, basic intelligent speech, natural language processing, image recognition, and other artificial intelligence knowledge and technologies should be added to labor education courses to improve students' human-computer collaboration ability by allowing them to understand basic operations, apply this knowledge and technology to corresponding labor, and be competent for creative work in the future society.

4.4 Give Full Play to the Advantages of Traditional Labor in Educating People, and Explore New Labor Education Mediators

In such an era that is artificially intelligent, traditional manual labor, public welfare labor, and social practice are essential labor education approaches, and the educational benefits of traditional labor practices must be utilized. Students can truly feel the hardship and greatness of labor

firsthand, and personally comprehend the lives of working people, when they engage in the labor practice of working hard and sweating. They can gain a better comprehension of Marxist labor theory, develop a hardworking character in labor practice, and form a positive attitude toward work as well as ideas and feelings of love for the collective and the people. While giving full play to the advantages of traditional labor education, it is also critical to adapt to the changing environment and explore new labor education mediators. First, create a labor education knowledge base. Students of different levels can learn independently using labor education curriculum packages formed with online knowledge base relating to labor development history, stories of labor models and advanced producers selected since the founding of the People's Republic of China, and other labor education information. Second, utilize AI technology, such as virtual reality (VR). If the online virtual labor education space is actively explored, such as online simulation workshops, factory production lines, and farm sowing, farming, and harvesting, students can get real labor experience and make up for the shortcomings of not being able to "go to the factory and go to the countryside" labor practice due to various reasons.

5. Conclusion

"In 2018, 12 countries and regions issued or strengthened their artificial intelligence strategic plans, while another 11 countries are preparing to construct their AI national policies [13]", according to statistics data. AI has reached the pinnacle of its meteoric rise. Positive labor education content should remain the mainstream in response to the numerous issues faced by labor education in the era of artificial intelligence, and the "four most" labor values should be highlighted. Subjects in education must increase their grasp of AI and nurture students' ability to work creatively. Furthermore, it is necessary to actively explore new labor education mediators, try to develop and use AI technology to carry out online labor education, and cultivate workers with both labor spirit and innovative labor ability in the new era, based on the advantages of traditional manual labor and public welfare labor education.

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