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## Higher education worries and response in the era of artificial intelligence

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### Abstract

The rapid development of artificial intelligence (AI) has promoted the reform of higher education in the form of a technological revolution. The internal mechanism of the development of the higher education system and the intervention of the external environment have promoted the development of higher education with the times, and also brought opportunities and concerns for the development of higher education. In the era of AI, the thinking of teachers and students is weak, and the learning environment and mode change, resulting in moral problems and technical fanaticism. How does higher education develop well in the era of AI? Thinking and answering these deep-seated questions will be the key to determining how far AI will go in the field of education, and also the response of higher education to the era of AI.

**Keywords:** AI; higher education; educational opportunities; Wisdom response.

## 1. Introduction

AI originated in the United States, McCarthy first proposed it at the Dartmouth conference and officially came out, in 1956 [1]. In recent years, with the rapid development of virtual reality, cloud computing, and big data, AI has been widely used in smart homes, smart campuses, intelligent transportation, intelligent medical care, and other fields. In 2017, the intelligent machine AlphaGo developed by Google defeated the world's top chess players through only three days of self-study. Suddenly, the word AI quickly became the focus of heated discussion in scientific and cultural circles. When a new gene enters the environment, the situation will change, only by understanding the impact of AI on the field of higher education can we grasp the future development trend of higher education more fairly and accurately, to make changes in response to the times and promote the healthy development of higher education.

This paper analyzes the necessity and preconditions of the change of higher education in the era of AI, combined with the opportunities brought by scholars to higher education by AI, and then finds out the impact of AI on higher education from the perspectives of the incompatibility between AI and educational development, ethical problems arising from technology, excessive pursuit of technology, and weakening of teachers and students thinking, and responded to these shocks. The paper consists of the following parts. The related works are provided in Section 2. Section 3 proposes the theoretical basis of the impact of AI era on higher education. Response to concerns about AI for higher education are shown in section 4, and section 5 is conclusions and future work.

The previous research on the application of AI to education can be roughly divided into four categories. The development of AI brings opportunities to higher education. The continuous breakthrough of AI technology has provided new possibilities for the development of higher education, scholars have mainly studied the opportunities brought by AI to higher education from the following aspects, spawned intelligent education organizations, broadened education resources, improved education evaluation, and optimized education management. It has brought vitality to the ecology of higher education.

The main related works are as follows.

(1). AI promotes an intelligent education environment

Relying on the application of big data, deep learning, virtual reality technology (VR), augmented reality technology (AR), simulation technology, and other technologies in the field

of education, AI has brought about fundamental changes in the traditional form of a teaching organization. The traditional single-class teaching system has expanded to intelligent cyberspace. Teachers' teaching and students' learning are no longer limited to the classroom, The teaching mode of blackboard and chalk based on knowledge transfer will be changed to an intelligent learning environment based on exploration, collaboration, and personalization supported by intelligent devices. In recent years, many countries have been exploring new forms of schools, such as Vitra creative school, a "school without classrooms" in Sweden, and ALT school in the United States [1]. The intelligent learning environment is characterized by interaction, integration, and sharing. It organically integrates technologies such as the Internet of things, intelligent terminals, and intelligent recording and broadcasting with teaching. At the same time, big data mining and analysis technologies can be used to capture and store data of students' learning process in real-time throughout the whole process, combine students' historical learning data with current data for accurate analysis, visually present learning feedback, predict future performance, and find potential problems, combine teaching, learning, and testing to improve teaching quality. VR, AR, and other technologies are integrated and superimposed, which can generate a three-dimensional virtual world by computer simulation, build a new environment, and provide a synchronous collaborative social space. Teachers and students integrate real education with the virtual network environment with the help of intelligent perception technology and wearable devices. Through natural actions such as gestures, voice, and expression, they can complete the interaction, so that the interaction between teachers and students and students can communicate and cooperate have reached a more ideal realm, deeper interaction, and more efficient, inclusive, and diversified teaching activities than in the past [3]. It breaks the traditional teaching organization norm of school, class, teacher, and a group of students, and replaces it with a flexible, personalized, and intelligent learning organization of smart education. Borderless learning that breaks through campus walls will become a reality. To a certain extent, it realizes teachers' individualized teaching and students' individualized learning, Bringing new experiences and progress to teachers and students.

## (2). AI widens the supply of educational resources

Higher education needs to obtain information continuously as a place for studying knowledge, making it more dependent on knowledge acquisition. Due to the development of AI, information from all sides, and the rapid development of science and technology, with the help of digital processing technology and production platform, the flow of knowledge and

information is faster, the visualization effect is better, and the connectivity is higher, and the interaction is stronger, the presentation of knowledge information has changed from a single paper to a rich network. Before the invention of printing, the access and dissemination of knowledge and information had to be limited by silk and bamboo slips. After the invention of paper-making and printing, students could easily obtain knowledge and benefit from knowledgeable teachers. The progress and development of technology have given birth to the explosive growth of knowledge and information. AI has displayed and shared resources unique to all of life. In the field of education, it has broken the relationship between teachers and the school is the authority of the only source of knowledge and information. The advanced machine intelligence equipment links all kinds of knowledge information in the virtual environment and the physical environment. The acquisition of massive knowledge resources breaks the time and space restrictions and can present static knowledge information in a dynamic, intuitive, and vivid manner, so that the acquisition of knowledge information presents instantaneity, pluralism, and interactivity, and realizes resource sharing. At the same time, the intelligent learning environment emphasizes the use of data and algorithms to find knowledge and information that students like. With the help of situational awareness technology, we can capture information about learners' actions, behaviors, emotions, and other aspects, accurately identify the characteristics of learners, and provide learning diagnosis reports [2]. Using big data technology to track the learning process, understand students' cognitive level and their advantages and disadvantages in learning, provide customized optimal learning paths and resources, and each learner has the initiative to learn. Not only that, AI can help them find like-minded partners and matching tutors, push appropriate learning resources, and provide accurate learning support [3]. such as Knewton an adaptive teaching platform developed in the US, which has the function of recommending course content, learning data analysis and prediction, and provides predictive analysis and personalized recommendations for global learners. AI plays a role in the growing field of learning analysis, course material quality assessment, adaptive learning, and recommendation engines. For example, some studies have begun to exploit the potential of AI to create unique learning suggestions for individual learners in MOOCs and blended learning [4].

### (3). AI contribution to education evaluation to be scientific

Education evaluation is the compass to improve the quality of education, which is related to the direction of education development. The development of AI technology provides an opportunity for the reform of education evaluation and the improvement of education

evaluation. Data mining, analysis, scientific prediction, accurate prediction, and other capabilities of AI technology will release great potential in education evaluation, make the evaluation objectives more modern, the evaluation indicators more diversified, the evaluation methods more scientific, and the evaluation subjects more objective. education evaluation is undergoing some changes. For example, the International Student Assessment Program (PISA) includes social-emotional learning as the assessment content [4], The University of Chicago announced that it would no longer take standardized examinations for students' Grades to determine admission. [5] designed an enhanced peer scoring algorithm to correct peer evaluation bias by detecting and eliminating abnormal feedback, to improve the effect of peer evaluation. The storage and dynamic monitoring of big data technology can more accurately record the performance of students in the process of teaching activities, use learning analysis technology to budget, model, and visualize various behaviors of students, and realize real-time diagnosis and evaluation in the teaching process [4]. It has three major functions: motivating learning, recording learning tracks, and authenticating learning achievements [6]. For example, the existing digital learning achievement authentication contains metadata that can describe the objective information of the learning process and has the functions of stimulating learning, recording learning tracks, and authenticating learning achievements (McCormack et al. 2016). In addition to educators, the evaluation subjects attract parents, communities, industry institutions, and other stakeholders to carry out evaluations oriented to real tasks, test ability in practice, and ensure that what students learn matches social needs. AI is applied to education evaluation. On the one hand, intelligent machines and equipment can adopt diversified evaluation indicators according to teaching conditions to achieve accurate, scientific, and comprehensive education evaluation. At the same time, they can replace manual activities with repetitive activities in education evaluation links, reduce the burden of the basic level and schools, and have faster speed and higher accuracy. They can not only make evaluation more scientific but also reduce the cost of education evaluation to the greatest extent [7].

#### (4). AI realizes intelligent education management

Although people's evaluation of AI is mixed, AI and education are inseparable. AI has the functions of information collection and screening, automatic task identification, and independent judgment and decision-making, which is helpful to complex educational situations and assists educational management decision-making behavior, helps educational management move from empirical judgment to accurate decision-making, promotes

digitalization, transparency, and conscientization of educational management, and make educational management more forward-looking. As pointed out in the AI development report (2017), without data on the development status of AI technology, our dialogue and decision-making with AI are blind [8]. The traditional education management mode has a clear division of labor among the functional departments, a clear hierarchy of authorities, and works according to the standardized process. From the perspective of the professional division of labor, this mode is conducive to improving work efficiency and providing a strong organizational guarantee for the operation of modern schools. However, due to the limitation of time, energy, and cost, fatal defects have been exposed. In the face of massive educational demands with different individual differences, it is difficult to accurately classify and respond manually, and it can't meet the needs of personalized and dynamic educational services. With the help of machine learning, expert system, artificial neural network, and other programs, we can give full play to the advantages of the AI system and apply AI technology to education management, which is conducive to improving the scientific and accurate level of education decision-making, promoting the intellectualization of education management methods and means, and creating a smart education management pattern. The intellectualization and conscientization of education management and decision-making depend on detailed and reliable data. Using scientific data analysis and algorithms to optimize the decision-making process can promote the conscientization of education decision-making, provide technical support for the accuracy of education policy output, and build a high-quality and personalized education accurate and appropriate service model. Combined with the historical data on education, through the Internet of things technology, big data mining technology, intelligent decision-making, and visualization technology, it establishes a calculation model for the development of education, evaluates and feeds back the development trend, and constructs a series of decision-making early warning analysis models to achieve a dynamic diagnosis, decision feedback, simulation and inference of future development, and provides more accurate services and educational goals. In this process, accurate identification and matching, accurate decision-making and supervision, accurate service and feedback, and other elements, emphasizing the high matching of problems and countermeasures, demand and supply, goals and means, can improve the weak links between school teaching management and make education management have rules to follow [9].

Given the great impact of AI on higher education, previous researchers analyzed many opportunities brought by AI for higher education from different perspectives. On this basis,

this paper analyzes the impact of AI on higher education, how higher education should resolve the impact under impact of technology, and promote the improvement of higher education by following the development trend of the times and integrating AI technology.

## **2. The Logic of AI Affecting Higher Education**

From the perspective of the history of higher education evolution, universities are similar to biological systems. Like animals and plants, they are constantly evolving forward. They are the product of the dual effects of "heredity" and "environment". The characteristics of a university are the integration of heredity and environment, which is not only a continuous line of inheritance from generation to generation but also a product of historical precipitation. It is also the fruit of continuous innovation with the changes of the times and the environment. As a product of "heredity", higher education has been continued because of its inherent logic of development. "Lowell believes that the university has existed for more than any form of government, any tradition, any legal change, and the evolution of scientific thought. It meets the eternal needs of mankind and becomes one of the most stable institutions in human society." the long history of the university is the best proof that it has existed for thousands of years since its birth in the middle-ages. As a place for studying advanced knowledge, higher education is committed to discovering, creating, and exploring unknown fields. It imparts higher-level cultural and scientific knowledge and is also the source of knowledge creation. It is forward-looking and futuristic. To maintain its vigorous and cutting-edge academic vitality, it must keep creating and updating. Every step and a half in the evolution of human civilization, every progress and harvest in various fields will lead to changes in the internal structure of higher education. The updating of teaching contents and the adjustment of teaching methods are all aimed at adapting to the new situation of the development of the times. Otherwise, he will not be able to achieve the transcendence of advanced learning and the eternal pursuit of cutting-edge knowledge. On the other hand, as a product of the "environment", the existence and development of universities can't be isolated, and their existence and development will inevitably be interfered with by the outside world, which needs to exchange energy and information with the outside world in real-time. Since their birth, universities have been carrying the mission of talent training and cultural inheritance that no other organization can replace and the unshirkable responsibility of promoting the development and progress of human civilization. It is precise because of its responsibility and

mission that it has established the connection between higher education and politics, economy, and culture in the external environment. Education is advancing with the times. Education in different times has different educational characteristics. From the library order to the private school, from the ancient government to the modern school, all of them are the products of the changes of the times. With the rise of AI, the industrial structure, the driving force of economic growth and the system of the social division of labor are all undergoing profound changes. The education system built since the industrial revolution has been unable to meet the needs of the development of the times. The mode of relying on standardized teaching to produce talents in batches is difficult to continue. The social transformation will inevitably put forward new requirements for educational development. And all things that lag behind the new situation will be eliminated. When the external environment changes, the internal structure and function of higher education often get out of order quickly. It needs to be adjusted in time to adapt to the new situation, and there is an inherent impulse force of dissatisfaction with the current situation and self-improvement. Otherwise, it will be eliminated by society or forced to reform by external coercion due to its incongruity with the development of the times and the environment, and then lose the first chance. Just as the industrial revolution led to the emergence of universal school education, the advent of printing changed the mode of operation of education, and the concept of education power improved the social status of higher education.

Higher education is an activity that is constantly changing and developing according to its logic under the interaction of activities in various fields of human social life. Therefore, no matter from the perspective of the logical development of higher education itself or the dynamic external environment intervention, higher education must be soberly aware of its social status and mission in the development of human society, adapt to the changes of the times, and environment, and lead the development of society and guide the progress of society.

### **3. Hidden worries brought by AI to higher education**

#### **3.1 The development of technology and higher education is not coordinated**

Every era has its education. Education has experienced agricultural society, industrial society, and information society. As a subsystem of society, education has social constraints, but its driving and pulling functions for society are also obvious. Today's education has been deeply

embedded in the time and space of intelligent society. It refuses the reality of the strong attack of AI. If education can't introduce AI, it will face the danger of being eliminated. The fourth industrial revolution has been opened, and AI is the most important technology in the 21st century, it has triggered a chain reaction in all fields of society, including education. The rapid progress of technology and the lagging adaptation of higher education constitute a contradiction [10]. The development of education and technology is not synchronized. At present, technological innovation represented by AI has entered an unprecedented active period and is developing exponentially. However, education has not yet got rid of the imprint of industrialization, and current school education clearly shows hysteresis, such as infatuation with centralized management, emphasis on consistency, and polarized views on the application of AI in the field of education. American educational psychologists criticized the American educational circles at that time for having a scientific impulse, believing that the scientific impulse will only bring chaos to teaching [11]. Whether the encounter of the two will increase new burdens and anxieties, and whether they fit into each other has become a new problem. In addition, the encounter between higher education and the rapid development of AI will also show the generational difference between the traditional mode and the new mode. From the perspective of time, talent training in colleges and universities is mainly concentrated in the early stage of life, with a short training cycle of 4-5 years and a long training cycle of about 10 years. However, the progress of AI technology is rapid, and the cycle between the two is far from each other, There will also be obstacles and barriers to cross-border integration; From the perspective of space, there is an obvious generational difference between the real universities in the physical world and the higher education in the AI virtual world. The specific sections can be summarized as the following four points. First, there is a gap between the informatization of traditional education dominated by a self-built applica, and the development of data technology represented by cloud computing. Second, there is a gap between traditional governance decisions based on empirical judgment and accurate digital governance based on big data. Third, there is a gap between the traditional talent training mode of large-scale teaching and the accurate personalized education mode based on AI. Fourth, there is a gap between the traditional scientific research mode and the new scientific research mode of network collaboration, traceability, and multi-disciplinary integration. Achieve the coordination between many advanced elements and the relatively conservative higher education organization to achieve the mutual integration and resonance of the two, it is impossible to achieve overnight, it needs a long and tortuous process, and many problems need to be solved.

### **3.2 Excessive worship of technology and loss of humanistic spirit**

The personality technology contained in AI will challenge higher education in many aspects [12]. The Internet of things is quietly affecting our lives. Some people predict that shortly, AI will empower everything and become the same as air and water. Some researchers believe that in the era of intelligence, people often worship instrumental rationality, ignore value rationality, lose their pursuit of lofty ideals and noble morality, lack humanistic feelings, and then trigger a crisis of humanistic spirit. At present, the integration of AI and the field of education is only limited to the integration of technology, that is, excessive attention is paid to the application of technology in the field of education, and the lack of a comprehensive understanding of AI leads to the existence of "technology worship theory" and technology threat theory, which lead to the suppression of humanity by science and technology [13]. In addition to embracing AI technology enthusiastically, we do not have enough knowledge of its potential risks. While AI interacts with individuals, it is also accompanied by potential emotional alienation risks, which may lead to the real problem of lack of humanistic care in teacher-student interaction and emotional appeals. On the one hand, the super personalized human-computer interaction realized by intelligent algorithms is easy to alienate the interaction between teachers and students in terms of world outlook, outlook on life, and values. If students rely heavily on human-computer interaction to obtain knowledge and resources, it may not only reduce the demand for teacher-student interaction but also lead to students' excessive dependence on and infatuation with the "intelligent charm" of AI. On the other hand, AI can lead to the risk of alienation between teachers' and students' emotional demands. AI can calculate and predict students' interest preferences through big data. If students communicate through AI for a long time and lack emotional guidance from parents and teachers, their emotional attitudes and values will be difficult to establish correctly. Moreover, intelligent education may have an emotional impact on teachers in the process of interaction between people and technology [14]. If teachers lack the correct AI perception attitude and sense of responsibility, it may lead to teacher burnout, frequent mental health problems, a lack of happiness of teachers, and a sudden increase in AI anxiety. If it is in this tool theory, it is easy to be coerced and "tricked" by the technology neutrality theory. In this intelligence process, people can easily taste the benefits of AI but can't see the negative impact behind it. The crazy process of technological innovation is often at the expense of the humanistic spirit of the school. If technology is integrated into education, people will not be aware of its existence and will not deliberately look for it. At present, many people vigorously

advocate the integration of AI into education, which just shows that the integration of technology in the field of education is not very good. Technology should return to humanity, carry humanity and be people-oriented. As an activity of cultivating human beings, the goal of education is to achieve the all-round development of human beings. Human beings are emotional and moral, which is impossible for AI education at this stage. Therefore, how reconciling the contradictions between technology application and humanism and coordinating human-computer harmony is the premise and foundation for promoting the integrated development of AI and education.

### **3.3 Ethical problems caused by AI**

Dialectical materialism tells us that when we look at the development of things, we need to grasp the two-point theory, that is, we should pay attention to the positive and negative aspects of the development of things at the same time. As early as the mid-19th century, Marx recognized the double-sided impact of technological paradox on human society, he pointed out: "In our era, everything has its negative side, AI has dual attributes". When people cheer about the progress of AI technology, the possibility of violating privacy or ethics has brought challenges and worries to education, the development of science and technology is inseparable from ethics". In the field of education, people expect various benefits brought by AI, such as supporting personalized learning and providing teaching conditions to provide services, improving the accuracy of academic assessment, and empowering teachers to teach. As educators try to solve teaching problems through advanced technology, they can't deny the complicated ethical problems and dilemmas arising from the human-computer coexistence, technology abuse, data leakage, academic misconduct, the identity and power boundary of intelligent teaching machines, and the lag and imperfection of policies and regulations. At present, the ethical mechanism of the application of AI technology in education is still unclear [15]. With the development and application of AI technology in the field of education, cases of misuse of personal data have intensified people's concern about the ethical, privacy, and security issues brought about by the application of AI in various fields. In all regions except Europe, less than 30% of countries have comprehensive data protection laws [16]. Data security and privacy protection have become unavoidable issues in the future development of AI education.

First, because AI is vulnerable to data interference, the data collection process involves the legitimate rights and interests of students, teachers, parents, and other responsible subjects, such as the right to privacy and the right to know. The authority to use educational data is

generally concentrated on education managers, AI designers, and so on. The unequal rights and responsibilities lead to the imbalance between the right to use and ownership of data. Secondly, intelligent algorithm oversteps the individuation of educational behavior subject. AI constructs the data of the responsible subject through algorithms. This process is likely to occur without the knowledge of students or teachers, which is prone to the problem that the initiative of student subjects is dominated by algorithms. At the same time, because many characteristics, metrics, and analysis structures of models supporting data mining are selected by their designers, such technologies may copy the preconceptions and biases of designers. Further, to a certain extent, it will lead to frequent problems such as intelligent technology infringing on the legitimate rights and interests of the subject and occupying the personalized expression space of the subject [17]. At present, there is no perfect law to solve ethical problems. The international community has begun to pay attention to the ethical problems in the application of AI in education. However, the current research in this field is still in the early stage of exploration, and relevant norm setters and implementers need to plan and deal with them prudently.

### **3.4 AI weakens the thinking of teachers and students**

Science is a double-edged sword. Our excessive reliance on AI will make our hearts and thinking abilities drop invisibly. Excessive greed for the scientific and technological convenience of AI will make people miss the beauty of the learning process and fail to feel the real experience in the learning process, which is another form of stupidity. AI-enabled teaching is to liberate teachers and students from complex and heavy low-end labor and make human beings more intelligent. Industrial intelligence pessimism binds education to technology, which to a certain extent will lead to the subject function of education being constrained by technology, and declare that the educational achievements of AI will lead to the degradation of teachers' and students' limbs and simple minds.

From the perspective of students, due to the fragility of students' subjective consciousness, they gradually lack the will to learn independently and explore. They can just call AI at an appropriate time to enjoy their success, The "happiness of taking " is making a comeback. While promoting learning and life like a fish in water, intelligence may also lead students to gradually rely on intelligent algorithms. It is easy to be trapped in the digital torrent of good and bad, which leads to the distortion of subjective consciousness, imprisonment, and the formation of students' independent thinking. Students unconsciously fall into the misfortune of superficial learning, loss of all-around development, and fragile emotional development.

For example, the reduction of in-depth reading and the popularity of entertainment programs are good examples, which is very easy to form a thinking set. It is undoubtedly a huge educational risk to strengthen the homogeneity of their personality spirit and mass produce "intelligent talents" in the sense of modernity.

From the perspective of teachers, AI in education can help reduce the workload of teachers in homework correction and learning situation analysis. But a certain degree of dependence will be formed. The artistry, subjectivity, and creativity of teachers' teaching may be negatively interfered with by intelligent algorithms, and there may also be a role crisis in professional identity. Teachers pursue AI technology in the teaching process, and to a certain extent, they despise or even ignore the humanistic care and ontology teaching knowledge for students in the teaching process, resulting in ignoring the essence of education. From the perspective of educational managers, it is still doubtful whether the educational decision-making suggestions based on data intelligence can be fully accepted. If we blindly believe in the deduction of AI, there may be deviations in decision-making and management implementation [18]. In other aspects of education, technology dependence, technology anxiety and even technology counterattack risk brought by technology also deserve attention. Therefore, we have to lament the double trap formed by technology neutrality.

#### **4. Intelligent outlet of higher education in the era of AI**

The application of AI in higher education has caused us unprecedented confusion and anxiety. Therefore, it is necessary to re-examine how education will exist in the era of AI, which has triggered philosophical thinking about the relationship between people, machines, life, and education.

##### **4.1 Establish the educational concept of the coexistence of man and machine**

The educational idea is people's rational understanding, ideal pursuit, educational concept, and philosophical concept of educational activities. The progress of education must be guided by the breakthrough and renewal of ideas. Without cutting-edge educational ideas, the goal of education must be one-sided, the practice of education must be short-term, and the development of education must be passive. There have always been different views and voices on the integration of AI and education. Many experts predict that AI technology will bring about the collapse of the higher education system. Some people worry that AI will dispel the current monopoly of higher education and even endanger the whole higher

education system. Others fear that students obtain other sources of knowledge except for schools and teachers, which will gradually break the situation of teachers monopolizing knowledge, The authority of teachers is no longer based on the passivity and ignorance of students, which further impacts the legitimacy of school education and dilutes the authority of teachers. It is difficult for teachers to convey certain norms with confidence. It will threaten the professional status of teachers, the rights and interests of managers, and the authority of schools. Technology is neutral. It depends on the guidance of advanced educational ideas. What technology provides is to add a pair of powerful engines on the two wings of ideas. In the past, the development of people's thinking promoted the progress of technology, but today, technology has promoted a change in people's thinking mode. Higher education can't rely on the traditional teaching, learning, research, and governance structure in a static attitude. In the face of the intelligent era, it can neither coerce Education with the rapid development of technology nor ignore technology with the arrogance of education. The widespread application of AI is transforming human society into a man-machine symbiosis society [19]. Only by changing the concept of education so that it can seize the development opportunity in the era of AI can we fully embody the value of higher education in the era when we enjoy the dividends of scientific and technological information. To survive, we must choose a wise path, not run counter to the torrent of the times and technology. Facing the future, we have reason to believe that under the guidance of the correct concept, AI will bring us more touch, and the resulting life picture will be more harmonious. [20] further developed the idea of human-computer symbiosis from the perspective of cooperative computing. He believes that the emphasis on knowledge representation will be strengthened by increasing attention to cooperative computing and learning. Through the integration of the application of AI and education, we can achieve the harmonious coexistence of human beings and machines and jointly promote the development of education. The ultimate goal is to promote the all-round development of human beings and enable people to live a more dignified and intelligent life. [21] put forward the concept of human-computer symbiosis as early as 1960, he believes that human-computer symbiosis is the expected development of cooperation and interaction between humans and electronic computers, which involves the very close coupling between humans and electronic devices

#### **4.2 Promote the coupling of technology and life dimension**

Education bears an important mission as an activity of cultivating people. The rapid development of AI technology has an increasing impact on education. However, no matter

how technology develops, the nature of education determines that there will be something in education that cannot be changed or replaced. We need to redefine human nature, rethink the value of knowledge, and rethink the essence of education. AI technology should not only follow the laws of technology, but also the laws of human physical and mental development, re-understand people and the significance of their evolution understand and promote human beings to enter a new era, and ensure the lofty status of human beings in this era. Only by placing the human at the top of education's attention, exploring human potential, and awakening human values, only by inspiring people's wisdom can we calmly meet the challenges brought by the era of AI. AI technology promotes the intelligent transformation of the learning environment, teaching methods, and education management, provides appropriate learning opportunities in popular school education, and forms an accurate, personalized, and flexible education service system. It makes traditional education ignore the essence of education, ignore the needs of personal development, and pay attention to mechanical and repetitive training of people. It has been criticized by people for a long time. American psychologist Sternberg advocates that schools should teach wisdom, guide students to think and solve problems intelligently and let them learn to balance the common concerns among themselves, interpersonal relationships, and the external society, to better assume social responsibilities [22]. In March 2016, the world economic forum released a research report entitled "new vision of Education: fostering social and emotional learning through technology", which advocates that human social and emotional education should be placed at the height of coping with the new industrial revolution, including critical thinking, problem-solving, creativity, communication, and cooperation, as well as curiosity, initiative, perseverance, adaptability, leadership Social and cultural consciousness, etc. In other words, education is not the transfer of knowledge from outside to inside, but the realization and wisdom from inside to outside. This requires us to break the traditional education form that is neat and uniform, build a smart education system that is compatible with the era of AI, and use intelligent technology to systematically transform the learning environment, learning content, teaching methods, and management modes, to provide students with more selective, personalized and accurate Smart Education [23]. We should break the traditional education form that is neat and uniform, build a smart education system that is compatible with the era of AI, and use intelligent technology to systematically transform the learning environment, learning content, teaching methods, and management modes, to provide students with more selective, personalized and accurate smart education.

### **4.3 Focus on ethics and optimize AI education guarantee**

Man is not only a natural biological existence but also a social-ethical existence. For thousands of years, human beings have constructed and adapted to a set of social ethics and spiritual order that they are accustomed. Although these orders are also constantly encountering difficulties and updating, they are generally in the stage of self-regulation and improvement. The emergence of AI will challenge the original ethical order and create moral problems that cannot be solved by the traditional and existing ethical framework. What AI can do is constantly break through the existing value limits. It is already difficult for us to predict the boundaries of technological development and the possible consequences. In particular, the superintelligence that may emerge in the future and surpass human brain intelligence may pose a severe challenge to the existing ethical relations and ethical order, and even put the future and destiny of mankind at great risk. The application of AI in the process of education will some new moral problems have emerged, shaking our original understanding, judgment, and pursuit of education, resulting in unprecedented confusion and anxiety. It is necessary to rethink the hidden dangers of parents and education experts' long-term privacy protection of minors and academic tracking of students", the use of a large number of sensitive data, how to protect personal privacy, and how to solve these problems in education in the era of AI, which will be another key factor affecting the existence of future education [24]. Ethical selection and reconstruction have become important tasks for education in the era of AI.

There are also many unifications and conflicts between intellectualization and personification. As long as human beings still want to communicate with other agents unimpeded in the future, it will be the only way to build an ethical code recognized by both humans and robots. Clarifying the working boundary between people and AI in education, strengthening the relevant legal functions, constantly being vigilant against falling into the wrong zone of excessive reliance on AI, building practical application drivers and innovation strategies, strengthening governance in a targeted way, and doing a good job in the application of AI to education will promote the complementary development of AI and education, Start a new journey of educational modernization with intelligence. [25]. At present, there are three main ways to formulate AI education policies: first, to formulate independent AI education policy planning[26]. For example, 2018, emphasizes the impact of AI on human cognition and teaching opportunities. Second, formulate AI public policies and plan education as a part of public policies, such, as in 2016, the National Science and Technology Council issued 《The National AI Research and Development Strategic Plan 》 and a new generation of AI

development plans was issued by China in 2017. Third, formulate special policies and plans on AI data security, ethics, and other related topics, and (The General Data Protection Regulation, GDPR) (European Union, 2016) issued by the European Union in 2016.

#### **4.4 Building a smart teaching mode with humanistic feelings**

The impact and challenges brought to the field of education by the outbreak and spread of the epidemic without warning are enough to prove that the original education system of mankind has been severely endangered. An unprecedented and large-scale online education has been rapidly carried out, which has promoted the practice of AI in the field of education but also accompanied by hidden worries and Reflections on the relationship between people, machines, life, and education in the field of education and concerns about humanism in the era of AI. We should return to the starting point of life, rethink the relationship between technology and humanity in education, re-examine the complex logic behind education and AI, and reposition the future direction of education and AI. The humanistic spirit in the era of AI is to continuously promote and plan the development and evolution of human beings where possible. With the help of rapidly changing science and technology, it continuously improves human beings and sublimates them [27]. If the nature of human beings cannot change, then its prospects will not just stop and stay in the present forever, but tends to be eliminated and die out. The ultimate uncertainty of the human future is based on the inevitable conclusion of natural science and humanism, therefore, the application of AI to education does not represent the subversion of the education system. Instead, it uses its personalization, openness, and intelligence to better assist education. The two are mutually inclusive and coexist harmoniously, promoting the transformation from teacher-centered industrial education to learner-centered intelligent education, promoting the continuous innovation of teaching models, and promoting the continuous diversification of education environments, What is gratifying is that the current application of AI, human beings with brains and souls are trying to tap the potential of technological goodness, endowing AI with emotion and temperature through human practice. In the future education process, we should actively promote immersive affective teaching, collect various data of learners by using affective computing in AI technology, judge learners' learning styles, and teachers should carry out emotionally immersive teaching according to students' learning styles. At the same time, virtual reality technology is used to build a learning environment suitable for students, so that students can experience emotions in the virtual world, truly achieve happy learning, harmonious coexistence between people and machines, and pursue a humanistic spirit and educational

value. From the current application of AI, humans with brains and souls are trying to tap the potential of technological goodness and endow AI with emotion and temperature through human practice. AI is no longer a silent and cold technology, but a friend who gives strength when we seek help [28].

## 5. Conclusions

AI brings new opportunities for higher education. Modern information technology, represented by big data and VR/AR, can further extend the "teaching" function of intelligent teaching systems, help break the restrictions of time, space, and environment of education, broaden educational resources and promote the scientific evaluation and management of education. It is worth noting that while AI facilitates the implementation of "intelligent education", it also hides huge risks. As machines become more and more intelligent, in the practice of education and teaching, the application of AI is still faced with the challenges of technology governance, lack of humanistic spirit, and ethics, which are not synchronized with the development of technology and education, the harmonious development of human and computer. The education system needs to be prepared in advance to promote the integration of AI and education. It needs to handle the relationship between AI and education, go beyond technical limitations, and return to the essence of education to promote the integration of AI and education.

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