Research on the Application of Artificial Intelligence in the Innovative Development of Visual Communication Design Education

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Abstract. At present, countries all over the world seize the strategic highland of AI development in the form of issuing policy documents. In 2017, China issued the new generation of AI development plan and put forward the development goal of "intelligent education". Therefore, the formulation of artificial intelligence strategy plays a role of structural change in the development of vocational education, which is embodied in teaching thinking, teaching content, teaching mode, talent training and professional construction. Facing the challenge of the reform to the ability of vocational teachers and the opportunity of development in the new era. By changing the development concept of Vocational Teachers' teaching ability, constructing the development mechanism of Vocational Teachers' teaching ability in the era of artificial intelligence, updating the content system of the development of Vocational Teachers' teaching ability in the era of artificial intelligence, establishing the development of teachers' teaching ability in the era of artificial intelligence, and realizing the formation of the innovation path of Vocational Teachers' teaching ability in the new era.

Keywords: Artificial Intelligence, Vocational Education, Teachers' Teaching Ability, Development Path

1. The structural change of Vocational Education in the age of artificial intelligence

Generally speaking, artificial intelligence is a new technology science to study and develop the theory, method, technology and application system for simulating, extending and expanding human intelligence. On December 15, 2017, the fourth World Internet Conference issued the general introduction of China Internet development report 2017. The report points out that in the new round of innovation and active period of global information technology development, the iteration of new generation information technology such as cloud computing, big data, Internet of things, artificial intelligence and so on will accelerate, especially artificial intelligence, as a cutting-edge comprehensive discipline integrating computer science, statistics, brain Neuroscience and social science, will lead the next wave of world revolution and trigger all walks of life. The in-depth technological transformation of the industry has led to explosive leaps in technology, data, industry and other aspects. Artificial intelligence is a system that can assist human beings to complete more
creative and complex work through the research and design, simulation or replacement of human intelligence, including recognition, analysis, cognition, etc.

1.1. Personnel training
The era of artificial intelligence attaches importance to the personalized development of human beings. The teaching environment of vocational education will present various forms of "school". The biggest difference between school and classroom is that learners are the builders of school, the masters of their own learning design, and the producers of curriculum resources. That is to say, vocational schools should give students the greatest degree of choice and decide their future development direction, instead of cultivating a group of people to engage in the same work in the order form in the past. Due to the change of talent training program, the professional construction and curriculum of vocational schools also need to be changed accordingly. Artificial intelligence is formed by the intersection of multiple disciplines. Based on this, steam curriculum not only integrates knowledge of multiple disciplines, but also integrates practical activities, spiritual connotation and values contained in different disciplines. It can be considered as a kind of integration and innovation of multi-disciplinary culture. That is to say, we should try our best to choose a wide range of courses, and adopt a general category of major enrollment to meet the needs of each student to achieve their own development and to reflect the needs of their personalized development.

1.2. Teaching thinking
Big data is a comprehensive hybrid and relevant analysis of images, words, people's attitudes and behaviors, geographic information, etc. Therefore, the teaching thinking of random precision and causality needs to be changed. It should also be noted that although AI has been able to write poems and songs, it has been acquired through the experience of predecessors. In other words, what AI can't do is to experience creative thinking and emotion. Therefore, teachers in vocational schools must always grasp the appeal of creative thinking and emotions. No matter in the content of teaching or in the form and mode of teaching, creativity should be reflected. Teach students to combine divergent thinking and convergent thinking, pay equal attention to horizontal thinking and vertical thinking, master the method of solving problems, and have the ability to raise problems, and understand things from different aspects and perspectives.

1.3. Applicability of teaching content
One of the most important technologies of artificial intelligence is deep learning, which refers to the automatic learning of advanced feature combination from the original features. The whole process is end-to-end, directly ensuring that the final output is the optimal solution. In other words, deep learning is the most effective solution to optimize and analyze new things in a way similar to neural network. For vocational education, the unchanging teaching content needs to be changed. Vocational colleges should pay more attention to cultivating students' inspiration, imagination, insight, aesthetic and other areas that are not or rarely involved in deep learning, so as to avoid being eliminated by artificial intelligence. At the same time, the era of artificial intelligence is also an era of conflict between the "shortage of labor" and "shortage of talents" of enterprises and the employment difficulties of vocational college students. It also requires vocational colleges to meet the needs of the era of artificial intelligence to the greatest extent in the selection of teaching content, emphasizing the applicability and universality of knowledge and skills.

To sum up, when AI profoundly changes many aspects of life and production, as an important provider of labor, vocational education, as one of the elements of production relations, will inevitably actively consider how to deal with the arrival of the era of AI. Therefore, under the background of artificial intelligence era, vocational education has the characteristics of individualized personnel training, innovative teaching thinking, diversified teaching mode and universal teaching content.
and opportunities
Professor Lu Bai of Tsinghua University pointed out in the "forum on artificial intelligence and higher education in the future" that artificial intelligence will have an impact on teachers and teaching methods. Anything that reflects the need of repeatability and has a large amount of data accumulation can be replaced by artificial intelligence. We should realize that although artificial intelligence has been able to match or even surpass human beings in many tasks, its limitations are still obvious. This brings opportunities and challenges to the development of vocational education. Teachers, as the most important part of vocational education, how to meet the challenges of artificial intelligence from their own ability, has become the key to the development of teachers' specialization.

2.1. From the perspective of macro professional construction.
On the one hand, the industry is always in dynamic development, and the demand for talent specifications, structure and quality is constantly changing. The process of specialty establishment adjustment is the process of adjusting the relationship between school and social demand. However, some vocational colleges are lack of insight in specialty construction, and can not form the adjustment and construction of specialty structure in time or in advance. On the other hand, in the era of artificial intelligence, students' personalized needs and personalized learning are pursued. It is difficult for vocational colleges to make different training plans for each student, equip corresponding training equipment and teachers. As a result, teachers are unable to adjust, improve and enrich the professional training objectives according to the needs of students and industry. Teachers of vocational education are participants in the formulation of training objectives, implementers of curriculum system, professional practice links and curriculum settings, and leaders of teaching content and teaching design. Therefore, teachers can not only define the implementation of professional construction, but also adjust the contents of each part of the professional setting according to the actual teaching effect. Deep learning, one of the artificial intelligence technologies, can analyze the trend of future career development and provide a theoretical basis for teachers to participate in professional construction. At the same time, artificial intelligence has changed teaching resources, teaching platform, teaching mode and teaching facilities, and provided a reliable hand for teachers to design personalized talent training programs and flat management.

2.2. From the perspective of curriculum development at the meso level.
There is a certain gap between the course development process and the specific content, especially in the era of artificial intelligence, the speed of knowledge and skills change is accelerated. The quality of curriculum development is hard to be guaranteed because of the lack of working experience under the artificial intelligence technology. The investment of equipment in Colleges and universities is also uneven, and the development of practical training courses is also facing different degrees of difficulties. In addition, in the face of the diversity of teaching mode and the universality of teaching content brought by the current artificial intelligence, the corresponding curriculum content should also be changed. At the same time, the concept of individualized learning, informal learning and sharing open education also puts forward higher requirements for curriculum development. Vocational teachers should have a deep understanding of the connotation of artificial intelligence and strengthen the ability of learning and deep learning, which plays a leading role in different areas of curriculum development. In terms of curriculum objectives, teachers should introduce new technologies and concepts at any time, and teach students knowledge and skills synchronously or even ahead of time in a specific situational teaching environment. In the implementation of curriculum, teachers consider teaching resources and teaching platform comprehensively to promote the needs of personalized development to the greatest extent. In the course evaluation, teachers can adjust the course design in time by using artificial intelligence to get the actual situation of each student. Therefore, in the face of artificial intelligence, teachers are the main body of curriculum development, which is conducive to students' transformation of curriculum content into their own knowledge, thus promoting the cultivation of talents.
2.3. From the micro level of teaching implementation.
Teachers should have the ability to make teaching objectives, teaching organization, teaching strategies, teaching design, teaching evaluation and teaching reform. In the process of teaching implementation, the biggest problem teachers face is the rejection of artificial intelligence. Teachers unconsciously abandon artificial intelligence technology and adopt the traditional teaching implementation process. The reason for this problem is that teachers still don't have a deep understanding of how to use new technology in the field of teaching and what kind of effect the application of new technology can have on classroom teaching.

Facing the above problems, artificial intelligence has irreplaceable advantages in the teaching implementation. Deep learning, virtual reality technology and augmented reality technology are conducive to enhancing students' sense of reality, especially for vocational education with strong situational and practical nature, the way of immersive is often better than the effect of teacher demonstration. Therefore, teachers should make full use of artificial intelligence to change the form of teaching implementation. In terms of teaching objectives, teaching organization, teaching strategies, etc., based on artificial intelligence, big data is used to analyze the deficiencies in the process of teaching implementation, and teachers can adjust them in time. At the same time, teachers should also cultivate their own creativity and creativity.

3. The development path of vocational education teachers' teaching ability in the age of artificial intelligence
Artificial intelligence for vocational education means facing greater challenges, a large number of repetitive work, factory assembly line will be replaced by mechanical arm. On the other hand, AI promotes the advanced nature of teaching thinking, the high level of occupation education and the formation of machine thinking. How to use this "double-edged sword" is discussed from the following aspects: Teachers' development concept, development mechanism, content system and development standard.

3.1. The development concept of the teaching ability of the teachers who have been changed and dismissed
The key to the development of vocational teachers in the era of artificial intelligence is to speed up the adjustment of teachers and improve the formation of teachers' concept. Throughout the development process and trend of artificial intelligence, as well as its influence on vocational education, the development concept of vocational education teachers' teaching ability in the era of artificial intelligence is summed up as three words: "creation", "communication" and "love".

Creation is the most valuable ability in the era of artificial intelligence, especially after artificial intelligence has replaced a lot of human work. Li Kaifu, chairman of Innovation workshop, once asserted that any work with more than five seconds of thinking will be replaced by artificial intelligence. In other words, any repetitive work will be replaced. Teachers' teaching concept is no exception, and the solidification of teaching thinking is in danger. In order to solve this thinking set, teachers should gradually improve the artificial intelligence quotient. People with high AIQ have better performance in multiple intelligence, communication, action and creativity. Specifically speaking, teachers should sink into the technology of artificial intelligence, perceive its changes in practical application, combine the characteristics of strong operation skills of vocational teachers, complete the assimilation of artificial intelligence, and form creative thinking and creative skills.

There is no doubt that communication is also one of the biggest parts of teachers' teaching concept change. It not only includes face-to-face communication between teachers, experts, administrators, students, but also includes interaction between reality and virtual, cross regional and cross time zone communication. In the era of artificial intelligence, it is possible for teachers to master online and offline collaborative teaching methods, virtual reality technology and augmented reality technology. At the same time, teachers should gradually accept the integration of man and machine, that is, the communication between man and machine. Human machine cooperation is the future development
trend. Human beings do what human beings are good at and machines do what machines are good at. Human machine cooperation will maximize the advantages of both sides and achieve win-win cooperation. Teachers should also communicate in many fields, expand their knowledge range, form a cross-field and comprehensive composite structure system, and realize the maximum development of self-worth.

The third word is "love". The ability of love is the ability that AI can never replace. AI is the machine made by human after all. On the one hand, artificial intelligence does not have empathy and can not see people's emotions. On the other hand, artificial intelligence can't teach students how to be human and how to shape good qualities like teachers. Therefore, in the era of artificial intelligence everywhere, students are more eager to get warm care and love. Teachers should not be stingy with their feelings, and actively guide students to form a correct outlook on life, the world and values.

3.2. Build a mechanism to adapt to the development of vocational education teachers' teaching ability in the era of artificial intelligence
Vocational education teachers can realize the change of teaching ability concept because of a set of perfect development mechanism. The so-called mechanism of teachers' professional development is an activity process in which teachers use experience, reflection, evidence, data, concepts and theories to achieve professional goals such as teaching students to learn, educate and serve, and also an activity process in which teachers' spirit, knowledge and ability are applied.

3.3. Update the content system to adapt to the development of vocational education teachers' teaching ability in the era of artificial intelligence
Education and teaching ability is a kind of energy and ability formed by teachers in education and teaching activities to successfully complete a certain task, including the ability to accurately grasp the key and difficult points of teaching, the ability to understand students, the ability to design teaching, the ability to express, the ability to organize and manage education and teaching, the ability to communicate, reflect, the ability to research and innovate education and teaching [16]. The teaching ability of teachers in the era of artificial intelligence mainly refers to the ability of teachers to apply artificial intelligence to promote teaching. This ability is not to use technology directly, but to reorganize the process of teaching design through technology.

4. Conclusions
To sum up, the change of teachers' concept of teaching ability, the adjustment of teaching ability mechanism, the change of teaching content and the reestablishment of teaching evaluation standards are more conducive to promoting the pace of AI + education, finding the fit point between AI and the development of teachers' teaching ability in vocational schools, so as to cultivate a group of new generation of technical personnel with technical skills, and to realize the strength of AI China plays an active role.

Acknowledgements
Jilin Province Education Science 13th Five-Year Plan 2018 Project Contract, No. GH181041.

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