

Excellent digital teachers based on talents Course reform of Modern Teaching Technology

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Abstract: The fundamental mission of the reform and development of university teacher education is to cultivate a large number of high-quality, professional and innovative digital teachers. It is the current compulsory course for university teachers, "Application of modern educational technology", as the main position for training digital teachers. Its curriculum content and teaching mode should be changed according to the situation, advance according to the times, and change according to the situation. Starting with the development trend and practical problems faced by digital teachers in the information age, this paper constructs a digital teacher team in the intelligent age, constructs a teaching content structure of "modern teaching technology", and develops a new teaching model that combines offline, entity and virtual, in-class teaching and extracurricular practice, with a view to providing a new perspective for training digital teachers in the intelligent age.

Key words: Artificial intelligence; Modern teaching technology; Digital teaching

1. Introduction

With the in-depth integration of AI and teaching, China's teaching has gradually moved from "information" to "intelligent". With the continuous development of science and technology, the new generation of digital teaching not only has new requirements for the new generation of educational purposes, but also provides new support for digital teaching. The cultivation of digital teachers requires not only new technical support, but also a new subject knowledge system and the promotion of new concepts. "Modern educational technology" is a public basic course in ordinary colleges and universities, which undertakes the important task of cultivating college students' information quality and information teaching.

2. Digital teachers: the development and problems of teacher training in the context of intelligence

2.1 Digital teacher and digital teacher quality structure

"Digital teacher" is a new type of teacher with innovative thinking ability and good information quality, especially the ability to combine information technology with professional education. With the continuous deepening of education in China, the role orientation, existing value and ability needs of teachers have also changed. On this basis, science and technology put forward new requirements for teaching, which involves the development of technology, the integration of technology and curriculum content and mode. The introduction of TPACK architecture extended Schulman's theory.

(Shulman) proposed the "subject-based teaching knowledge" (PCK) system, which includes subject-based knowledge (CK) and pedagogical knowledge (PK), and combines the two to form the "comprehensive element teaching knowledge" (PCK). However, the TPACK system not only does not regard TPACK as an independent knowledge system, but also ignores the teaching environment elements other than subject knowledge, teaching knowledge and

technical knowledge. On the basis of this basic concept, the ICT-TPCK architecture expands the TPACK architecture, and integrates the knowledge of students and the knowledge of educational background, forming a model of five elements. Then, based on the ICT-TPCK model, the TPACK-XL architecture describes it in detail from five aspects: technology, teaching methods, learning content, learners and scenarios. In addition, due to the evolution and development of the learning environment in the future, the role of spatial elements in teachers' knowledge and technology structure has become increasingly prominent, thus forming the structure of TPeCS (Technology, Pedagogy, Content and Space). With the in-depth integration of information technology and education, the quality training of talents has gradually formed a new educational concept. On this basis, we have carried out 22 ability requirements for digital teachers from the following six perspectives: professional participation, digital resources, teaching evaluation, learning empowerment and improving students' digital quality. Many experts in China have also made a profound analysis of the working ability of the new generation of digital teachers. On this basis, the digital teaching ability is analyzed from five aspects: digital technology ability, digital teaching ability, digital learning innovation ability, digital value pursuit ability and basic personality quality.

The article divides the quality of excellent math teachers into general, specialized and specialized. First of all, according to the continuous expansion and expansion of TPACK theoretical system, general skills are specifically divided from three levels: learning performance, understanding and generating learning content, understanding and integrating into teaching space, reflection and practice of teaching process, ethics and legal system. Secondly, this paper studies the digital competency framework of teachers and the digital competency model of teachers from the international, domestic and international perspectives, and concludes that the implementation and implementation of "smart technology" is a very important task. For example, in the digital capability structure of teachers in the European Union, the focus is on the advantages and potential of digital technology in the student-centered education and learning strategy; The field of digital resources is committed

to the efficient and responsible use, creation and sharing of digital resources; The goal of education and education is to manage and cooperate the application of digital technology in education and learning; The application of digital technology is discussed in the evaluation scope to strengthen the evaluation. These four areas of advantages match the teaching environment, teaching resources, teaching models, and teaching evaluation. Finally, in view of the actual situation of higher normal education in our country, we have optimized and optimized it accordingly, thus establishing an excellent math teacher team in the era of intelligence. As shown in Figure 1.

In the era of intelligence, the comprehensive quality of excellent digital teachers refers to the use of information technology by teachers of all majors. The main contents are: understanding and diagnosis of learning behavior, understanding and generation of learning content, understanding and integration of teaching space, reflection and practice of teaching process, ethics and law, etc. Cognition and diagnosis are the analysis of teachers' learning situation by means of various information technology; The understanding and generation of learning content refers to the use of information technology to help students have a correct understanding of what they have learned and use appropriate tools to express what they have learned; Understanding and integration refers to mastering relevant knowledge and knowledge to a certain extent, being familiar with the use of various educational equipment, and combining it with the classroom environment;

Reflective and practical education means that when conducting educational activities, teachers can carry out a continuous framework of problem situations, and test and modify them through interaction with the actual environment, thus forming a knowledge base with extensive application value; Morality and law refer to the professional ethics, laws, laws and social obligations that teachers should abide by in the process of using information technology to improve their own curriculum. Professional skills refer to the skill requirements for the application of intelligent technology with general skills as the core. Its contents include: the application and planning of intelligent teaching environment, the acquisition and development of multiple teaching resources, the introduction and innovation of intelligent teaching, and the evaluation of innovative teaching. Intelligent education environment refers to that teachers can design various intelligent teaching based on the needs of teaching, such as intelligent classroom, virtual laboratory, etc; Obtaining and developing diversified educational resources means that information related to educational purposes can be retrieved, screened, evaluated and selected, and designed and processed to achieve the best results in professional websites and other aspects; "Wisdom" refers to the teaching of "wisdom" based on "wisdom" and supported by "wisdom"; Innovative education evaluation is a comprehensive evaluation of students by teachers using various intelligent technologies, such as classroom record analysis technology and big data mining technology, so as to establish a new evaluation system.

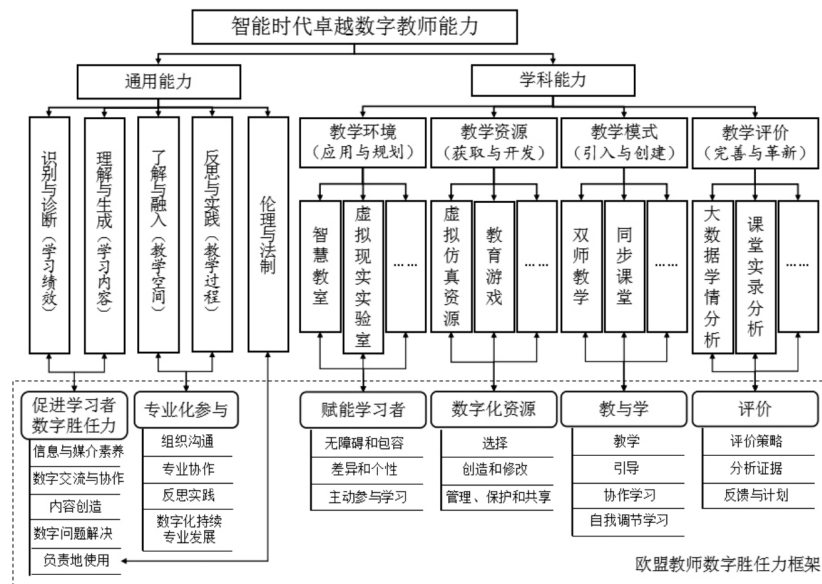


Figure 1 Capability structure of excellent digital teachers in the intelligent era

2.2 Current problems and problems of digital teacher training in colleges and universities in China

At present, the construction of digital teaching staff in China's colleges and universities is facing a new situation of talent quality education and three problems: first, the existing talent quality and teacher training do not match. With the wide application of information technology in the field of education and teaching, many new teachers' professional skills standards have emerged. For example, the 2017 ISTE Educator Standard, the European Union Digital Competency Framework for Teachers, the Norwegian Digital Competency Framework for Teachers, the UNESCO ICT Competency Framework for Teachers, and the ICT Application Competency Standard for Primary and Secondary School Teachers (Trial) are all formulated to improve teaching quality. At present, most of the teaching norms and syllabuses are targeted at in-service teachers, while some foreign syllabuses are divided according to different levels of teacher development and ability levels, but there are still some deviations from domestic teaching models. However, China's "Information Technology Application Competency Standard for Primary and Secondary School Teachers (Trial)" was issued seven years later. Due to the continuous innovation and development of technology, some curriculum contents have not kept up with the current educational practice. Therefore, a new talent quality evaluation system should be established according to the new requirements under the new situation and in combination with the new quality requirements of talents in normal colleges. The second is the mismatch between digital teachers and actual teaching.

With the emergence of new technologies in the field of energy education, higher demands are put forward for digital teachers' cognition, attitude and ability. They can actively create learning situations related to learning content through AI technology, provide support for classroom teaching, enhance teacher-student interaction and student-student interaction through the introduction and innovation of teaching methods, and actively explore the multiple evaluation mechanism of intelligent teaching. So as to promote the deep integration of AI technology and education and teaching. However, at present, there are a lot of theoretical problems in the digital teacher training in China, such as the lack of opportunities to acquire new knowledge and so on. With the development of AI technology and the continuous development of education and teaching, changes are constantly taking place. Therefore, in the curriculum system of "modern educational technology", we should pay attention to the update and supplement of the latest and latest knowledge of AI discipline.

Third, the current digital teacher training in colleges and universities in China needs to be solved urgently. First of all, high-quality teacher training cannot be separated from high-quality teacher training, and the cultivation of digital teachers must also have a set of matching curriculum and teaching system. At present, the teacher training widely carried out in colleges and universities mainly includes pedagogical basis, psychological basis and discipline pedagogy theory, which can only provide a way to construct, generate and transform knowledge. However, in terms of educational objectives, teaching content and even teaching resources, it is difficult to really adapt to the cultivation of excellent teachers. Secondly, in the context of diversified resources, large-scale data and intelligent computing, new technologies such

as AI have accumulated a certain starting force for promoting individualized teaching. Excellent digital teacher training needs not only new technical support, but also new teaching models, teaching strategies and methods guided by new concepts. If there are no teaching models, strategies and methods that match the teaching environment and teaching resources, the goal of excellent digital teacher training cannot be achieved. In the interdisciplinary creative teaching that realizes the high integration of personal intelligence development and intelligence technology application, new teaching methods such as offline combination of network, virtual entity, in-class teaching and extracurricular activities should be established.

3. "AI" teaching reform with "modern teaching technology" as the core

Based on the above problems, this paper discusses how to construct and reform the teaching mode of digital teacher training under the background of artificial intelligence from the theme of "modern educational technology".

3.1 Thought and thought

There are two problems in the content structure of the traditional "modern teaching technology" public course teaching: one is the continuous updating of teaching content and the issuance of relevant textbooks. With the rapid development of information technology and the in-depth integration of education and teaching, new educational theories, teaching methods and teaching technologies are all developing vigorously. However, due to the long time of revision of traditional textbooks, the popularization and application of textbooks often cannot adapt to the update of teaching content. The second is that it accounts for a small proportion in the experiment, and pays attention to theory while neglecting practical operation in teaching. Because the proportion of theory is too large, resulting in the disjunction between knowledge and ability, and the separation of knowledge and ability, making it impossible for knowledge to have a spiral development in knowledge.

Starting from the innovative development of intelligent technology and educational technology, this paper puts forward a new type of future-oriented new educational technology combined with network technology, and reconstructs it from two levels: first, optimize the course content, pay close attention to the application of the latest technology in education and teaching, strengthen the connection between various new technologies and educational concepts, and focus on the cultivation of innovative thinking and information quality. The second is to pay attention to practice and the combination of knowledge learning, skill training, innovative practice and skill training to improve the quality of digital teachers.

3.2 The relationship between curriculum structure and logic

Combining the general skills and professional skills of "excellent math teachers in the era of intelligence", the curriculum of "modern educational technology" is divided into two parts: "theoretical" and "experimental", with the purpose of guiding students to understand the acquisition, understanding, understanding and understanding of "knowledge", and to understand the "knowledge", "wisdom", and "multiple learning" of "wisdom" teaching. In the sound development of "theory oriented, reality based, reality based, and reality based". As shown in Figure 2

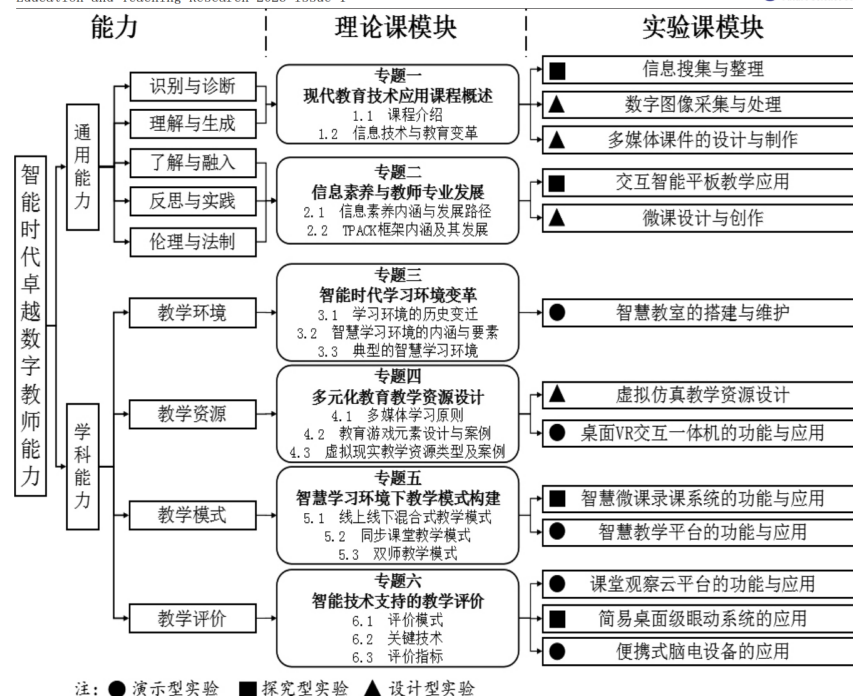


Figure 2 Course content system of "Application of modern educational technology"

The general skill training is aimed at normal students of various majors.

The teaching system of Modern Teaching Technology is divided into two subjects and five experimental subjects. From the aspects of curriculum development process, orientation and objectives, guide normal school students to comprehensively master information technology, understand the significance of technology in promoting education modernization and promoting education reform, clarify the relationship between information technology and teacher development, strive to achieve the coordination of teaching content, teaching methods and information technology, and promote students' thinking and practice with technology, and strictly follow the legal and ethical standards related to technology application. In addition, under the background of informatization, the five experimental courses will be based on the theoretical basis, centered on multimedia technology, use various auxiliary means to collect and process various materials, use various educational equipment, and process and produce various teaching materials. The cultivation of professional skills is to take general knowledge and skills as the core, and continuously apply intelligence technology to education and teaching, so that normal students of all majors can be connected with intelligence technology, so that they can be deeply

combined with professional teaching, so as to make their innovative development in the curriculum. Therefore, the four major themes and eight experimental topics of Modern Educational Technology will always focus on the training of teachers' professional skills with four key points as the core. First of all, taking the change of learning situation as the starting point, understand the components and technical characteristics of intelligent learning situation, and analyze and explain the functions of various spatial structures in the real intelligent classroom. With the continuous development of science and technology, rich teaching resources are also constantly enriched. On this basis, combined with a variety of learning concepts and classic subject resources, normal students are guided out of the field of multimedia teaching. By introducing the method of integrating simulation experiment and desktop VR interaction, we can effectively integrate the professional knowledge of normal students and new educational resources, design, develop and generate a variety of immersive interactive educational resources. The continuous changes in educational environment and educational resources have prompted teachers to gradually form various new educational methods and gradually transform teacher education from "teaching" to "learning". At the same time, the smart micro-class recording system and the smart education platform

can explore and practice the teaching mode in various scenarios for normal students. Among them, the smart micro-class recording system supports the automatic extraction of the key frames of any teaching content and the keyword search of the micro-class content through the intelligent comparison of pictures, which is convenient for teachers to accurately locate and improve their teaching behavior. Intelligent education supports cloud resources, school-based resource database, personal resource database and other resources, supports teaching methods such as electronic textbooks, courseware, electronic whiteboard, and homework evaluation, and supports reading evaluation of Chinese majors. After completion, the evaluation results will be automatically generated, supporting the statistics and analysis of training data, and providing corresponding data analysis, including intelligent lesson preparation, intelligent teaching, intelligent evaluation, and intelligent training. On this basis, this paper discusses this evaluation model in detail from the aspects of cognition, behavior and emotion. The "classroom observation" cloud serves for "classroom observation", which can record the teaching process in real time, and evaluate students' "classroom" intuitively and intuitively through "classroom observation" for students' "classroom observation" and "career observation" scales. The simple desktop eye movement and portable brain wave devices, through the playback of visual process, track map, hot spot map, relaxation, concentration, etc., enable students to better understand the effects of various educational evaluations. Finally, promote normal school students to carry out theoretical research, model innovation, practical application and evaluation in different environments.

4. Public curriculum construction of "modern educational technology" based on artificial intelligence

Because of the traditional education view that teaching is a single method to deal with practical problems in teaching, many teachers today regard the practice of education as a rational method of "rational use of science and technology". Therefore, in practice, according to the idea of "theory before practice", the teacher applies the procedures, techniques and principles he has mastered to the classroom to achieve the preset teaching purpose. However, in the intelligent society, teaching has changed from traditional "theory" to "reality", and has become "overlapping interaction" of "teaching technology", "teaching content" and "teaching method", which is a "knowledge centered" "creation". Finally, we should promote teaching to be more intelligent, diversified and humanized, and more experiential, data-based and personalized. From the perspective of education, to realize the individualized development of college students, it must be achieved through various technical ways and conditions. In the aspect of "learning", an adaptive,

extensible, extensible, individualized teaching that can be used for individualized learning and large-scale classes has been adopted. Continuously introduce intelligent course tools to adapt to the teaching and learning of various courses and promote teachers to realize intelligent tools and means in practical operation. In the aspect of teacher "teaching", various intelligent hardware and equipment such as cloud terminal access equipment (integrated teaching equipment, collaborative tablet), teaching auxiliary equipment (electronic whiteboard, real-time live broadcast/recording equipment), cloud infrastructure (server cluster, network equipment, storage equipment) and so on are used to provide environmental support for excellent teacher training, and make full use of education data mining, big data Learning analysis and other new technologies accurately analyze the learning situation. Through the research of network teaching, this paper puts forward a teaching mode combining network teaching with offline teaching, entity teaching and virtual teaching, classroom teaching and in-school teaching. Examples are given to illustrate the ability of students in normal colleges to acquire and develop educational resources. In the classroom, the first step is to impart knowledge, then the teacher's homework, and then the individualized teaching of the specific requirements of teaching principles; By tracking students' learning process and related problems, the teaching links are graded, typical teaching videos are selected, and the teaching materials are adjusted appropriately according to the actual situation. Internal expansion was carried out in the classroom. The teacher used intelligent instruments and software to build a teaching scene, and answered the questions and difficulties encountered by the students one by one, so that the students could find out the problems in the process. In the classroom, teachers have changed from traditional video teaching to the analysis of "education", "virtual reality" and other teaching contents, so that they can gain more "vision" from "new" knowledge. The teacher introduced the computer virtual reality interactive system, which realized the practicality and teaching of the classroom, and enabled students to combine their professional characteristics with intelligence technology. The teaching practice was carried out in the teaching. Under the guidance of the teacher, after the students put forward their own needs, the cooperative exploration was carried out through a virtual simulation platform. With the help of the teacher, some problems were solved in the teaching. Each team will upload the research results to the cloud for demonstration. During the demonstration, the teacher should accurately consolidate and summarize the knowledge learned. Teachers use big data, data mining, learning analysis and other technologies to evaluate different learning states, and generate personalized recommendation tasks, so that students can summarize and preview what they have learned, teachers can communicate with students online and feedback, and finally test and adjust the teaching process according to the intelligent evaluation results to achieve accurate teaching.

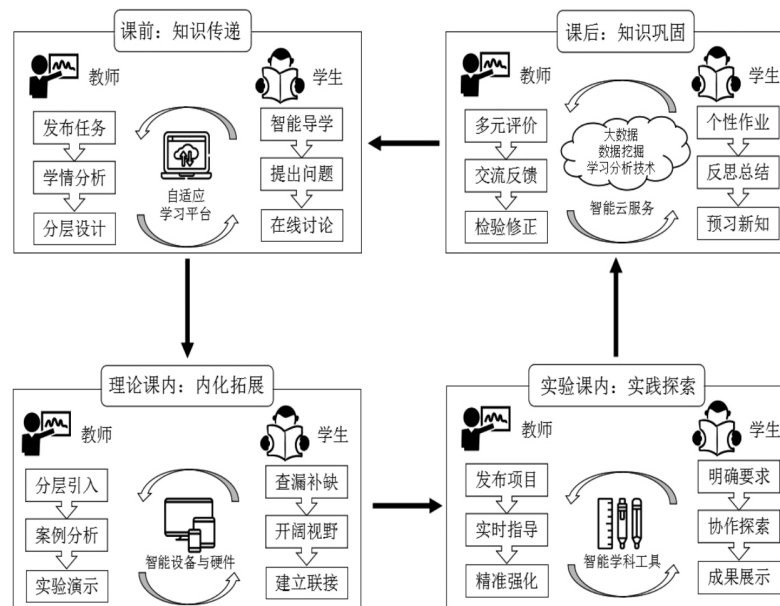


Figure 3 Artificial intelligence+'application of modern educational technology' teaching mode

5. The utility and effect of the public curriculum of Modern Teaching Technology and Artificial Intelligence

5.1 The syllabus of digital teacher training has been established

The "Modern Teaching Technology" project has been implemented since 2017 and has provided high-quality teaching resources for students of nearly 16 majors in colleges and universities across the country. In the practice of implementing information-based education, the teaching staff has gradually formed a practical curriculum construction with students' quality education as the core, the modularization of curriculum system, the specialization of curriculum content and so on. The establishment of modular teaching system can effectively link theory with practice, making it possible to cultivate students' learning ability, ability and ability. The curriculum setting unit has carried out specific research in three aspects: curriculum orientation, teacher professional development and curriculum setting. Specialization can not only maintain the systematicness, integrity and strictness of the knowledge structure, but also improve the effectiveness of education and motivate students' internal drive and continuous ability. At the same time, in the follow-up teaching reform and

innovation, we can constantly improve, enrich and update the relevant topics according to the future teaching changes and relevant professional development, without any interference to other topics. At the same time, through the project-based practice activities, students in normal colleges can be promoted to further promote the combination and innovation with professional knowledge according to their professional characteristics and specific curriculum content.

5.2 Continuously deepen the reform and innovation of curriculum teaching mode

Under the background of information technology, classroom teaching has gradually changed from the original multimedia education form to the intelligent comprehensive education. At the same time, under the new situation, the new round of education mode has also changed from "teaching first" to "learning first", and gradually established an education system that focuses on learning, ability first, openness and people-oriented. Under the background of mixed teaching, the teaching team has constantly created and developed heuristic, exploratory, collaborative, experiential and other new educational methods in teaching practice, effectively stimulating students' subjectivity, initiative and inquiry ability, thus enabling students to comprehensively understand and deepen basic knowledge. In the future, with the development of AI technology, based on its multi-layer application, it will gradually realize the accurate description of students' digital images, and realize the

personalized demand for education through the adaptive learning platform. Adopt graded teaching method, precise teaching method and interactive intelligent instruments to improve students' classroom communication level. Utilize technologies such as big data, data mining, learning and analysis to conduct multi-angle intelligent evaluation of normal students to guide and support the digital teaching of normal students and promote their digital quality and career development.

5.3 Preliminary achievements in the construction of excellent digital teaching staff

Through basic courses and practical training for students, teachers' general skills and professional skills have been greatly improved. It is mainly reflected in that normal students have strong learning ability in terms of knowledge, awareness, attitude and ability of AI technology, and can effectively combine it with the teaching method and content of the course. Taking "modern educational technology" as the platform, In the "Computer Design Competition, iTeach National Undergraduate Digital Education Application Competition and other national undergraduate computer design competitions, iTeach National Undergraduate Digital Education Application Innovation Competition and other national discipline competitions, the winning works account for 8% of the total course works. At the same time, in teaching, teachers can actively use inquiry teaching, experiential teaching, online and offline mixed teaching and other teaching methods, and in teaching "Cognition" and "reflection" have made teaching methods continuously optimized and innovated, and the proportion of high school students who won the first prize in various high school teaching technology competitions such as Toshiba Cup and Chinese

Cup has reached 4%. In terms of educational situation and teaching evaluation, after completing the course, teachers can use various intelligent educational situations and conduct comprehensive evaluation on them from multiple levels such as cognition, attitude and behavior. However, due to the lack of actual situation, it is difficult for normal students to use and plan the teaching environment, improve and innovate the teaching evaluation, etc. Therefore, in the future teaching reform, it is necessary to improve the professional skills of normal students by establishing corresponding simulation competitions and experimental activities.

6. Conclusion

The rise and development of new technologies such as artificial intelligence, education big data, and education analysis provide new opportunities and challenges for education and teaching reform. Promoting the cultivation of "high-quality" and "digital teachers", the combination of "theory and practice", and the combination of "reflective practice" and "teaching mode" is to improve the comprehensive quality of "famous teachers", "digital teaching", "precision teaching" and "digital teaching". In the future, based on various advanced intelligent technology equipment and teaching ideas of information technology, Modern Education Technology will continue to carry out innovative exploration and practice of intelligence education, promote the reform of education mode and ecological reconstruction supported by new technology, try to solve the problem of deep integration and innovation of intelligent technology and education and teaching, and promote the high-level evolution of artificial intelligence and other new technologies and teacher education curriculum from integrated application to innovative development.

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