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Research on the Construction of New Teaching and Learning Mode of "Internet + Classroom Teaching" in Open Universities

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Supported by the talent training construction project of Zhejiang Higher Education in the 13th Five-Year Plan. Research and Practice of Classroom Teaching Reform in Open Universities under the Background of "internet+" (jg20191073), the research results of "Reform and Practice of Informatization Education", famous teacher studio construction project of Zhejiang Open University, and "Artificial Intelligence+Education", a scientific research and innovation team of Zhejiang Open University.

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Abstract
With the rapid development of the new generation of information technology, artificial intelligence education has aroused widespread concern. Taking the open universities as an example, under the background of the development of artificial intelligence, this study combs the theoretical and practical achievements of information technology promoting teaching reform at home and abroad, and analyzes the current situation and problems of classroom teaching in open universities; On this basis, the new teaching and learning mode of "Internet+Classroom Teaching" in open universities is constructed and put into practice. Finally, based on the view of learning in the intelligent era, some suggestions for the open universities are put forward in this paper to further enhance the effectiveness of "Internet+Classroom Teaching".

Key words: Artificial intelligence; Internet +; Open universities; Classroom teaching

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I. INTRODUCTION
With the rapid development of the new generation of information technology, artificial intelligence education has attracted wide attention. In March, 2019, China Intelligent Education Conference was held in Beijing. The conference focused on the latest development technology frontier of artificial intelligence, discussed the professional construction and personnel training of artificial intelligence, and the future development of artificial intelligence education. In May 2019, the International Conference on Artificial Intelligence and Education, jointly organized by China and UNESCO, was held in Beijing. Delegates at the conference held depth discussions on how to strengthen international cooperation and achieve depth integration of artificial intelligence and education. In August 2019, in order to better promote the depth integration of artificial intelligence and education, the "Artificial Intelligence and Education Big Data Summit 2019" jointly sponsored by Beijing Normal Universities and iFlytek was held at the Beijing National Convention Center.

Under the background of "Internet+", modern information technologies such as artificial intelligence, Internet of things, big data and cloud computing have developed rapidly, and a new era of technological change education has arrived. As the development direction of new technology, artificial intelligence has become an important factor in the development of educational informationization, leading the innovation of education and teaching, which has been able to improve teaching and learning efficiency in all aspects such as learning guidance, teaching evaluation and teaching space optimization, enhance learning experience and make personalized learning become a reality. The new round of technological change education will be guided by "Artificial Intelligence + Education", which will inject new ideas into education and teaching, provide new methods and tools, drive the transformation of

education and teaching mode, and promote the qualitative improvement of teaching effect.

The "*New Generation Artificial Intelligence Development Plan*" issued by the State Council puts forward that "using intelligent technology to accelerate the reform of talent training mode and teaching methods, and build a new education system including intelligent learning and interactive learning." The "*Action Plan for Artificial Intelligence Innovation in Colleges and Universities*" issued by the Ministry of Education emphasizes "accelerating the innovative application of artificial intelligence in the field of education, using intelligent technology to support the innovation of talent training mode, the reform of teaching methods, and the improvement of educational governance capabilities." "*The Education Informatization 2.0 Action Plan*" also clearly states that: "Continue to promote the deep integration of information technology and education, and deeply integrate information technology and intelligent technology into the whole process of education." It can be seen that the application of information technology represented by artificial intelligence in the field of higher education has become an important issue in the future.

The open universities of China is a new type of universities established on the basis of radio and TV universities at all levels, supported by modern information technology, with its school-running network covering urban and rural areas in China, paying equal attention to academic and non-academic education, facing all members of society and without walls. Modern information technology is an important support for the open universities of China, and information education is the educational feature of the Open universities of China. Actively respond to the challenges in the era of artificial intelligence, carry out "Internet+education", apply information technologies such as big data, cloud computing and artificial intelligence to the teaching and management of open universities, and build a "Internet+intelligent classroom" with deep integration of information technology and classroom teaching, which is in line with the school-running purpose of open universities to explore the deep integration of science and technology and education, promote educational innovation and the formation of a learning society.

2. RESEARCH STATUS AT HOME AND ABROAD

2.1 Foreign Research Status

Countries all over the world pay great attention to teaching reform and hope to promote teaching reform through technology. In 2001, the Office of Educational Research and Development of United States Department of Education launched a research on the role of information technology in learners' development-*Research on Technology and Education Reform*. The research shows that information technology helps to change the roles of learners and teachers, stimulate learners' learning motivation, and help to strengthen cooperation between learners and peers, thus setting off a T-TPACK heat of teacher training all over the world.

Anderson et al. put forward an analytical framework to help understand the integration of information technology and teaching when discussing the role of information and communication technology in educational reform. The American New Media Consortium publishes *Horizon Report* every year to predict the development trend of technology application in education and teaching. The predict points out that augmented reality, learning analysis, wearable technology and artificial intelligence will lead the application of technology in education and promote educational reform and innovation; Among these technologies, artificial intelligence will play the greatest role in education.

2.2 Domestic Research Status

With the gradual deepening of the influence of modern information technology on education, China attaches great importance to the education of information technology reform at the national level. In 2010, the *Outline of the National Medium-and Long-Term Education Reform and Development Plan* (2010-2020) was issued, which clearly pointed out: "Information technology has a revolutionary impact on education development"; In 2012, the Ministry of Education issued the "*Ten-year Development Plan for Educational Informatization* (2011-2020)", which required "education informationization to drive education modernization and promote education innovation and change." Since then, China has successively issued the *Action Plan for Artificial Intelligence Innovation in Colleges and Universities*, *China Education Modernization 2035*, and the *Implementation Plan for Accelerating Education Modernization (2018-2022)*, fully deploying and promoting "AI+ education", and promoting education modernization with education informationization. Experts and scholars have studied information technology teaching from the initial general discussion to the in-depth study of specific aspects. Generally speaking, the main related research at present is reflected in the following aspects:

2.2.1 Research on the Connotation of Teaching Reform

Zhu Zhiting et al pointed out that the social goals for education are different in different periods. If education does not follow the technological development and seek innovation and change, it will hinder social development. Zhou Xiaoqing et al discussed the history and present situation of learning and teaching reform supported by information technology in China, and analyzed the conceptual evolution from "element view" to "ecological view" and the development process from "tool view" to

"environment view". Kang Shumin analyzed the direction of the reform of teaching methods from four aspects: optimizing the form of teaching resources, changing the way of teaching organization, changing the way of learning activities and innovating the way of learning evaluation. In addition, Yan Zhengshu, Li Hongliang, Du Shangrong and Li Zhenda discussed the characteristics of Internet+Teaching, and the reform strategy of Internet+Teaching is analyzed.

2.2.2 Research on Teaching Reform from the Perspective of Technology

Zhang Shuang specifically analyzed the changes in teaching content, teaching objectives, teaching methods and teaching evaluation under the information technology environment. Starting from the key features of the big data era, Jinling analyzed the development trend of big data reform teaching, and the changes in resource and environment views, teaching views and teachers' development views brought about by teaching reform. Zhu Zhiting and Guan Jueqi studied three issues: what educational reforms are being caused by technology, why educational reforms need technical support, and how to use technology to promote educational reforms.

Wu Fati discussed the reforms brought by artificial intelligence, virtual reality, 3D printing and other technologies in teaching and learning. Meng Zhiyuan et al have studied the innovation brought by educational big data in teaching mode and knowledge acquisition and related blockchain technology. Wang Tianping discussed the reform of teaching thinking, teaching structure and teaching methods induced by big data, and put forward strategies from teaching content, teaching methods and teaching organization. Zhang Guanglu studied Chinese teaching reform from the perspective of AI thinking, and proposed that artificial intelligence is helpful to Chinese learning reform.

2.2.3 Research on Teaching Reform Based on Teaching Elements

Liu Yongqian et al. expounded the influence of information technology on teaching and learning methods from the aspects of teaching philosophy, teaching content, teaching resources and environment, teaching process and teaching methods. Li Benyou et al. pointed out through investigation that the main factors affecting the change of students' learning style are learning content, individual students, teacher guidance, evaluation methods, school culture and teaching resources. Bai Yingying believes that there are three elements in teaching and learning methods under the information environment, including students' learning methods, teachers' teaching methods and interaction between teachers and students. Wang Changping analyzed the influence process and development trend of technology on teaching and learning methods, teachers' knowledge system, teaching materials and learning environment.

Wang Xuejun et al. studied the reform of learning style caused by media change from two dimensions based on resources and interaction. Wang Yunwu studied the standards and reasons of learning style reform, and put forward that the standards of learning style reform are the fundamental changes of learning objectives, learning environment, learning tools and learning evaluation in learning activities, which can be single or multi-faceted reforms. After analyzing the literature content of information technology promoting teaching reform in China, it is found that most of the researches are still at the descriptive and summative level, lacking empirical papers, and there is still a certain gap in realizing information technology promoting teaching reform.

To sum up, the application of the new generation of information technology in education has been widely concerned, and the research results are quite rich. From the perspective of research objects, research is basically combined with the process of education and teaching; In terms of research methods, qualitative research is more than quantitative research and normative research is more than empirical research; In terms of research field, the research mainly focuses on three fields that affect the construction and landing of information technology applications such as artificial intelligence --technical field, mode field and practice field.

The application of a new generation of information technology, such as artificial intelligence, in teaching is still in its initial stage, and problems are constantly emerging. The main reasons are as follows: First, it is related to the development degree of technology; Second, it is related to the insufficient conversion of teachers' teaching ideas; Third, the deep integration of technology and teaching requires the application process, but the application is insufficient in reality. At present, most scholars pay more attention to the technical and theoretical research on the application of new generation information technology such as artificial intelligence in teaching, lacking systematic teaching experiments and systematic research from the overall level of teaching reform; In particular, there is a lack of practical exploration of new generation information technologies such as artificial intelligence and big data in the teaching of Open universities.

The practical research of artificial intelligence and other new generation information technology to promote teaching reform in open universities classroom teaching will help to improve the quality and efficiency of classroom teaching and learning in open universities, and thus enhance teachers' information teaching ability; At the same time, it is helpful to explore and summarize the general rules of applying technology to teaching. In view of this, this study attempts to study the application of the new generation information technology in the classroom teaching of the open universities from the overall level, so

as to promote the new generation information technology to better support and serve the teaching.

3. PRESENT SITUATION AND PROBLEMS OF CLASSROOM TEACHING IN OPEN UNIVERSITIES

In recent years, the open universities have taken the initiative to meet the challenges of the "Internet +" era and launched the "Internet +Classroom Teaching", which has achieved certain results. At the same time, there are also the following problems.

3.1 Knowledge Fragmentation

Fragmentation of learning time, diversification of online teaching platform and fragmentation of teaching resources make it difficult to establish the relationship between the learned knowledge, and it is difficult to process the scattered fragmented knowledge points into a systematic knowledge network, which is not conducive to the construction of knowledge system, and it is difficult to guarantee the depth and quality of learning.

3.2 Difficult Resource Selection

The open universities system is huge, and the network teaching platforms are constructed layer by layer. The number of network teaching resources is huge and varied, and the quality of learning resources is uneven, which leads to excessive redundant information and interferes with learners' learning. It is difficult for learners to quickly find high-quality resources that meet individual learning needs from massive learning resources.

3.3 Undifferentiated Education

Open universities have a good idea of running a school. However, due to the large number of learners, the five unified teaching systems have spawned a large number of exam-oriented learners, and grass-roots teaching cannot cultivate learners' ability of independent thinking and lifelong learning, let alone personalized education, which runs counter to the teaching idea of open education.

3.1 Incomplete Evaluation

At present, the open universities of China take the combination of traditional homework results and one-time final exam results as the evaluation results of qualified courses. There are a series of problems, such as the inability to collect teaching process data, inaccurate teaching evaluation and long time-consuming teaching evaluation. In recent years, the examination reform is more evaluated by one-time 100% network-based examination, which cannot measure the learning effect correctly.

To solve the above problems, on the one hand, it is necessary to strengthen teachers' learning guidance and strengthen and improve teaching design in the practice of "Internet+ classroom teaching"; On the other hand, it is even more necessary for education administrators to rethink, use "Internet+" thinking and modern information technology such as artificial intelligence to create a good educational environment, build a "Internet+classroom teaching" mode in which information technology and classroom teaching are deeply integrated, and lead teachers to use modern information technology to realize the qualitative improvement of teaching and learning in open universities.

4. THE SIGNIFICANCE OF THE CONSTRUCTION OF NEW TEACHING AND LEARNING MODE OF "INTERNET + CLASSROOM TEACHING" IN OPEN UNIVERSITIES

The influence of modern information technology on education and teaching is largely realized by transforming it into tools, media or environment. With the arrival of the "Internet +" era and the rapid development of artificial intelligence, many open and intelligent teaching platforms have sprung up, such as Rain Classroom, Juku Correction Network, MyCOS Intelligent Teaching Assistant, etc. In addition, there are Cloud Classes, because they can easily manage their own classes on any mobile device; Interaction, then carry out; Stimulate students' interest in autonomous learning on mobile devices; Tracking and evaluating the learning progress of digital teaching materials; With the advantages of mobile cloud technology, which is free for students and teachers, many college teachers carry out mixed teaching based on this platform.

The new generation of information technology has brought new opportunities to open universities: ① Artificial intelligence technology can solve the problems of experimental practice and situational obstacles in distance teaching and learning in open universities, and provide technical support for personalized, socialized and open learning. ② Big data and learning analysis technology can reflect the status and effect of online teaching and learning activities in a timely, accurate and continuous manner, and can help open universities accurately judge learners' learning situation. ③ Cloud technology can avoid the problem of information isolated island in the independent construction of each open universities, and let open universities share more public resources. In a word, the new generation of information technology will better support the flexibility and openness of teaching in open universities, and make it possible for lifelong learning to be "always, everywhere and everyone".

The application of artificial intelligence in teaching has shown great potential, and the further development

of intelligent teaching in the future needs the guidance of human wisdom. How to give full play to the effective role of the new generation of educational information technology such as artificial intelligence, so that it can be adopted in the daily teaching of open universities and become mature in practical operation, instead of just staying in the concept hype for a while? It is an important principle of reform and popularization to "pilot first, take points to cover areas". The educational application of artificial intelligence is still in the primary stage, its operation is not mature, and its functional services are not comprehensive. It is necessary for us to set up teaching pilots, train " seeded player ", and explore a practical mode for popularization, so as to promote the wide application of educational artificial intelligence. The significance of constructing a new teaching and learning model of "Internet+ Teaching" in Open universities lies in the following three aspects.

4.1 Carry Out Theoretical Research on the Application of Modern Information Technology to Classroom Teaching in Open universities

Education is oriented to the future. The open universities has gone through a long teaching path in distance open education for more than 20 years, but up to now, there are still many teaching and learning problems that can't be overcome temporarily. Under the background of "Internet+", with the strong support of modern information technologies such as cloud computing, big data and artificial intelligence, open universities should actively embrace new technologies, actively think about and study what problems modern information technology can solve in open universities classroom teaching, construct solutions, and finally apply them to practical teaching, so as to achieve the goal of educating intelligent people with information technology. At present, the application of artificial intelligence and big data in teaching is still in the initial stage. It is undoubtedly of great significance for the open universities to comprehensively investigate the current situation of intelligent education at home and abroad, theoretically analyze the impact of the application of big data and artificial intelligence technology in teaching, and try to conduct a deep theoretical study of "Internet+ classroom teaching".

4.2 Carry Out the Practical Test of the Application of Modern Information Technology in Open universities Classroom Teaching

The application of big data and artificial intelligence technology in primary and secondary education has made a breakthrough, but it has not been paid attention to in the teaching of open universities. At present, front-line teachers of open universities have little contact with big data, artificial intelligence technology and artificial intelligence teaching platform, and managers don't know what kind of platform, software and tools these latest information technologies need for teaching. Big data and artificial intelligence technology will create an efficient learning environment conducive to learning and provide personalized learning support services. Intelligent education is the direction of education and teaching in the future. Through the introduction of intelligent teaching platform, software and facilities, the application of big data and artificial intelligence technology in open universities classroom teaching is tested, the matching point between information technology and education is identified, and the practical application of big data and artificial intelligence technology in teaching is strengthened, so as to explore the deep integration of modern information technology and open universities classroom teaching, which is of great significance for open universities to lead distance education in the future.

4.3 Form an "Internet+ Classroom Teaching" model that Can be Popularized and Applied in Open universities

New technologies, such as big data and artificial intelligence, are in a period of rapid development that breaks through the bottleneck. They have been able to improve the efficiency of teaching and learning in all aspects, such as learning guidance, teaching evaluation and teaching scenes, improve learning experience, make personalized learning a reality, and bring new models and new ideas to solve the problems existing in the traditional teaching process. Combining domestic and foreign research results, through interviews with relevant experts and scholars, and analyzing the practical cases of big data and artificial intelligence technology applied in open universities classroom teaching, this paper discusses the functions and characteristics of intelligent teaching tools, the intelligent evolution model of learning resources, the process of intelligent pushing learning resources, the development strategy of deep learning, the process of intelligent evaluation, and the implementation suggestions of difference evaluation, etc., and constructs and analyzes the fine system framework and conceptual model of the application of modern information technology in open universities classroom teaching, which will enlighten the teaching reform of the open university in the new era.

On the whole, the deep integration of the new generation of information technology represented by artificial intelligence and teaching will promote the innovation of teaching tools, the optimization of teaching resources, the improvement of teaching environment and the generation of teaching evaluation in open universities, which will help teachers to carry out teaching activities efficiently and assist students to learn efficiently and individually.

5. CONSTRUCTION AND IMPLEMENTATION OF NEW TEACHING AND LEARNING MODE OF "INTERNET+ TEACHING" IN OPEN UNIVERSITIES

5.1 Construction of New Teaching and Learning Mode of "Internet+Teaching" in Open universities

After artificial intelligence entered the field of education, the changes of technical support resources and environment promoted a series of changes in teaching. In terms of teacher teaching, artificial intelligence can assist teachers in preparing lessons, intelligently generate personalized teaching content through artificial intelligence technology, monitor the teaching process in real time, and accurately guide teaching to achieve intelligent and accurate teaching; Carry out intelligent practical teaching based on technology; Personalized answering and counseling can help teachers free themselves from simple and tedious teaching affairs, truly return to "human" work, innovate teaching contents, reform teaching methods and engage in more creative work. In the aspect of students' learning, through the construction of intelligent environment, how to guide students should be focused on. By creating different types of learning tasks, create a supportive learning environment to help learners adaptively preview new knowledge, intelligently learn new knowledge interactively, intelligently accompany practice, intelligently guide deep learning, and help students to constantly know themselves, discover themselves and improve themselves. At the same time, the demand of teachers and students for resources and environment in the process of teaching and learning promotes the transformation of resources and environment towards human needs.

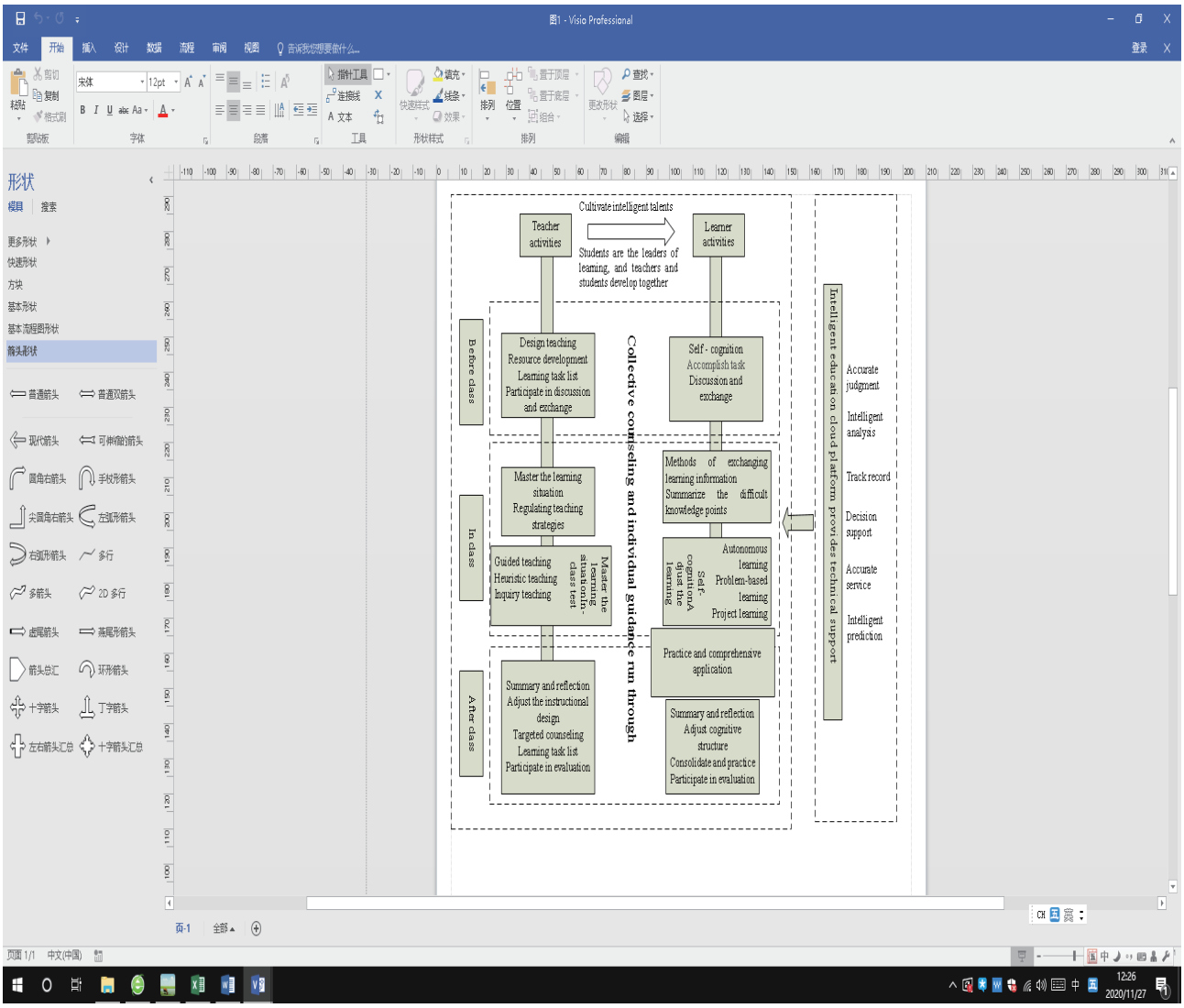

Figure 1
The new teaching and learning mode of "Internet +Classroom Teaching" in Open universities

The new teaching and learning mode of "Internet +Classroom Teaching" in open universities is shown in Figure 1. The ultimate teaching goal of this classroom teaching mode is to cultivate intelligent talents. With the service support of education cloud platform, teaching activities run through before, during and after class. It emphasizes that teachers should adopt teaching strategies of guiding, inspiring, exploring and creating situations, organize students to carry out autonomous learning, cooperative learning, project learning and inquiry learning, promote the unity of knowledge and practice, and apply knowledge practice and synthesis in real life to achieve innovation and creation. Self-evaluation, mutual evaluation, interactive communication and feedback can promote teachers' professional development, better education and teaching, promote students' self-awareness, adjust cognitive structure and learning strategies, and form the ability to learn. In the whole teaching process, in any teaching link, in any time and space, students always stand in the central position, learning activities are seamlessly connected inside and outside class, and teachers' individual and collective guidance runs through.

5.2 Implementation of New Teaching and Learning Mode of "Internet+ Teaching" in Open universities

At present, the application of modern information technology, led by artificial intelligence, in classroom teaching is being carried out intensively in many places, but it is generally at the shallow application and analysis prospect level, and there is still a bottleneck in the deep integration of modern information technology and education and teaching. To sum up, the effective application of modern information technology in the research and practice of classroom teaching in open universities needs to focus on solving the following three key problems.

5.2.1 Build an Open University Teaching Environment Supported by Modern Information Technology

5.2.1.1 Cloud Service Platform

The education cloud platform integrates teaching, research, learning, resources, office, management and other services, providing "cloud"-based services for intelligent classroom teaching and providing effective guarantee for the development of intelligent classroom teaching. The functions of the education cloud platform involve lesson preparation, teaching, autonomous learning, cooperative learning, homework testing, discussion and exchange, classroom interactive feedback and resource co-construction.

5.2.1.2 Teaching Platform

The teaching platform integrates the main subsystems needed by teaching, and constructs a relatively systematic and complete teaching support environment from the comprehensive support for teaching, to the organization and management of teaching, and then to the integration with the teaching resource library and its management system. The functions of the teaching platform mainly include taking class management as the thought, integrating lesson preparation, teaching, resources, testing, discussion, evaluation, counseling and management. It is planned to adopt learning platforms such as Rain Classroom, Cloud Class, MyCOS Intelligent Teaching Assistant, Juku Correction Network, and ekWing.

5.2.1.3 Resource Platform

The construction of resource platform is conducive to the formation of an open and efficient new teaching mode, and it is an important platform for schools to display and promote the achievements of their own teaching reform. The construction of resource platform aims at resource co-construction and sharing, takes the creation of excellent resources and online teaching as the core, faces the massive resource processing, and integrates distributed resource storage, resource management, resource evaluation and knowledge management. It mainly involves the functions of resource platform, including supporting users to upload local resources, and managing, retrieving and sharing these resources in a unified way; All resources can be inserted into the lesson preparation folder, study plan task and discussion task, so as to give full play to the advantages of high-quality resources; The resource types are diversified, involving teaching materials, animation teaching tools, teaching cases, micro-lesson resources, multimedia teaching assistant e-books, experimental videos, interactive training, situational English courses and so on.

5.2.1.4 Learning Space

Generally speaking, learning space includes formal learning space, informal learning space and virtual learning space, which is a learning platform and provides learners with a networked learning environment. The main learning space functions include providing students with learning business applications such as online learning, interactive discussion, group cooperation, online testing, individual counseling, etc., being able to receive learning tasks assigned by teachers immediately, and using rich individual counseling resources to conduct personalized and autonomous learning.

5.2.1.5 Interactive Classroom

Interactive classroom provides effective support for realizing instant interactive feedback in classroom. It mainly involves interactive classroom functions, including teachers can display and distribute content, organize students to learn study plans, organize classroom discussions, conduct classroom tests, push and demonstrate learning resources; Students participate in classroom interaction, learn the teacher's presentation content, complete the tasks assigned by the teacher in class and submit the learning results. Interactive classroom can make lesson preparation, in-class and after-class review

seamless, so as to build a complete and coherent teaching situation.

5.2.1.6 Intelligent Classroom

Intelligent classroom is an intelligent learning environment of "Cloud service+terminal application" based on educational cloud platform, integrating teaching platform, course resources, learning space, interactive classroom software, teachers' mobile teaching terminals and students' mobile learning terminals, etc. It can comprehensively perceive and optimize all teaching links before, during and after class, break through autonomous learning, cooperative learning, inquiry learning and personalized learning which are difficult to carry out in traditional teaching environment, and support diversified teaching activities.

5.2.2 The New Teaching Practice of "Internet+ Classroom Teaching" in Open universities

This paper studies and analyzes the teaching mode of applying modern information technology such as big data, cloud computing and artificial intelligence to classroom teaching, and designs a new "Internet +classroom teaching" mode in open universities, which is designed in detail from the theoretical basis, teaching objectives, implementation conditions, implementation procedures and teaching evaluation. Then, at least four courses of management and computer science are selected for teaching practice.

The intelligence of modern information technology applied in open universities classroom teaching is mainly reflected in intelligent lesson preparation and intelligent teaching resources push before class; Intelligent teaching monitoring, data recording and learning situation analysis in the class, on the basis of which teachers conduct intensive lectures and comments, intelligent real-time interaction, and carry out targeted teaching; Individualized tutoring and intelligent analysis reflection teaching after class are shown in Figure 2.

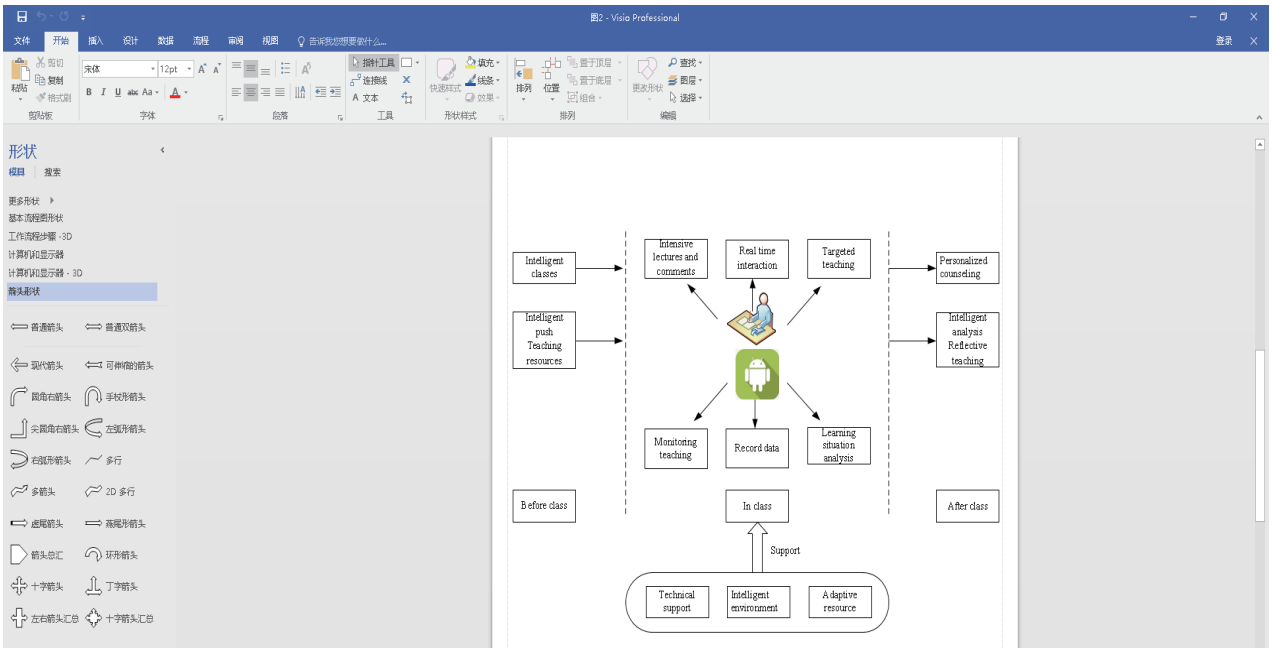

Figure 2
"Intelligent" Activity process of modern information technology applied in open universities classroom teaching

Before class, teachers push learning objectives and personalized preview contents to students' personal learning space, and students prepare for themselves. Teachers can remotely monitor students' learning trajectory, push personalized learning resources in time according to learners' learning behavior and progress, which could meet learners' learning needs, and provide remote counseling at any time. When all students complete the pre-class preparation, the intelligent teaching platform automatically generates the preparation report, so that teachers can check the whole class and individual students' learning situation, understand the weak links of students' knowledge, and then adjust the teaching content and design more targeted classroom activities.

In class, the teacher first makes a quick comment on the students' preview before class, and summarizes the common problems existing in the students' preview process. Through the intelligent teaching platform, students can interact with teachers in real time, and teachers can solve different students' problems one-to-many, fully mobilize students' enthusiasm for classroom learning, and make every student participate in it; Monitor each student's learning process in real time, understand their learning progress and difficulties, and give personalized guidance.

After class, it is a process for students to further deepen what they have learned in class. The intelligent platform analyzes the data of students' classroom learning, intelligently judges the possible knowledge difficulties of

each student, and provides personalized learning guidance. For teachers, intelligent teaching platform can give teachers targeted suggestions on teaching methods according to teachers' teaching process and students' classroom performance, so as to help teachers to reflect in time, check for leaks and fill in gaps, and realize hierarchical teaching.

In terms of teaching strategies, we should also carry out corresponding reforms. Teaching strategy is the sum of ways, methods and media used to achieve different teaching results under different teaching conditions, which is embodied in various activities of interaction between teaching and learning. Common teaching strategies include the first organizer's teaching strategy, Herbart's "five-step teaching method", Dewey's "five-step teaching procedure", Bruner's "concept acquisition", Bloom's "mastery learning", Gagne's "guided learning" (nine-step teaching), Rogers's "non-guided learning", "transmission-acceptance" teaching, "guidance-discovery" teaching, situation-edifying teaching, demonstration-imitation teaching, discovery learning mode, anchored teaching strategy, scaffolding teaching strategy, heuristic teaching strategy, Internet-based inquiry learning strategy, collaborative learning strategy and so on. In the era of artificial intelligence, special attention should be paid to cooperative learning strategies, including teacher-student cooperation, student-student cooperation and man-machine cooperation.

5.2.3 Effectiveness analysis of the new "Internet+Classroom Teaching" in Open universities

Based on the practical basis of "Internet+Classroom Teaching" in open universities, this paper carries out data statistics, investigation and interviews, and compares and analyzes the effects of implementing teaching reform; And analyze the influencing factors and influencing paths of the elements of teaching reform on the improvement of teaching and learning quality, and further optimize the teaching mode and improve the teaching environment on this basis; Finally, detailed cases, research reports and experience summary are sorted out, which are popularized and applied in the systematic teaching of open universities.

Teaching evaluation takes the teaching objectives in the teaching mode as the standard, describes and determines the teaching effect and learning effect according to certain rules, and its purpose is to check and promote teaching and learning. Different teaching models have different teaching objectives, so the evaluation methods and standards used are different. At present, apart from some mature teaching models which have formed a set of corresponding evaluation methods and standards, many teaching models have not formed their own unique evaluation methods and standards. At the same time, according to the research contents of teaching evaluation in recent years, teaching evaluation has changed from teacher-centered to student-centered, the evaluation object has changed from teachers to students, the evaluation standard has changed from qualitative to quantitative, and the knowledge has changed to students' autonomous learning ability. The teaching evaluation of this study emphasizes that teaching is based on learning theory and teaching serves learning. From paying attention to teachers' "teaching" to students' "learning", teachers and students make concerted progress and develop together; Take online and offline as the dividing line to evaluate teaching. See Figure 3.

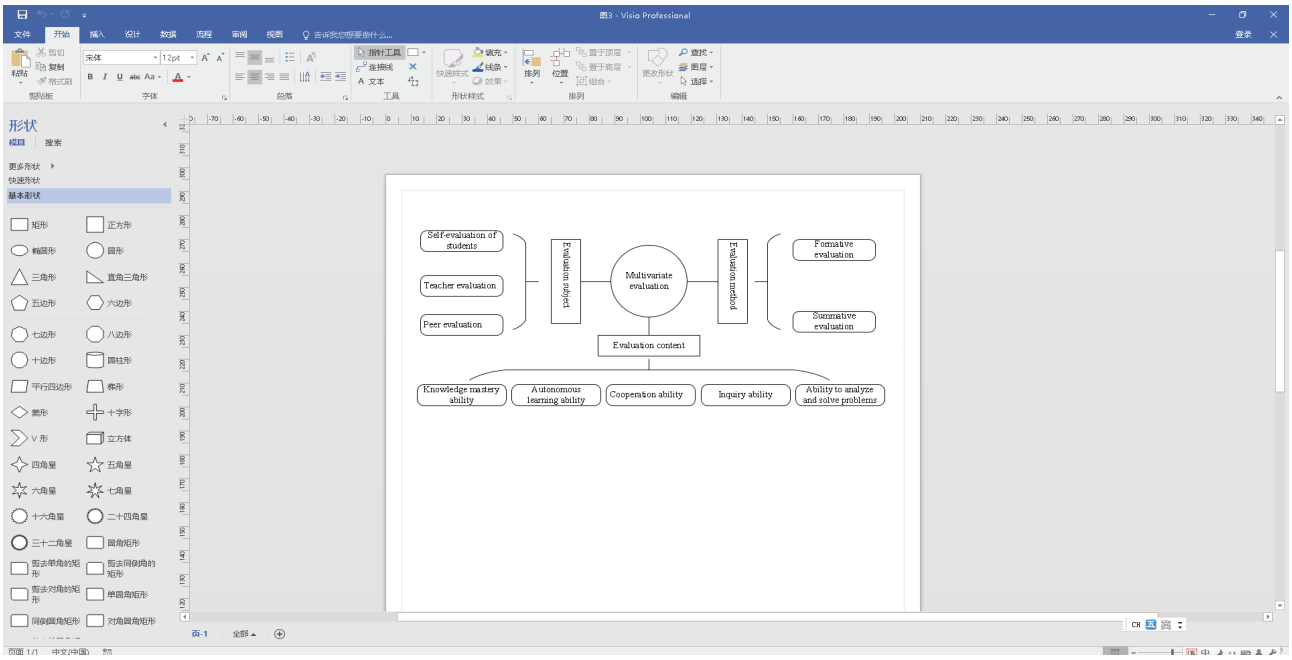

Figure 3
Teaching evaluation table

Taking the open universities as an example, under the background of the development of artificial intelligence, this paper combs the theoretical and practical achievements of information technology promoting teaching reform at home and abroad, and analyzes the present situation and problems of classroom teaching in open universities; On this basis, the new teaching and learning mode of "internet+ classroom teaching" in open universities is constructed and put into practice. In practice, it is found that the new teaching and learning model of "Internet+classroom teaching" in open universities can effectively promote the effectiveness of teaching and learning. At the same time, some problems that need to be paid attention to and solved are also found. Therefore, based on the perspective of learning view in the intelligent era, this paper puts forward some suggestions for the open universities to further enhance the effectiveness of "internet+ classroom teaching": (1) The open universities must make full use of the high-quality learning platforms and learning resources from all walks of life of society and enterprises, and integrate them to make up for the shortcomings of its own construction. (2) Strengthening the training of teachers and students' technical application ability can effectively improve the learning evaluation of intelligent learning space. (3) Strengthen the facilities, equipment, content resources, technical support, platform construction, support services, interaction and cooperation of "Internet+ classroom teaching" in open universities, so as to enhance learners' learning validity and satisfaction.

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