Application of Blended Teaching in Public Administration Courses under the Background of Artificial Intelligence

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Abstract. The deep integration of artificial intelligence and education has become an inevitable trend in the development of higher education in the near future. Taking public administration courses for example, this paper constructed a blended teaching mode in the teaching and learning process, which was proved to be more suitable and helpful for teachers to play a guiding role in public administration professionals. By using big data in the teaching platform, teachers could generate appropriate teaching plans to improve students' learning efficiency and subjective initiatives according to the knowledge and learning habits of each student. Meanwhile, the assessment system in the platform could also improve teaching quality by helping teachers acquire the learning outcome of their students. The blended teaching mode could largely promote the reform of the traditional teaching mode of the course in colleges and universities in China.

1. Introduction
The China "Outline of the National Medium and Long-term Education Reform and Development Plan (2010-2020)" asserted that the core task of higher education development was to improve the quality of talents cultivation. The cultivation of high-quality talents was closely related to the level of education. The quality of education depends on the innovation and optimization of teaching model in a certain sense. The teaching purpose of related majors in public administration is to enable students to study and understand basic theories and knowledge in a broad and systematic manner. It also demands students to use what they have learned to solve social practical problems and improve their ability to analyze problems.

With the rapid development of network technology, profound changes have taken place in teaching models and learning methods. In the development of education informatization, as a product of "Internet + Education", many general elective courses have achieved good teaching effects through Massive Online Open Course (MOOC). The emergence of new learning methods, such as online learning, mobile learning and blended learning, had brought great challenges on traditional teaching and led a new upsurge of online education in recent years. In July 2017, the State Council of China released the "New Generation Artificial Intelligence Development Plan", which promoted artificial intelligence research to the national strategic level, and opened a new journey for the research of the development of artificial intelligence in China. The development of artificial intelligence technologies such as neural network and machine learning made the mining of massive images, voice, text data and personalized feature information become reality, and provided a powerful guarantee for promoting the application of blended teaching model and modern education reform in China. The rapid development of online education made learners’ learning more accurate and practical. In such a context, how to combine the advantages of MOOC and traditional teaching in public administration courses to achieve the best learning effect deserves attention and consideration.
2. The Connotation and Necessity of Blended Teaching
Blended teaching is a kind of teaching method that achieves the optimal teaching goals through appropriate media technologies, providing resources and activities appropriately. This teaching method breaks through the limitation of time and space of traditional classroom teaching. Blended teaching combines the advantages of network information technology with the traditional classroom teaching. Multimedia information technology can be used to present the course contents in multiple forms and diversification, through which students can get rich learning resources and discuss with the teacher timely. The use of traditional teaching ensures that teachers guide, organize, answer learning questions effectively, and present learning results in the learning process. Blended teaching can not only emphasis the leading role of teachers in organizing, guiding, inspiring and monitoring the teaching process, but also fully incentive the initiative, enthusiasm and creativity of students as the main part of the learning process. So this model of teaching has been widely implemented and applied in the current education community. In the teaching of public administration subjects, the goals of the correlated curriculum are to achieve the professionalism of teaching content, the differences of teaching objects and the openness of teaching methods. Therefore it is very suitable and helpful to adopt the blended teaching model.

3. Application of Artificial Intelligence in Blended Teaching
With the widespread application of artificial intelligence in the field of education, its intelligence, visualization and other characteristics provide effective support for students' intelligent and personalized learning. On the one hand, artificial intelligence breaks the shackles of traditional physical space by creating personalized learning spaces for students. In addition, it also focuses on the exploitation of students' thinking to meet the needs of students' personalized learning, which can further promote the personalized development of students' thinking. On the other hand, artificial intelligence provides effective support for the interaction between teachers and students through accurate identification and scientific analysis of the emotions of teachers and students. Artificial intelligence provides a wide range of space for the modernization of school education. The process of blended teaching is inseparable from the support of artificial intelligence technology and the Internet. In blended teaching, it is mainly reflected in the followings:

Intelligent guidance of learning path. When learners enter the system to learn new knowledge points for the first time, the system will determine the amount of knowledge for learners. It will scan the students' current knowledge points through the determination model of knowledge domain. During the learning process, the degree of mastery of the knowledge points is detected by the interaction with the system. If students do not meet the requirements, they will be guided to the knowledge points to continue learning. Learners will be tested after each complement of knowledge point study, and only when passing the test can they be considered as have mastered the knowledge point.

Self-inspection of weak links. In blended learning, learners can self-detect weak points of knowledge. For those points that are not well mastered, learners can over-learn and compare with the previous learning results. In this process, the artificial intelligence learning system can query the relevant contents of the knowledge base in this field and strengthen the weak links.

Effective control of learning progress. Learners should discuss with the teacher and make their own plan before starting the study. The learning plan of the course content should be listed in detail. In the event of a deviation or failure to execute according to the original plan, the system will give a reminder and check the plan regularly. After completing a certain period of study, the system will statistics the learning status of learners, list the difficult points and the knowledge points that have not been fully grasped. And the system will examine the follow-up learning plan to see if it is necessary to adjust the future learning plan.

4. Implementation Process of Blended Teaching
Blended teaching adopts a new teaching method of "online + offline", which not only retains face-to-face communication in traditional teaching, but also introduces the advantages of digital teaching that can be recorded and repeated. In specific implementation, online teaching was based on the network teaching platform, while offline teaching was face-to-face classroom teaching. In addition,
the examination method of the course had also changed according to the characteristics of blended teaching.

4.1. Implementation of Online Teaching
This study carried out online teaching with the help of artificial intelligence technology and network learning platform. Teachers and teaching assistants made a comprehensive assessment of learners' learning behaviors and knowledge, and found their weak points. Then the system would designed a learning path that adapts to the learner, and matched appropriate learning videos, tests and discussion topics. Learners could freely arrange their time and complete the learning tasks within the specified time. During the period, teachers or teaching assistants posted discussion topics on the platform to interact with students and answer questions in time.

According to the personality characteristics of students, the ideal education methods expected by the education community is to make personalized intelligent recommendation of teaching resources and individualized teaching. However it is very difficult to implement it. In blended teaching, the feature extraction which is based on the data of learners' behavior on the Internet, and the recommendation algorithm which is based on artificial intelligence are used to plan a suitable learning path and provide intelligent recommendation of learning resources. With the help of artificial intelligence and big data analysis, students can carry out targeted learning, reduce the time of repeated learning and improve efficiency.

Through the detailed data of the student learning process provided by the artificial intelligence system and the learning platform, the course team could strictly monitor the student's learning situation. At the same time, through the above process, problems such as uncontrollable online learning of students, and the weak ability of students' autonomous learning were reduced.

4.2. Implementation of Offline Teaching
According to the results of students' learning, testing and discussion records on the platform, teachers could list the difficulties and key points that need to be solved or emphasized in class that would help teachers conduct offline teaching in a targeted way. In this way, the offline teaching course could mainly be divided into three steps. That was the detection of basic knowledge, the analysis of difficult knowledge and the discussion of hot topics.

The first step was the detection and strengthening of basic knowledge. The teacher randomly selected a set of questions from the online question bank as an examination paper to test the student's learning effect. And the students could see the correct answer and its analysis after handing in the paper. Otherwise the teacher could also checked the mastery of the basic knowledge of the students by the records of online learning in the form of question and answer. The teacher could make students be more active by means of random selection or quick response questions. According to the results of students' testing and answers, the teacher could know whether the students had a good command of the knowledge points or not, and explained the knowledge points that students could not understand well.

The second step was to explain the key and difficult knowledge. The teacher listed difficult chapters and knowledge points, and extracted the problems existing in students' actual learning through the feedback of background data. Sometimes, in the process of teaching design, some cases could not be fully explained in the video of online course, but was necessary for students to know. Or the part of the knowledge needed to be combined with actual cases for practical training. Under such circumstances, the knowledge of this kind needed to be moved to the classroom for in-depth explanations so that students can fully understand and digest it.

The third step was the analysis and discussion of frontier research or issues. In connection with the learning content of the course, the teacher put forward some social cases or hot topics for students to discuss. In order to stimulate students' enthusiasm, the teacher could divide the class into several groups. The students would have 5-10 minutes for group discussion. Students debated with each other and expressed their opinions according to different viewpoints. Finally, a representative viewpoint of the group was formed. Each group sent a representative to report the results of the discussion in turn. The reporting time was limited to 10-20 minutes. As part of the regular grade, the evaluation was
carried out in the form of scoring between groups. The teacher played the role of guidance in the whole process and gave a summary in the end of students’ presentations.

4.3. Implementation of Learning Effect Assessment
The assessment method of the course had also been adjusted accordingly in response to the change of blended teaching mode. According to the characteristics of the blended teaching mode, the content and form of the course assessment were enriched. This measure improved students' initiative in learning, and made them pay more attention to daily learning. In the course teaching, we adopted the proportion of "3-3-4" in online learning assessment, offline learning assessment and final examination assessment. The assessment of online learning accounted for 30% of the total score. The assessment content was based on the learning data provided by the online teaching platform, including sign in frequency, online learning duration, online tests, online assignments, and the participation in interactive discussions. The assessment of offline learning accounted for 30%, of which the teacher's score was assigned 15%, and the student group assessment was assigned 15%. The evaluation content was mainly students' comprehensive performance, including the topic discussion activities, or the collection and reporting of current affairs cases in autonomous learning. The final examination accounted for 40% of the total score. After the course learning, online examination was adopted to test students' mastery of knowledge, which was the evaluation of students' comprehensive mastery of knowledge points.

Online tests, assignments and final exams were completed on the learning platform. The online test has the function of data statistics with the help of artificial intelligence technology. It can mine and statistics the data generated by each test, and give descriptive statistics. The results will be displayed in the form of a chart, so that the teacher and students can quickly understand the situation of the exam. The application of online test has ensured the accuracy and fairness and relieved teachers' teaching tasks to a certain extent.

5. Summary and Reflection of Blended Teaching Practice

5.1. Change the Minds of Teachers and Students
The solidified traditional teaching concept is the biggest obstacle to the development and spread of blended teaching. In order to change from the face-to-face teaching mode to the blended teaching mode, teachers should firstly change their way of thinking. Teachers should withdraw from the dominant position in the classroom and become the organizer and guide of curriculum teaching activities. Teachers also need to strengthen relevant training to improve their understanding and learning of blended teaching theories. And they should carry out blended teaching under the guidance of relevant theories to ensure that the teaching design is scientific and reasonable. At the same time, students' learning concepts also need to be updated to make it clear that they are the main part of learning. They need to change from the role of passively accepting knowledge to learners who actively choose learning content and master learning progress.

5.2. Strengthen Post-Operation and Maintenance of Online Courses
The steps of designing, filming, operating and maintaining of online courses are crucial. However, in the practice of blended teaching, most of the course teams focus on course construction and spend a lot of energy on course design and video recording. After the course construction is completed, less attention is paid to the operation and maintenance of the course. During the teaching process, the teaching assistant posted the course videos online, but could not respond and answer the questions raised by the students in time. In response to this problem, on the one hand, the course team needs to allocate staff reasonably, and adopt the "shift system" or "fixed-point duty system" which means fix the time and operator on duty to ensure the timeliness of course responses. On the other hand, schools also need to strengthen financial support for the post-course operation. The operation, maintenance, and management of the backstage of the course still require a certain amount of manpower and material resources. Therefore, the work of the course team must be reasonably allocated, and the
attention of schools must be strengthened, so as to improve the phenomenon of "emphasizing construction over operation and maintenance" in blended teaching.

5.3. Rational Use of Artificial Intelligence Technology

In the process of school education modernization, it is necessary to fully explore the education function behind artificial intelligence technology, and to realize the effective integration of technical logic and value logic. On the one hand, the rational use of artificial intelligence means can provide strong support for the modernization of school education. On the other hand, if artificial intelligence becomes a weapon of elite education, it will become a barrier to educational equity. Therefore, the effectiveness of the application of artificial intelligence technology at the school level depends on educators. Schools need to provide institutional guarantee for the rational use of artificial intelligence technology and provide support for the modernization of school education to achieve quality education equity.

From the perspective of the characteristics, status quo and needs of blended teaching, artificial intelligence technology will continue to be applied to solve the problems existing in blended teaching. It provides more intelligent models and means for the innovative development of teaching. Therefore, we should strengthen the deep integration of the development of artificial intelligence and the application of blended teaching to form an interactive development model of sustainable innovation and double-spiral evolution.

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7. References

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