The Reform of Teaching Management Mode Based on Artificial Intelligence in the Era of Big Data

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Abstract. To integrate AI into teaching management can optimize teaching tools, improve teaching efficiency, and ultimately improve teaching quality, so as to cultivate more excellent talents in line with market demand. The purpose of this paper is to study the reform of teaching management mode based on artificial intelligence in the era of big data. After understanding the characteristics of teaching management in the era of big data, this paper studies the reform of management mode of intelligent teaching and intelligent learning. Taking a comprehensive university as the research sample, this paper discusses the impact of MOOC on university teaching management through questionnaire survey and focus interview, and puts forward new ideas on how to better adapt to the development of education in the new era. The results show that the number of dissatisfied students is generally higher than the number of satisfied students in the freedom of major choice, curriculum choice, teacher choice and learning style choice. Only 16.09% of the students think that they have a high degree of freedom in these aspects. MOOC relies on advanced information technology to form a vivid information collection, which can help the management of college students change from unified management to personalized management.

Keywords: Big data era, Artificial intelligence, College teaching, Management mode, Information technology

1. Introduction
If education prospers, the country prospers; if education is strong, the country is strong. Education is the foundation for a country to become rich and strong. China is now in the transition period from an economic power to a world power. Therefore, higher education is needed to provide more high-end technical and skilled talents for the country. Artificial intelligence can help teachers to prepare for lessons, assist in teaching and answer questions after class, which can promote the intelligence of classroom teaching, make the teaching more accurate and personalized. In the process of learning, artificial intelligence can help students complete preview, pre-class practice, in-depth learning in class and after class, and help
students have a deep understanding of learning content.

In the era of big data, college education management is facing a change. It is based on the comprehensive, free and personalized development of human beings. Through the deep integration of information technology and education, it realizes the value reconstruction, structure reconstruction, program reconstruction, power reconstruction and culture reconstruction of traditional education, and comprehensively improves the internal quality of education. This reform is initiated by the reform of teaching and learning, supported by the reform of school management, and ultimately promotes the reform of higher education. The change of big data culture makes this educational change seem natural. Using the advantages of big data technology to build a big data platform in Colleges and universities is of great practical significance to promote the development of the connotation of education management in Colleges and universities.

Yasir Fadol compared the performance of management students at a business school in the Middle East. 122 students completed the introduction to management course, which is divided into three different teaching modes: traditional, online and flipped. The results reveal several interesting findings. The performance of online and flipped part is better than that of traditional part, and the performance of flipped part is better than that of online part. The absence rate of traditional mode is higher than that of flip mode. In addition, access to online materials improves performance in online and flipped modes; students accessing online materials are less absent from classes in flipped mode; 52% of the students (58% of them are high-performance students) think flipped mode is more helpful than traditional mode. The significance of this research and the way of future research are discussed[1]. Higher education institutions are more and more interested in providing more flexible teaching methods, which are often independent of the local. In foreign language learning, distance cooperation is becoming more and more popular. Ciara R took the teaching supported by synchronous network conference as the research object, and discusses the use of different symbol resources in the sequence of vocabulary interpretation. Background: business students and interns who study French communicate with each other on the master's course of French as a foreign language. Using multimodal transcription of interactive data from two sessions, sequence analysis provides access to different symbol resource combinations. This includes the use of visual patterns to project positive listening strategies, as well as the complementary role of text chat, to ensure that the target project has common ground. This analysis reveals the strategy of "thinking interruption" adopted by students [2].

Based on the practical experience and reflection of sample universities, this paper puts forward some policy suggestions for the innovation and reform of university teaching management under the background of MOOC. In order to adapt to the new situation of the society, accept the new things, broaden the vision of the development of colleges and universities, and improve the quality of education. The development potential of MOOC in Colleges and universities is comprehensively evaluated, and the influence of MOOC on teaching management in Colleges and universities and the transformation of teaching management in sample colleges and universities in MOOC practice are discussed.

2. Proposed method

2.1. Big data
A large number of high-quality data provides the most fundamental support for the realization of artificial intelligence. The traditional data quantity is small, the diversity is insufficient, the circulation speed is not high, the big data has the characteristics of huge data quantity, high-speed circulation, diversity, authenticity. The in-depth development of big data technology brings opportunities for machine learning and intelligence, and also opportunities for intelligent education in the future [3].

2.2. Teaching management
Teaching management plays an important role in university management, which is an important part of university work. The characteristics of teaching management in Colleges and universities are as follows:

(1) Dynamic. The main body of teaching management is people, including teaching managers, teaching and students. Teaching management is actually the process of communication and exchange among the three [4]. As people, affairs and information will change with time and place, teaching management should make corresponding adjustment according to the change of actual situation to ensure the smooth development of teaching.

(2) Guidance. Teaching management is an activity carried out according to the teaching plan, which has a purpose and a plan. In fact, teaching management is the embodiment of school running thought [5]. The management mode, content, rules and regulations of teaching management all play a strong guiding role. Scientific and standardized teaching management can certainly improve the level of teaching management and the quality of teaching. If the teaching management is disordered, it will reduce the level of teaching management and affect the quality of Teaching [6].

(3) Democracy. The service object of teaching management is teachers and students. It is necessary to fully mobilize the participation of teachers and students through appropriate management means, listen to their opinions and suggestions, and let them participate in teaching management and teaching decision-making, so as to improve the level of teaching management [7].

(4) Service. Teaching management is to ensure the smooth development of teaching and the quality of teaching. In fact, it is more of a service work. It serves teachers and students, teaching quality and personnel training objectives [8]. Teaching managers should serve teachers and students well.

2.3. Intelligent teaching
(1) The process of teaching development
The traditional teaching method is teacher led. As long as we want to impart knowledge to students, students are always in a passive and obedient position, and the quality of teaching is very affected. With the rapid development of computer and Internet, the teaching mode needs to be changed gradually. The concept of "teacher as the main body" has been changed to "student as the main body", and the status of teachers and students has been repositioned [9-10].

(2) The change of teaching subject
In the traditional teaching environment, due to the lack of artificial intelligence, big data and other technical support, it is difficult to query teaching materials. Teachers usually teach according to their own experience, so it is difficult to achieve personalized teaching [11]. The
integration of artificial intelligence into teaching makes the traditional dual teaching subject based on teaching and students become the triple teaching subject based on intelligent machines, teachers and students, which helps to improve the quality of teaching and promote the cultivation of innovative talents [12].

(3) Design of intelligent teaching mode
The application of artificial intelligence in teaching can help teachers to prepare lessons, enrich teaching content, facilitate teachers to carry out accurate teaching, facilitate teachers to answer questions and guide students after class, which will greatly reduce the burden of teachers and improve teaching efficiency.

2.4. Intelligent learning
Our traditional way of learning is "rote learning". The purpose is to remember knowledge. We only investigate the extent of students' mastering knowledge, and do not consider the cultivation of students' comprehensive quality and ability, which leads to students only paying attention to exam results, more "rote learning" and limiting students' innovative thinking. Artificial intelligence has been applied to students' learning. The learning platform of artificial intelligence can make students break through the limitation of space and time to learn the courses of higher learning institutions and the most excellent teachers, and make the way for students to acquire knowledge more convenient and fast. The intelligent learning platform can also combine VR and AR technology, so that students can practice without leaving home, so that learning is not only learning, but also practical operation, which can enhance the learning effect.

3. Experiments

3.1. Sample institutions
Taking a comprehensive university as the research sample, it has a strong cultural background and advanced education development. There are more than 2000 excellent full-time teachers, nearly 1000 management post teachers, more than 10000 students. The discipline structure is complete, the teaching staff is strong, the student source conditions are good, and the development ability is strong. Under the development mode of "Internet plus education", MOOC has been effectively tried and continues, and is one of the few representative MOOC practice universities. Therefore, it has certain research value and reference significance.

3.2. Data set acquisition
This paper mainly involves questionnaire survey and focus interview. 400 students and 200 teachers were selected to participate in the questionnaire survey. In order to make the research more objective and meaningful, a group focus interview was conducted among six teachers in the sample universities, including school administrators and front-line teachers. In order to better present the interview results in the follow-up research, the interviewees are numbered according to a-f. in the whole interview process, all the teachers can speak freely around the interview questions, and the teachers also achieve a certain degree of communication. The whole interview is completed in a relatively relaxed atmosphere.

4. Discussion
4.1. Teaching process management from teacher center to student center

Teaching process management is the core of teaching management, which is a comprehensive management of a series of elements involved in the process of teaching activities, including the management of teachers' teaching process and students' learning process. Effective management of teaching process is conducive to the maintenance of teaching order and the improvement and perfection of teaching activities.

The traditional teaching process management takes classroom as the center, textbook as the center and teacher as the center. The teacher's classroom organization mode is completely guided by the arrangement of the school. The teaching process is limited in the scope of textbook and classroom. Teachers are the main body and core of the teaching process. They control the design of teaching content, the choice of teaching form, the use of teaching methods and other aspects. They are in an authoritative position in the teaching process, while students are in a passive position.

After investigating the form of classroom development of teachers and students in sample universities, it is found that 40.11% of teachers mainly adopt the teaching method of lecture, while 26.55% of teachers adopt the method of discussion, but the teaching method is still the most mainstream classroom teaching method. The students' favorite classroom teaching method is practical teaching, and the proportion of students who choose lecturing only accounts for 22.41% of the students surveyed. Comparing the survey results of teachers and students, there is still a deviation between students' needs and teaching practice, as shown in Figure 1.

![Figure 1. Investigation on the choice of classroom teaching methods](image)

4.2. Student management changes from unified management to personalized management

The traditional management mode of students shows the characteristics of unification, which is reflected in many aspects, such as the unification of college enrollment, the unification of training objectives, the unification of discipline system, the unification of curriculum and teaching materials, the unification of teaching mode, the unification of student evaluation and so on. After investigating the learning freedom of the sample college students, it is found that the number of dissatisfied students is generally higher than the number of satisfied students in the freedom of major selection, curriculum selection, teacher selection and learning style selection. Only 16.09% of the students think that they have a relatively high degree of freedom in these aspects, but 38.51% of the students are not satisfied. It can be seen that students' learning freedom is not well realized in these aspects, which is related to the unified
student management mode, and the results are shown in Table 1.

**Table 1.** Survey on students’ freedom of learning

| Professional choice | Course selection | Teacher choice | Choice of learning style |
|---------------------|------------------|----------------|-------------------------|
| Quite satisfied with everything | 22.70% | 32.18% | 18.39% | 26.72% |
| Are not satisfied    | 50.29% | 43.68% | 53.45% | 47.70% |
| Quite satisfied with everything | 16.09% |  |  |  |
| Are not satisfied    | 38.51% |  |  |  |

MOOC’s learner management model presents the characteristics of personalization, which mainly embodies the personalization of learning content selection and learning arrangement. MOOC relies on advanced information technology to form a vivid collection of information, and provides students with rich and high-quality education resources through the Internet platform. Its openness enables learners to choose learning content according to their own interests and needs, including the selection of learning courses, curriculum teachers and many other aspects, which fully mobilizes learners' interest and initiative in learning. At the same time, the MOOC model creates an independent learning process for learners. Learners can freely arrange their learning progress, adjust their learning plans at any time according to their knowledge mastery, actively participate in learning exchanges and discussions, and skillfully expand the time and space of learning. The change from "I want to learn" to "I want to learn" positively improves the internal drive of learning.

5. Conclusions
The rise of new education mode represented by MOOC has brought new learning ideas and teaching methods to the field of education. They are rooted in traditional education, but they have brought development changes and updates to traditional education. They have put forward new ideas for the high-quality development of colleges and universities in the new social situation. Through the analysis of the basic situation of MOOC and the actual investigation of sample universities, combined with the interview of teachers, this paper will focus on the management of teaching objectives, teaching process, teaching quality, teachers and students to discuss the impact of MOOC on the teaching management of universities.

References

[1] Yasir Fadol, Husam Aldamen, Shahriar Saadullah. A comparative analysis of flipped, online and traditional teaching: A case of female Middle Eastern management students[J]. International Journal of Management Education, 2018, 16(2):266-280.

[2] Ciara R. Wigham. A multimodal analysis of lexical explanation sequences in webconferencing-supported language teaching[J]. Language Learning in Higher Education, 2017, 7(1):81-108.

[3] Jane Qiu. Research and development of artificial intelligence in China[J]. National Science Review, 2016, 3(4):538-541.

[4] Kipp W. Johnson, Jessica Torres Soto, Benjamin S. Glicksberg. Artificial Intelligence in Cardiology[J]. Journal of the American College of Cardiology, 2018, 71(23):2668-2679.

[5] Joshua Evan Auerbach, Alice Concordel, Przemyslaw M. Kornatowski. Inquiry-Based Learning with RoboGen: An Open-Source Software and Hardware Platform for
Robotics and Artificial Intelligence[J]. IEEE Transactions on Learning Technologies, 2018, PP(99):1-1.

[6] Sut-Kam Pun, Vico Chung-Lim Chiang, Kup-Sze Choi. A Computer-Based Method for Teaching Catheter-Access Hemodialysis Management[J]. Computers Informatics Nursing Cin, 2016, 34(10):1.

[7] Muhammad Shafiq. Relationship of Emotional Intelligence to Organizational Commitment of College Teachers in Pakistan[J]. Eurasian Journal of Educational Research, 2016, 16(62):1.

[8] Yashpal Singh, Archita Makharia, Abhilasha Sharma. A study on different forms of intelligence in Indian school-going children[J]. Industrial Psychiatry Journal, 2017, 26(1):71.

[9] Corbin M. Campbell, Alberto F. Cabrera, Jessica Ostrow. From Comprehensive to Singular: A Latent Class Analysis of College Teaching[J]. Research in Higher Education, 2016, 58(6):581-604.

[10] Su S C, Liang E. Action Research of the Multiple Intelligence (MI), Cooperative Learning, and Game-based Teaching into Summer Intensive English Classes for Mixed-level and Mixed-age Students[J]. Universal Journal of Educational Research, 2017, 5(11):1977-1985.

[11] Brett L. Whitaker, Justin P. Greenleaf. Using a Cultural Intelligence Assessment to Teach Global Leadership[J]. Journal of Leadership Education, 2017, 16(1):169-178.

[12] Takwa Bosuwon. Social Intelligence and Communication Competence: Predictors of Students’ Intercultural Sensitivity[J]. English Language Teaching, 2017, 10(2):136.