



Research on the Intelligent Teaching Guarantee System of Chinese-Foreign Cooperation in Running Schools Under the Background of Educational Informatization 2.0

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Abstract. Chinese-foreign Cooperation in Running Schools in higher education has improved the supply capacity of higher education in China, and the teaching quality and personnel training level. The application of information technology in education and teaching has promoted the reform of teaching idea and teaching method. Informationization 2.0 of education enables universities to adapt to new technological changes and carry out intelligent teaching that breaks the time and space limit, rapidly replicates and spreads, and enriches the means of presentation. This paper made use of education cloud service technology and intelligent teaching platform to explore design and implementation process of intelligent teaching in Chinese-foreign Cooperation in Running Schools, and constructed guarantee system for intelligent teaching. it is important basis for improving the quality of intelligent teaching to introduce high-quality teaching resources, construct teaching staff, and optimize international curriculum system.

Keywords: Chinese-foreign Cooperation in Running Schools · intelligent teaching · quality assurance system

1 Introduction

At present, Chinese-foreign Cooperation in Running Schools has become the third important part of China's higher education besides public and private higher education. Its purpose is to increase the supply capacity of China's higher education, fully introduce and internalize foreign high-quality educational resources, gradually form their own professional management mode and teaching expertise, constantly improve the quality of national education and teaching level and talent training level.

Due to the restriction of development foundation and educational funds, the traditional higher education is difficult to meet the social needs in a short time and the growing needs of diversified and multi-level education. As a unique form, it meets the requirement that students can receive advanced foreign education without going abroad. And at the same time it enhances the supply capacity of higher education in China.

After 40 years of development, the scale of Chinese-foreign Cooperation in Running Schools, which has played a positive role in promoting the development of higher education in China, has increased steadily. At present, the number of it has been more than 2,000. Among them, bachelor degree and above accounts for more than 90% [1]. The quantity of S Chinese-foreign Cooperation in Running Schools has already reached a considerable scale. So it is necessary to shift the focus to quality construction.

After exploration and practice, the significant influence of information technology on higher education has initially appeared, but the construction and application level of information learning environment is not high, and the deep integration of information technology and subject teaching is not enough. In 2018, the Ministry of Education issued “Action Plan for Educational Informatization 2.0”, which is to accelerate the modernization of education. Educational informatization has become an effective means to improve the quality of education. This paper explored design of intelligent teaching process and constructed intelligent teaching guarantee system for Chinese-foreign Cooperation in Running Schools.

2 Methods

2.1 Cloud Education Service

Cloud computing services, also known as cloud services, can provide services by way of demand over the network. Generally speaking, it can be divided into three layers: Infrastructure as a Service (IaaS), Platform as a Service (PaaS), and Software as a Service (SaaS). IaaS is to distribute hardware resources such as data center and infrastructure to users through the Internet. PaaS is to make the software platform as a service. SaaS is a service model in which users rent Web-based software directly from service providers, without purchase software [2–4].

Education cloud, basing on cloud services, provides education-related resources. There are three levels: education cloud infrastructure as a service (E-IaaS), education cloud platform as a service (E-PaaS), and education cloud software as a service (E-SaaS). The hierarchy is shown in the Fig. 1.

2.2 Intelligent Teaching Platform

There are three entities for intelligent teaching using education cloud services: education cloud users, education cloud service centers and education cloud service providers [5–7]. Education cloud users are students, teachers, education administrators, or service developers. Service center completes service governance and user identification. Service providers are divided into infrastructure layer, platform construction layer and application service layer according to the structure of cloud service. Those provide support of hardware cluster and software environment, education basic services, business specifications, service monitoring and specific education application services. It is shown in the Fig. 2.

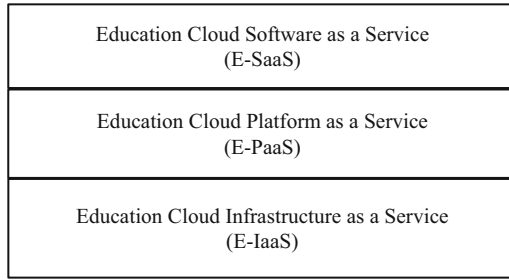


Fig. 1. Intelligent Teaching Platform

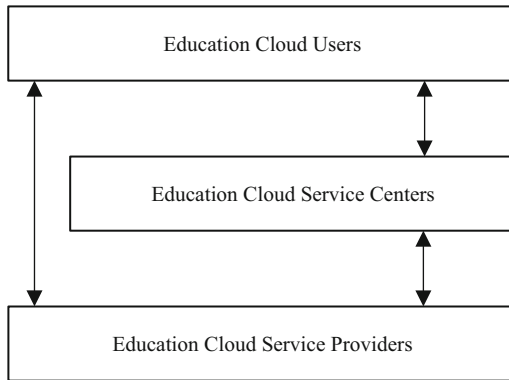


Fig. 2. Intelligent Teaching Platform

3 Results

3.1 Intelligent Teaching Design

1) Preparation before class

Teachers upload pre-course knowledge, videos and other relevant materials to platforms and release pre-class preview tasks and teaching courseware to students. Students learn relevant knowledge of pre-courses through mobile phones or computers. Teachers can monitor and supervise the whole process of students' learning by using the intelligent teaching platform.

2) Course import

The teaching process is introduced from the case and then transit to the knowledge involved in this chapter. The teachers lead the students to think, speak in the discussion area or speak in voice. In view of the learning points and learning materials, teachers introduce the teaching ideas of putting forward problems and solving problems [8]. After the teachers release the discussion topic on the intelligent teaching platform, students answer the questions and carry out the discussion online. Teachers and students fully communicate with each other.

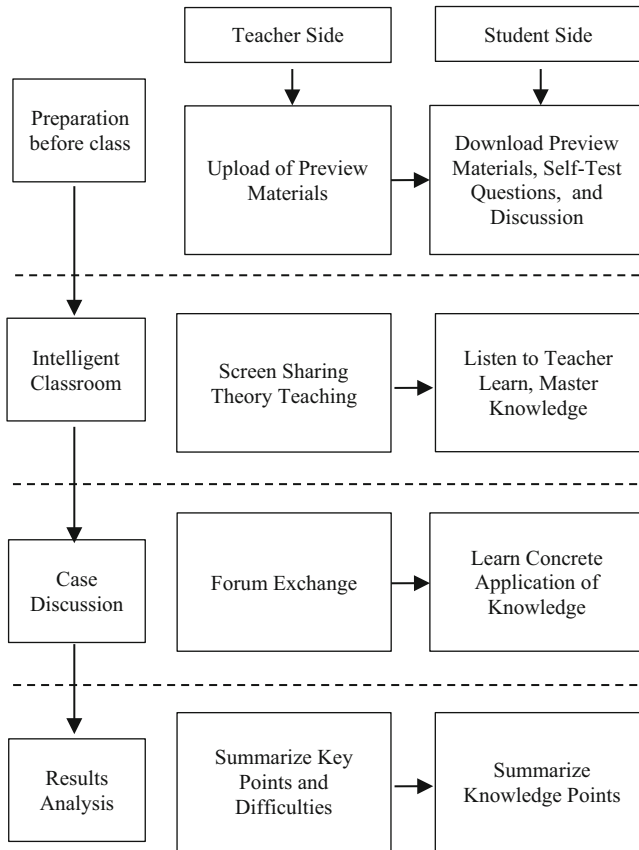


Fig. 3. Intelligent Teaching Process

3) Summary and comments

Teachers ask questions randomly based on students' reactions to the teaching interaction, and summarize the key points and difficulties after teachers' comments. Students summarize the knowledge points through self-testing in class. Teaching effect can be tested in time.

4) Consolidate and improve after class

Teachers post tasks on the intelligent teaching platform, such as questionnaires, homework, and reading extended literature. Through the questionnaire, teachers can grasp the teaching feedback. Students use homework to consolidate the knowledge points. Published literature reading can expand the vision of students. The implementation process of intelligent teaching platform is shown in the Fig. 3.

3.2 Realization of Intelligent Teaching

1) Cloud Service Center

For intelligent teaching platform, cloud service center is to connect education cloud users and service providers. System administrators can manage users, educational services, network resources and so on. At the same time, register all cloud education services provided by service providers, which are submitted, uploaded to the system's cloud resource database, and published to the system for users to use [9, 10].

Taking student users as an example, the center provide basic services and customized services for students. In the basic service, students can watch the course videos in My Course, choose the required courses in the course reservation and selection, complete the homework assigned by the teacher in the course homework, complete the online course exam in the online exam, ask the teacher questions in the course questions, and obtain relevant resources in the resource recommendation. In the customization service, students can choose some extracurricular services or services they are interested in to complete their own customization.

2) Resource management

In the intelligent teaching platform, a large number of educational resources are stored, such as books, papers, periodicals, examination materials, course videos, pictures, audio, etc. Curriculum resource evaluation is carried out by resource users, and the evaluation results are obtained after statistical analysis on the platform. Teachers and students can see how course resources are evaluated, and administrators can remove poor quality or outdated resources.

3) Intelligent classroom

Intelligent classroom is mainly a process in which teachers give lectures and students listen to lectures, as well as auxiliary functions such as homework, Q&A and online exams.

Teachers can complete basic tasks such as managing students' information, managing course videos and live teaching. In the student information management, the teacher can view the information of all the students who choose the course they teach, as well as the student achievement management after completing the course. In the management course video, teachers can add and watch their own existing course video information and search other teachers' course videos to watch and learn [11].

Students on the course selection page, start school, according to their own academic year multiple information such as course name, or the teacher about their required courses for retrieval, retrieval after successful choice and submit, can view the course selection results TAB to see their choice and the success of the course [12], under the change course label can also modify the result of the course. In addition, look at training plans, class schedules, and courses taken to better accomplish your learning tasks.

3.3 Intelligent Teaching and Learning Effect

Based on the results of questionnaire survey, this paper analyzes the advantages and disadvantages of the intelligent teaching platform.

1) More and more efficient ways of interaction. After class, teachers and students can release resources, feedback opinions and interact with each other through the

discussion area, which realizes the “dialogue” in class and greatly enhances the interest of the class. Students can speak freely and have better learning effect.

- 2) Instant feedback. The test function enables students to get immediate feedback on the answers, so that they can clearly understand their knowledge mastery, and understand that the knowledge mastery will stimulate learners’ learning.
- 3) The learning evaluation is more diversified, more detailed and more convenient. Interactive communication to achieve the “parallel discussion” of all students can stimulate the enthusiasm of students to participate in the test of learning results. Achieve the better purpose of improving the classroom teaching effect.
- 4) Teachers’ pre-class preparation time becomes longer and their workload increases. When using the intelligent teaching platform, the content should be divided into several modules, which should be released before class, during class and after class. The content is easy to learn before class, the content with moderate difficulty in class and the content that can detect the learning effect after class, so teachers need to re-arrange it reasonably.
- 5) Learning effect varies from person to person. The teacher issues the task in the non-class time, the after-class time is occupied by the study, and the time that students can allocate freely is compressed. It is very practical for students with high learning ability. For students with low self-discipline ability, they may have antipathy, which is difficult for teachers to find.
- 6) There are multiple choice questions and subjective questions released by the intelligent teaching platform. The answer input of subjective questions is more suitable for text input, and formula input is not supported. Students can only take photos of the answers and upload pictures. Multiple choice questions can be automatically marked, but subjective questions cannot be automatically marked at present, which makes teachers’ workload increased.

4 Discussion

Universities guarantee their own teaching quality through system formulation, process management, resource allocation and other means, which adjust internal policies and teaching activities to ensure the continuous and stable improvement of teaching quality through evaluation and feedback of problems in the teaching process. The teaching quality assurance system is divided into five parts: objectives, approach, deployment, results, and improvement [13]. This is shown in Fig. 4.

Objective is to discuss and determine objectives of quality assessment and inspection work in each academic year. Approach is specific quality inspection measures and means. Deployment is that this work is deployed and implemented by teaching management department. Results are objective analysis of the data generated by quality assessment checks. Improvement is to put forward the Improvement plan. A complete closed loop is formed. So the effect of whole process quality assurance is achieved.

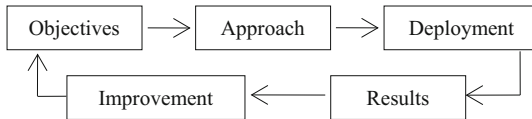


Fig. 4. Internal teaching quality assurance system

5 Conclusion

5.1 The Introduction of Quality Resources

Foreign curriculum is one of the most intuitive and core parts of quality education resources. In 2006, the Ministry of Education issued “Opinions on Several Issues Concerning Current Chinese-Foreign Cooperation in Running Schools”, which required: “the foreign courses and professional core courses introduced in Chinese-foreign cooperatively-run schools should account for more than one third of the total courses and core courses”.

From the perspective of international curriculum construction, the overall value of cooperative education can be improved through the introduction of high-quality resources [14]. The construction of international curriculum provides new construction ideas for China’s higher education in terms of innovating school-running mode, promoting teaching reform, cultivating characteristic competition and enhancing school-running vitality, and speeding up the reform of China’s higher education management system. Promote the development of higher education in our country.

5.2 Construction of Teachers

First of all, universities shall jointly formulate the employment system for foreign teachers; take into account the foreign teachers’ qualifications, abilities, teaching methods and moral qualities. High-level talents are introduced through various talent programs at all levels, in order to ensure reasonable proportion of foreign teachers. Secondly, it is necessary to establish a system for the training of teachers, and set up a special fund for the training abroad, which select and send teaching backbone for further study, visit and exchange every year. So that Chinese teachers can absorb advanced foreign teaching concepts, teaching methods and management methods. In addition, through seminars and thematic activities, cultural exchanges, academic and scientific research cooperation between Chinese and foreign teachers will be strengthened to ensure the sustainable development of teachers.

5.3 Establish of International Curriculum System

Universities shall make training programs that are in line with international practices and the actual situation, introduce core professional courses from foreign countries. At the same time, it is necessary to increase practical courses, optimize the proportion of professional courses and language courses. In order to make students better adapt to bilingual teaching and foreign teachers’ teaching, foreign language courses should be added appropriately to improve students’ foreign language ability.

5.4 Reform of Teaching Methods and Methods

Compared with students from foreign developed countries, domestic students are in urgent need of training their practical and innovative abilities. According to different teaching contents, flexible and diverse teaching methods are adopted. Modern educational technologies such as simulation and multimedia are introduced. It is necessary to establish practical teaching activities suitable for Chinese-foreign cooperation in running schools, strengthen the construction of off-campus practical teaching base, and integrate production practice and graduation design with off-campus practical teaching base.

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All authors contributed to the interpretation of data, and approved the manuscript.

References

1. Tang, T., and Zesheng Li. 2020. Analysis on the quality assurance system of sino-foreign cooperative school running. *Education Modernization* 7 (23): 56–58.
2. Lin, Mengquan, Ruixin Lv, Shu Zhang, Wen Wu, Wenhan Hu. 2020. Study on the theory and practice of constructing the quality management system of Sino-foreign cooperation in running schools in the new era. *China Higher Education Research* 10: 9–15.
3. Lu, Lengfei, Weifang Tang, Xinran Wang. 2020. Design and Research of Intelligent Teaching Platform in Universities from the Perspective of Educational Informatization 2.0. *Information Technology in Education in China* 05: 85–88.
4. Cai, Baolai. 2019. Intelligent teaching in the age of education informationization 2.0: Concepts, characteristics and models. *Journal of Education in China* 11: 56–61.
5. Yang, Y., and T.T. Zhao. 2020. Discussion on the status and quality evaluation of online teaching in universities in China – based on the data analysis of superstar intelligent teaching system during the epidemic period. *Higher Science Education* 06: 1–10.
6. Cui, Yaqiang, Qihong Gan, Qi Yu, Chunyan Wang, Jianlin Tian, and Xiaoli Huang. 2020. Research on the cognition, connotation and practice of intelligent teaching environment in colleges and universities. *Educational Informatization in China* 23: 13–17.
7. Gu, Yin, and Hui Zhang. 2020. Study and application of intelligent teaching space model based on cloud edge collaboration. *Heilongjiang Higher Education Research* 12: 145–150.
8. Liu, Bingxin, Tianjin Zhang, and Qifeng Li. 2020. Exploration and practice of intelligent teaching service system in local colleges and universities. *Higher Education Forum* 10: 60–63.
9. Yu, Gang, and Yanchao Guo. 2020. Reflection on the Key Issues of Wisdom Teaching in Local Universities. *Journal of Hubei Institute of Technology (Humanities and Social Sciences Edition)* 37 (05): 76–80+86.
10. Zhang, Xiumei, Tian Tian, Mengmeng Tian, Lizhi Gao, and Xuebo Zhang. 2020. The evolution and trend of wisdom teaching research in China in recent ten years. *Distance Education in China* 09: 62–69.
11. Chen, Cheng, Cunxi Nie, and Wenju Zhang. 2020. The enlightenment of improving the teaching ability of young teachers under the background of wisdom teaching. *Forum on Education and Teaching* 13: 21–23.

12. Cui, Yaqiang, Qihong Gan, and Chunyan Wang. 2020. Thinking on the construction and operation mechanism of intelligent teaching environment in colleges and universities – taking Sichuan University as an example. *Modern Educational Technology* 30 (03): 95–100.
13. Li, Canmei. 2020. Construction of Internationalized Curriculum: the Basis of Quality Assurance for Sino-foreign Cooperation in Higher Education. *Journal of Jiangsu Normal University (Philosophy and Social Sciences Edition)* 46 (03): 113–122+124.
14. Sun, Yanbin. 2019. Teaching Quality Assurance System for Sino-foreign Cooperative Education Programs: Theoretical Basis and Framework Reconstruction. *Research in Contemporary Educational Practice and Instruction* 15: 117–118+154.

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