

Research on the Online Education of Chinese Universities Under the Epidemic Situation – Take N University for Example

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ABSTRACT

The outbreak of the 2019 novel corona-virus (2019-nCoV) has made an impressive difference on existing methods and approaches of higher education. Epidemic control had seriously affected routine classroom teaching, but provided opportunities for the development of online education on the contrary. Colleges and Universities all over the world have launched various forms of online education and teaching activities. Though the large-scale Contingency plan was succeed to execute to keep the basic order of higher education normal, but it also revealed some problems and deficiencies. There still will be a large development space for online education such as the dimensions of teachers, the cultivating scheme of talents, online education platforms, major courses, teaching implementation, and teaching effect, etc.

Keywords: 2019-nCoV, Online Education, Teaching Implementation, Teaching Effect.

1. INTRODUCTION

The 2019 novel corona-virus (2019-nCoV) broke out and spread worldwide in the spring of 2020, having profound impact on human society, and having stricken the cause of education, especially higher education as well. Due to the need of preventing and controlling the epidemic, colleges and universities have postponed or even have canceled the class resuming, which affected teaching and studying seriously. In this context, Universities around the world had joined in the online teaching activities, forming the largest, the widest, the longest and the participants-maximum online teaching in the history of human education.

The epidemic situation has brought valuable opportunities for the development of online teaching. For a long time, classroom teaching has been the main way of teaching in Colleges and universities. Although online teaching has experienced a period of development, it has always been in a secondary position. It can only be used as the auxiliary and supplement of classroom teaching, lacking large-scale, long-term and high-intensity practice. During the epidemic period, schools and teachers can only teach and manage students through the Internet and telephone, because teachers and students are in

isolation. This objectively provides a rare opportunity for the development of online education, which creates favorable conditions for the education authorities and universities to accumulate online education management experience, helping university educators to improve their online teaching ability, and promoting enterprises to improve their online teaching platforms.

2. FEATURES OF ONLINE EDUCATION IN THE EPIDEMIC PERIOD

2.1. Large Scale, Long Time, Large Number of Teachers and Students of Online Education

Take N University as an example, the online teaching during the epidemic period started in early March 2020 and lasted for nearly four months until the end of June 2020. During this period, all the teachers at N University have devoted themselves to online teaching activities, the number of teachers participating in online teaching accounts for 97% of the total. Students from various majors, grades and levels have experienced online learning, with a total number of more than 2 million person-times. The total online class hours of each student reached 400, and the average attendance rate of students reached 93.5%. Besides,

2600 graduates received Online Graduation guidance and thesis defense, with a graduation rate of 99.8%. It can be said that this online teaching activity is the largest in scale, the longest duration, the largest number of teachers and students involved, and the highest intensity of class throughout the history of this University.

2.2. Abundant Online Courses with Rich Contents

Due to the impact of the epidemic, teachers and students were forbidden to return to school, and all courses in hence were conducted through online teaching. As a result, the number of courses involved in online teaching is huge. There are 420 courses in the 27 undergraduate majors and 12 three-year college majors in N University. The total number of online classes is more than 10600, and the ratio of online teaching reaches 98%. From the perspective of curriculum attribute, it covers compulsory courses and elective courses; from the perspective of curriculum category, it covers general education courses, disciplinary basic courses, professional basic courses and professional core courses; from the perspective of curriculum nature, it covers theoretical courses, experimental courses and practical training courses.

To meet the requirements of the cultivating scheme of talents and achieve the talent training target, the school has adjusted and designed the network-based teaching from the aspects of teaching preparation, teaching implementation, teaching assessment and performance evaluation: revising and improving the syllabus to correspond to the reality of online teaching; redesigning the teaching content, teaching links and teaching methods; making full use of the network platform to organize teaching activities; re-formulating the examination outline and assessment scheme, adjusting the original written examination to project assessment or online examination, and using the network platform for computer test and performance evaluation.

2.3. Teachers' Online Teaching Ability Has Been Improved and School-Enterprise Cooperation Has Been Deeply Integrated

During the epidemic period, online teaching is large in scale, intensive in curriculum, and has a large number of students. The single form of online courses has been unable to meet the needs of teaching in the new situation. At the same time, due to the limitations of the network and the imbalance of teaching resources, online teaching must be carried out smoothly through multiple network teaching platforms and various online teaching methods. According to statistics, the average number of online teaching platforms used by each

teacher is 3.3, and the online teaching methods include MOOC, platform live broadcast, video conference, online forum, online Q & A, and mass email. The application of these teaching forms has greatly improved teachers' online teaching ability and skills.

Moreover, online teaching during the epidemic period effectively promoted the cooperation between universities and online teaching platform enterprises. On the one hand, enterprises provide free online teaching platforms and teaching resources to universities, which greatly reduces the teaching cost. On the other hand, universities closely cooperate with enterprises to timely feedback the data and problems of the platform to enterprises, and put forward suggestions based on teaching practice, so as to help enterprises improve and develop their product. In addition, enterprises have also been deeply involved in the making of the cultivating scheme of talents, and cooperated with the school to develop a number of online courses.

3. EXPERIENCE AND ACHIEVEMENTS OF ONLINE TEACHING IN THE EPIDEMIC PERIOD

3.1. Promoting the Innovation of Online Teaching Methods

In N University, first of all, the number of online courses showed a qualitative leap. According to statistics, before the outbreak of the epidemic, the number of online courses accounted for only 9% of the total number of courses. During the epidemic period, the number of online courses exploded to 85% of the total number. Secondly, during the epidemic period, online courses covered courses of all kinds, including core professional courses, experimental training courses and so on. Thirdly, the specific requirements of online courses urge teachers to systematically modify and improve the teaching syllabus, teaching plans, handouts, assessment schemes, etc. so as to adapt to the online teaching and enrich the content of online courses. In addition, in order to ensure the quality of teaching, teachers have carried out a variety of online teaching mode innovation. In addition to the traditional MOOCs and SPOC methods, teachers use more real-time teaching methods, such as live network, synchronous classroom, video conference, online Q & A, online test, etc. Teachers and students actively interact with each other. Students are highly involved, and teachers have a strong control over the classroom. The teaching effect of this interactive teaching is far more effective than that of MOOC / SPOC.

3.2. Promoting Teachers' Practice and Application of Online Teaching Platforms

In recent years, network technology, information technology, video technology have been rapid development. New tools and new technologies are constantly applied in the field of online teaching. In particular, new applications based on mobile Internet, cloud computing, big data and artificial intelligence emerge one after another, creating a good technological environment for the development of online education. Under such circumstances, various online teaching platforms have sprung up one after another, such as Tencent School, Superstar learning application, China MOOC online and so on. After the outbreak of 2019-nCoV, high-intensity online teaching activities have created precious opportunities for the development and improvement of these teaching platforms. Accordingly, the large-scale transformation of classroom teaching to online teaching requires college teachers to master the teaching methods and skills of online teaching, which also promotes teachers' learning, practice and application of online platform. Statistics show that in the online teaching activities during the epidemic period, teachers used as many as a dozen online teaching platforms (such as Ding Talk classroom, Tencent classroom, etc.), and the average number of platforms used by each teacher was 2-4. In addition, teachers use other online platforms such as QQ, WeChat, etc. and even some not-for-teaching live platforms such as Betta live, TikTok, etc. are also used in teaching activities. Through the above technologies and tools, teachers carry out various online teaching activities, including online teaching, video interaction, online tutoring, online Q & A, online testing, online examination, etc., which effectively promotes teachers' understanding and application of online teaching platform, and greatly improves online teaching level and skills.

3.3. Improving the Acceptance and Adaptability of Online Learning of College Students

College students are not unfamiliar with online classes. In the past, each semester will more or less participate in some online courses. This part of the course is mainly quality education courses and public elective courses, the amount of class hours is only a small proportion which compared with the total amount of class hours, and online learning mode had been focused on the MOOC mode. However, during the outbreak, almost all courses were uploaded online, and the intensity and duration of online learning increased significantly. According to statistics, each student's online learning time exceeds 6 class hours every day, and the total online class hours during the epidemic period exceeds 400 class hours. Online class has

become the main way of students' daily learning. In this case, students' psychological acceptance of online learning can be divided into four stages: curious (accept) - slack (numbness) - bored (resistant) - adapt (re-accept).

The first stage: students feel curious about the first time they participate in this kind of large-scale online learning at home, and their acceptance is generally high.

The second stage: with the continuous promotion and deepening of daily high-intensity online learning, students will enter the state of feeling slack, the novelty of online learning will gradually disappear, and they will feel tired of the repeated online classroom every day and feel numb to learning. Their attention in class will drop, and the learning effect will continue to weaken.

The third stage: with the aggravation of the sense of slack, students will gradually get bored of online learning and begin to resist it, reflected in the increase of students asking for leave, truancy and early leave. This is also the most difficult stage of teaching management.

The fourth stage: students enter a process of re-acceptance and re-adaptation. They start to study at ease in a stable mindset, with learning effect gradually rises.

After online learning during the epidemic period, students' acceptance and adaptability to online teaching have been generally improved, which lays a good foundation for colleges and universities to improve the proportion of online teaching hours and promote the normalization and scale of online teaching.

4. THE PROBLEMS AND SHORTAGES OF ONLINE TEACHING DURING THE EPIDEMIC PERIOD

Although online teaching has achieved a phased victory in the plague, there are still some problems and shortages in each link of online teaching, which need to be carefully studied, solved and improved.

4.1. Network Environment cannot Fully Meet the Needs of Online Teaching

Online teaching is completely dependent on the wired internet and mobile network, so it puts forward strict requirements on network quality, software and hardware operation environment and teaching facilities. As long as bottleneck appears, it will have a serious impact on online teaching, and even make class unable to continue. The large scale and large number of online teaching during the epidemic period caused great pressure on the network environment and online teaching platform, and various network problems

occurred from time to time. According to the feedback of students' questionnaire, the proportion of network affecting class reached 25%, ranking the second in the number of problem feedback. The feedback shows various class problems, including unable to log in, Unable to connect the internet, video stuck, fuzzy video, no voice, and frequent losing connection and so on. The main reasons for these problems are poor network quality and the overload of the online teaching platform.

4.2. Large Gap in the Course Resources Needed for Online Teaching

Online course resources include course videos, teaching plans, handouts, case analysis, exercises, assignments, unit tests, and final examinations. After years of efforts of colleges and universities and some educational institutions, online teaching resources have accumulated to a certain extent. The China MOOC conference held in Beijing in April 2019 announced that the number of MOOCS in China has reached 12500. The amount and market of MOOCS rank first in the world.

Despite the above achievements, online teaching still faces the problem of lacking online course resources. The reasons are as follows: Firstly, the existing online course resources, especially the high-quality online course resources, cannot meet the needs of online teaching during the epidemic period because of the large scale of online teaching and the large amount of courses. Secondly, the existing MOOC courses are seriously homogenized and unbalanced. Many MOOC courses are concentrated in the popular courses of popular majors, while other courses can hardly find available MOOC resources, such as professional courses, quality education courses and experimental courses. Thirdly, most of the online course platforms only have simple course video, lacking other learning resources such as necessary courseware, exercises and other materials, which bring inconvenience to students' learning and cannot fully meet their requirements. Fourthly, different universities have different cultivating scheme of talents, and the requirements for courses are not the same. It is difficult to find a course that fully meets the needs of all universities. Therefore, teachers prefer live class. The curriculum resources used are mainly transformed from offline courses, while MOOCS are used as online learning reference.

4.3. Weak Points in Online Teaching Process

Compared with classroom teaching, online teaching has significant advantages. For example, learning is not limited by time and space any more, which means students can learn as 4A mode (anytime, anywhere, any

way, any Content). Moreover, most online teaching platforms provide video playback function, which makes it convenient for students to learn without time and space limit. At the same time, online teaching has some obvious weak points in teaching and assessment process. The results of the questionnaire for teachers shows that, the problems of online classroom management, poor interaction between teachers and students, unable to write on the blackboard, courses not suitable for online teaching, cheating in online examination are the main weak points in online teaching at this stage.

5. SUGGESTIONS FOR ONLINE TEACHING UNDER THE EPIDEMIC

5.1. Continue to Promote the Construction of Network Infrastructure and Online Learning Platform

From 2020, the new generation of mobile Internet represented by 5G will be constructed and operated on a large scale in China, which will greatly improve the quality of mobile network environment on which online education depends. It can be predicted that with the gradual promotion of the next generation Internet of IPv6 and the gradual completion of 5G mobile Internet infrastructure, in the next few years, the network problems faced by online teaching will gradually be solved, and the network environment of online teaching will be greatly improved.

While developing the network infrastructure, we should promote the construction of software and hardware of online teaching platforms. We can also continuously upgrade and optimize network servers and other facilities and equipment, improving the system's network concurrency limit and maximum data processing capacity, and actively applying big data, cloud computing, artificial intelligence, VR (Virtual Reality) / AR (Augmented Reality) and other advanced technologies to the online teaching platform to develop new functions and applications. For example, by using VR / AR technology to develop virtual reality classroom, teachers and students can wear special helmets to enter the system, and then simulate the real classroom environment for teaching activities. The wide application of these revolutionary new technologies will greatly expand the development space of online teaching, and draw a beautiful blueprint for the future online teaching.

5.2. Greatly Develop Online Courses, Integrate and Optimize Online Education Resources

Colleges and universities should build online courses according to the standards of first-class online courses and excellent online open courses, increase

investment in online courses, and constantly promote and improve smart classroom and digital classroom. In addition, they should decompose talent cultivation plan objectives into online courses, improve and optimize online course system, and reconstruct and improve teaching materials, courseware, handouts, and reference materials based on online teaching mode.

The construction of online and offline hybrid courses must be focused on promoting. The practice of online teaching during the epidemic period shows that online and offline teaching methods have their own advantages and disadvantages, and the effect of neither single online teaching nor single offline teaching can reach the best. Therefore, we should combine the two ways, and focus on the construction of online and offline hybrid courses. For many experimental training courses, online and offline hybrid teaching method can often achieve good teaching effect.

Colleges and universities should strengthen the cooperation with social enterprises and actively integrate and optimize various online education resources. We should combine all kinds of network platforms, live broadcasting platforms and MOOC with the rich teaching resources of colleges and universities, making full use of each advantage, constantly developing new functions and courses, jointly promote the development of online education.

5.3. Promote the Construction of Online Teacher Group and Continuously Improve the Skill of Online Teaching

Colleges and universities should actively explore the organization and management of online teaching, summing up excellent teaching methods, teaching cases, teaching organization skills, and provide reference for future online teaching. At the same time, we should enhance the training of online teachers, guiding teachers to change their teaching ideas from "teacher-oriented" to "student-centered learning". We should embody the characteristics of autonomous and self-help learning in curriculum design and embody the characteristics of network-based and interactive learning in teaching methods. In addition, we should enhance the training of teachers and help them master the application of network teaching tools, equipment, software and platform. What's more, organize teachers

to discuss and learn online teaching methods through seminars, demonstration courses, centralized training and other ways. Thus enrich teachers' online teaching methods and improve the quality of online courses.

6. CONCLUSION

Online teaching is a beneficial supplement to the traditional classroom teaching. The purpose of the development of online teaching is not to subvert the traditional teaching, but to use modern network technology and information technology to break through the limitations of classroom teaching and extend the teaching activity to a broader time and space through the Internet. It can be predicted that there will be no strict distinction between online and offline education in the future. Teachers will flexibly arrange online and offline teaching activities according to needs, and advanced technology and equipment can also provide sufficient guarantee for this hybrid teaching.

More and more new technologies and tools will be applied to online teaching in the future. new applications based on 5G, big data, cloud computing, artificial intelligence and AR / VR technology are emerging continuously, which brings a good development prospect for online education in China.

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