

# Practice and Exploration of Online Teaching During Epidemic Period

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## ABSTRACT

Under the background of COVID-19, online teaching has become the main force in the implementation of "continue to study during the suspension" in the epidemic prevention and control stage. Colleges and universities all over the world have made emergency preparations in a short time and carried out large-scale online teaching. Taking Shanghai Polytechnic University as an example, this paper analyzes the choice of online teaching mode and online teaching platform in this period, analyzes and reflects on the problems in the implementation process, and gives specific improvement measures, in order to better point out the direction for online teaching during the epidemic period, and provide reference for the development of online education in the future.

**Keywords:** COVID-19, online teaching, teaching methods, teaching reform

## 1. INTRODUCTION

The sudden novel coronavirus pneumonia has swept across the country. The Ministry of education has held special conferences and issued notices for many times, asking schools across the country to postpone the opening of the spring semester to ensure the victory of the epidemic. The general office of the Ministry of education and the general office of the Ministry of industry and information technology jointly issued the notice of "continue to study during the suspension" during the extended opening period. On February 4, 2020, in view of the impact of the epidemic on the normal opening and classroom teaching of colleges and universities, the Ministry of Education issued the guidance on the organization and management of online teaching in Colleges and universities during the period of epidemic prevention and control, requiring all localities to put the prevention and control of the epidemic first, maintain the health and safety of teachers and students, and seriously formulate the implementation plan of "non-stop teaching and non-stop learning". Schools and teachers should choose teaching methods and resources reasonably, and help students make home-based learning plans scientifically. [1]At the same time of imparting knowledge, we should pay attention to the cultivation of students' independent learning ability, pay attention to the implementation effect, accurately analyze the learning situation, diagnose and evaluate the learning quality, and formulate online teaching plans. Colleges and universities have developed their own network teaching methods and programs. Shanghai Polytechnic University has thoroughly implemented novel coronavirus pneumonia requirements of the Ministry of education and Shanghai, and has set up a working group on resource construction, technical support and quality control. At the same time, relying on online

teaching platforms such as ChaoXing learning platforms and XueYin online, our university has carried out various forms of online teaching practice in accordance with the 2020 spring semester teaching schedule to ensure the equivalence of online teaching and offline teaching.[2]

## 2. SELECTION OF ONLINE TEACHING METHODS

### 2.1. Live Teaching

Live teaching refers to that according to the scheduled time, the teacher enters the virtual classroom through the video live platform for real-time live teaching; the students listen to the class online in real time, and the online class time is the same as the scheduled time. The university requires that live classroom teaching should not copy the traditional offline classroom, but should be redesigned. The following three points should be achieved in the design: first, we should give full play to the advantages of Internet resource sharing, with a teacher with rich teaching experience as the main speaker and several teachers cooperating in the management of the original teaching class, that is, to carry out the teaching mode of "large class teaching and small class counseling". Second, to share the teaching content of famous teachers, excellent courses can be used as supplementary materials for live teaching. Thirdly, teachers should fully listen to students' feedback and adjust the teaching content, teaching strategies and teaching speed of online teaching in time. In the process of live teaching, teachers must pay attention to effective interaction with students.[3]

How to choose live broadcast platform. All kinds of live broadcast software are blooming and competing. The

university recommends teachers to use three kinds of software: ChaoXing platforms, Tencent conference and Tencent classroom. ChaoXing platform is a professional mobile learning platform for smart phones, tablet computers and other mobile terminals. Users can learn school courses, have group discussions, check the address book of our school, and have e-books, newspaper articles and metadata of Chinese and foreign literature, so as to provide users with convenient and fast mobile learning services. Tencent conference was originally paid software, which was only free during the epidemic. As commercial software, its sound quality and image quality are better, and the mobile version also supports screen sharing. The disadvantage is that every class needs a meeting, there is some trouble when there are many people, and there is no group management, file sharing function. Tencent classroom is specially used for online classes, with the most complete functions: check-in, hands up, answer cards, brushes, etc. [4]it looks very professional, which is not available in any other teaching live software. In addition, it is very easy for students to join the classroom. After joining for the first time, it will be automatically memorized. After opening the client, you can click directly. On professionalism, Tencent classroom is the most professional and powerful. In terms of the user experience of temporary online courses, Tencent conference is slightly better. Of course, teachers can also choose to use nail, zoom and other live teaching software.

## **2.2. Video Teaching**

Recording teaching refers to that the teacher first arranges the students to watch the video recorded in advance before class, and then uses the live video platform to carry out online classroom interactive teaching activities according to the scheduled time, mainly including difficulty explanation, group discussion, exercise explanation, etc. In order to ensure the quality of teaching, in principle, the length of online classroom for video teaching during the epidemic prevention and control period should not be less than 60% of the scheduled hours. Compared with live teaching, video teaching reduces the difficulty, but teachers need to prepare appropriate teaching videos in advance. There are various forms of teaching video, generally in the form of "ppt + teacher + Voice", but the minimum requirement is "ppt + Voice". Since students have watched the teaching video before class, teachers only need to explain the key points and difficulties and interact with students. Teachers can ask questions, arrange test questions, or organize learning groups to communicate. It can be seen that the video teaching is very similar to the flipped classroom, but the classroom has changed from the original physical classroom to the virtual classroom. Video teaching requires teachers to do more curriculum design, so they need to invest more time and energy, and its teaching effect is obviously higher than other teaching methods, which is a direction of school teaching reform.[5]

## **2.3. MOOC Teaching**

MOOC teaching refers to the implementation of teaching based on the mature MOOC course website according to the mixed mode of "Online + offline". First, the teaching team selects the appropriate MOOC course website based on their situation; then, the teacher arranges students to learn MOOC before class. Finally, according to the scheduled time, teachers use the live video platform to carry out online teaching activities, mainly including difficulty explanation, group discussion, exercise explanation, etc. [6]The school makes full use of more than 400 online courses that our teachers have built on the superstar teaching platform, and uses other teaching platforms recommended by the Ministry of education for teaching. Considering the high-quality teaching requirements, the school encourages teachers to carry out SPOC curriculum teaching mode on the MOOC platform to achieve individualized teaching. On the other hand, according to the teaching arrangement, several live classroom activities are set up in the course chapters to implement offline classroom teaching in hybrid teaching.

## **3. ENLIGHTENMENT OF EFFECTIVE ONLINE TEACHING**

During the period of epidemic prevention and control, online teaching has been adopted. Although it is must, it is gratifying that online teaching has achieved good results. First of all, teachers attach great importance to online teaching, actively learn new technology, prepare lessons and teach carefully, which fully reflects the high sense of responsibility of teaching and educating people. Secondly, information technology level of the teachers has been greatly improved. Most of the teachers in the school are familiar with the common functions of superstar platform, and have learned to use a variety of social software platforms to keep in touch with students. Some teachers have also learned to make simple course videos and simple clip videos. Finally, teachers have improved their teaching design ability of hybrid courses, and often study "how to make good use of information technology in online courses". The school has organized demonstration classes for excellent teachers, in which teachers are eager to participate, learn advanced experience and apply it to their own classes, and the teaching effect is significantly improved. Of course, during the outbreak of the school to carry out online teaching of all courses, there are also some preparation deficiencies. This paper puts forward some suggestions from four aspects: management, teachers, students and environment.

### **3.1. Strengthening the Correct Understanding of Online Teaching**

First, organize the related training of network teaching principle and quality monitoring for school management.

From the perspective of the implementation preparation of the current network teaching in Colleges and universities, the management and teaching departments lack the correct understanding of the network teaching, especially the leadership who is accustomed to the overall management and organizational mechanism of the traditional education mode, and the management and quality monitoring ideas of the network teaching still follow the practice of the school teaching. Therefore, it is necessary to organize training for school administrators to strengthen their understanding of the principles of network teaching and quality control. Second, carry out the system design and attempt of MOOC credit recognition. During the epidemic period, a large number of courses choose the mode of MOOC teaching. Colleges and universities should seize the practical opportunity to carry out the system design and practice work of MOOC credit recognition according to the actual situation of the school, so as to provide the system foundation for the later network teaching of normalization.

### ***3.2. Improving the Enthusiasm of Teachers To Carry Out Online Teaching***

First, we should introduce corresponding policies to recognize the contributions of teachers at the organizational level. At the organizational level, a reward system that recognizes the extra effort and commitment will make teachers more confident and motivated in teaching and creating high-quality online teaching. Therefore, the university should introduce corresponding policies, recognize efforts of the teachers, recalculate workload, and explore a variety of evaluation methods. At the same time, teachers with excellent network teaching effect will be rewarded in economy, award and excellence. Second, encourage teachers to carry out teaching research. The development of large-scale network teaching challenges every educator, but also brings a rare teaching and research opportunity, which provides an opportunity to reveal the law of online education with Chinese characteristics. As the implementer of this large-scale network teaching practice, teachers can sense the occurrence of problems in the first time. Therefore, the school should realize the significance of this practical exploration, create conditions for teachers, encourage teaching research on the problems in the process of online teaching, and provide reference for topics.

### ***3.3. Paying Attention to Autonomous Learning Ability of Students***

First, maintain and improve autonomous learning ability of students. Compared with primary and secondary school students, college students have a strong ability of independent learning. Therefore, the school should suggest that teachers can organize and support students to carry out guided autonomous learning by preparing learning

resources, designing learning activities, and using the interaction between students. Teachers can design a variety of activities to maintain and improve autonomous learning ability by combining the course content, self-discipline and other topics related to students in the epidemic. Second, we should carry out the ability evaluation based on learning analysis. Network learning and traditional learning take place in different environments, and network learning takes place in the environment supported by information technology. Based on the scene of network teaching, we can use the objective behavior data and state data recorded on the platform to build the evaluation model. Through the process of building the theoretical model from the top to the bottom and building the algorithm model from the bottom to the top, we can build a scientific and feasible student evaluation model from the two perspectives of pedagogical law and data aggregation. On this basis, evaluation, diagnosis, prediction and intervention are carried out to form an adaptive and automatic learning monitoring system to provide support for the follow-up learning design.

### ***3.4. Strengthening Environmental Support***

First, comprehensively improve the service capacity of the environment. In the process of designing and implementing online teaching, teachers put forward new requirements for teaching design tools and teaching management tools; home-based online learning also puts forward requirements for cognitive tools. Cognitive tools can support students in autonomous learning plan, learning summary, learning evaluation and learning management. Therefore, efforts should be made to improve the service ability of the environment so that it has a strong platform load capacity and rich teaching and learning support tools. At the same time, professional development community should be built to provide teachers with teaching and community support, and provide students with cooperation and communication platform. Second, develop network security solutions. In order to develop a network security solution in line with this background, it must be clearly recognized that: network security itself is a comprehensive subject, involving technology, management, use and many other aspects, which needs to be grasped as a whole; besides teachers and students of colleges and universities, operators of network communication platforms, Internet education companies, etc. are involved in the large-scale network teaching. Therefore, to ensure network security is no longer just a matter within the education system, but a problem that needs to be solved by all involved subjects.

## **4. THOUGHTS ON THE REFORM OF ONLINE TEACHING AFTER EPIDEMIC**

How to take advantage of this large-scale online teaching opportunity, continue to maintain the enthusiasm of teachers in using information technology, and further

promote the deep integration of information technology and curriculum, so as to promote the innovation of teaching methods and teaching model reform? To solve this problem, the following suggestions are put forward for the post epidemic teaching reform

First, we should make full use of live network to achieve "large class teaching, small class counseling" teaching methods. For a wide range of basic courses, we can use the live network to realize the teaching method of "large class teaching, small class guidance". This kind of teaching method aims to achieve the best teaching effect through the cooperation of teaching team. Its advantage is that "large class teaching" can let more students learn the course of famous teachers, at the same time, ordinary teachers can watch the teaching of famous teachers, learn the teaching experience and improve the teaching level. "Small class guidance" can pay attention to each student, and can implement stratified and classified teaching.

Second, make full use of information technology to implement all aspects of education and teaching. In the information age, the traditional face-to-face teaching mode can't meet the learning needs of students. Only by combining the advantages of offline traditional teaching with the advantages of online learning, can higher teaching quality be ensured. With the help of information technology, teachers can keep close contact with students and strengthen interaction; learning portfolio can be easily established and student management can be strengthened; teaching process can be standardized and standardized; online teaching platform and online supervision platform can be used to master the overall teaching situation of the school. Therefore, it is necessary to study the in-depth application of information technology in all aspects of education and teaching, to build the ecology of intelligent education with information technology, and to comprehensively improve the level of school education and teaching.

Thirdly, we should do a good job in the course design of flipped classroom. Flipped classroom teaching method not only cultivates knowledge and skills, but also improves the ability of cooperation and friendship among students. More importantly, it helps students develop correct values. In the flipped classroom, teachers should pay attention to such questions as "how to talk about the course content after the students study before class; how to do well the interaction between teachers and students, students and students in the classroom"; in the classroom, the cooperative discussion activities groups can greatly stimulate the students to think deeply and express their personal opinions; through the interaction, teachers and students can make in-depth discussion The teaching content, together with the guidance of; mutual evaluation and comments, can help students further master knowledge. Therefore, the discussion type flipped classroom, which combines the flipped classroom with the discussion type learning, will become an important way of teaching in the future.

## 5. CONCLUSION

By the active and good use of online teaching, we turn the adverse factors of the epidemic into the driving force of education and teaching reform, build a new education and teaching mode, support the supply of teaching services, and implement accurate management of education and teaching. These new changes brought by large-scale online teaching during the epidemic prevention and control period confirm the positive growth of Chinese education in the adversity. It is worth mentioning that although most colleges and universities have started network teaching at present, it is still unknown whether online teaching will become a part of daily teaching in some schools and courses after the epidemic. In any case, online teaching will be one of the important directions of future education and teaching reform in Colleges and universities. This study also hopes to provide reference for the future development of online teaching.

## REFERENCES

- [1]Xiaoliu Zhong, Shuqiang Song, Lizhen Jiao. Research On Teaching Design Based On Flipped Classroom Concept In Information Environment. [J]. Research On Open Education, 2013,(1):58-64.
- [2]Hongxing Shen. Innovation And Practice Of Educational Technology In Colleges And Universities In The Era Of Educational Informatization 2.0. [J]. Laboratory Research And Exploration, (2019) (6): 128-132.
- [3]Jipinig Zhang. What Will Be Changed In The Future Classroom. [J]. Education In Shanghai, (2013) (21): 14-16.
- [4]Xiaoliu Zhong, Shuqiang Song, Min Hu. The Construction Of Wisdom Education Ecology In The Perspective Of The Fourth Education Revolution. [J]. Journal Of Distance Education, (2015) (4): 36-40.
- [5]Wan Kun, Donglian Ye. Research And Enlightenment On Innovation Development Path Of Classroom Teaching Based On Internet Plus. [J]. Information Technology Education In Primary And Secondary Schools, 2016,(1):26-29.
- [6]Zongkai Yang. Promoting Educational Modernization With Informatization: The Historical Responsibility Of Educational Technology. [J]. E-Education Research, 2018, (1):5-11.