

Continuous Improvement of Online Teaching during Coronavirus Disease 2019

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ABSTRACT. Schools and colleges are delayed the start of school year and required to school suspension without learn suspension under the coronavirus disease 2019. It is an important matter that teachers are thinking about and putting into practice to allow students to effectively pass the suspension period. This paper discusses the problems of online teaching technology, instructional design, learning evaluation, and not studying online for students in online teaching stage. It is proposed to adopt online teaching form of scientific and reasonable from the aspects of supporting factors, core subjects and resource preparation to maximize the effect of student learning.

KEYWORDS: School suspension without learn suspension, Coronavirus disease 2019, Interactive teaching, Teaching strategy, Driving factor

1. Introduction

A sudden outbreak of new coronavirus disease disrupted the school original school order. The severe situation of postponing the opening for primary, secondary and primary schools, the education departments in each country unified deployment that to achieve the “isolation without separation of love, school suspension without class suspension”, “coronavirus disease” ruthless “teaching” feeling, “classroom in online education” goes first. What followed is a dazzling array of live broadcast platforms and online APPs, and various merchants are also innovating. But the teachers as anchors, they must be clarified the purpose and significance of online teaching and fully consider online teaching and the difference between offline teaching for benchmarking and selecting these live broadcast platforms and technologies from the perspective of students. Therefore, no matter using any form of online teaching and technology, we only have one purpose to ensure that our network teaching is effective and students' learning is also effective.

In addition, we must correctly understand that “school suspension without learn suspension” refers to the suspension of classroom teaching in schools and the students' learning activities have not stopped, which is a broader study. Students can carry out various learning activities at home during the postponed start of the school period, requiring teachers not only to stay at the level of “teaching”, but to pay more attention to the “learning” of students. The school began to explore network-assisted teaching in 2003. In 2010, it began to explore the complementary hybrid teaching model of “in-class and out-of-class, online and offline, on- and off-campus”. In 2012, it was approved by the Ministry of Education as the first batch of educational information pilot units. It can be seen from construction and development for this years, the school's network teaching has achieved remarkable results, including 11,089 off-campus network courses, 1,667 school-based information teaching courses, and 32T digital teaching resources. Since the comprehensive network teaching platform was migrated to the virtual platform of the network information center in 2015. It has been in good use and stable operation. The platform operates in the mode of node, distribution, database and media server, with large data volume and high frequency of use. In order to help the school's epidemic prevention and control work in a targeted manner, and to better serve the teaching, scientific research, management and life of the teachers and students, the network information is given full play to the advantages of the department's functions, effectively solving the online teaching, academic research, home office, etc. of teachers and students Difficulties, using information services to fulfill the original mission, and carried out fruitful work in the field of epidemic prevention and control information services and network teaching technology support.

2. Driving Factors for Online Teaching

As early as 2012, the vast majority of colleges and universities in my country had established a teaching resource library, shared services with 1,800 libraries, and built more than 3,800 national-level quality courses. The national “Chinese University Video Open Course Website” was opened, and 75 national 541 episodes of open video courses were launched for the whole society to learn for free. Various schools in various places have also launched online teaching by online video class. By the time the second national video and telephone conference on education information was held in 2015, the number of schools that opened online learning spaces nationwide increased by 30% compared with 2012. The way of sharing teaching resources in colleges and universities began to gradually take shape and the teaching methods began to change. On January 29, 2020, the relevant person in charge of the Ministry of Education stated that “suspending classes without teaching, non-stopping is not only an emergency response to the epidemic situation, but also an important application of Internet and education”. The task is arduous, and it also shows the honor and glory carried by the national education information system built over the years. The seemingly hastily started online teaching work has actually been promoted by many factors.

2.1 Policy Driven

After expressly requesting the postponement of the 2020 spring semester of the national primary and secondary schools, the Ministry of Education issued “Letter to National University Students” on February 3, 2020. The letter encourages students from colleges and universities to study independently and improve themselves on the network resource platform, so that “no suspension of classes and no delay in learning”. Prior to this, the Ministry of Education has organized 22 online course platforms, and freely opened more than 24,000 online courses. The national virtual simulation experiment teaching project sharing platform is opened every day, and more than 2,000 virtual simulation experiment course resources are provided free of charge. At the same time, 22 online course platforms have also released service plan information to support college online teaching during epidemic prevention and control. Since then, the Office of the Leading Group of the Ministry of Education in response to the new coronavirus infection pneumonia epidemic has successively issued “Guiding Opinions on the Organization and Management of Online Teaching in Ordinary Colleges and Universities During the Epidemic Prevention and Control Period” and “Information on the Epidemic Prevention and Control Period “Notice of Supporting Education and Teaching Work”, which formally proposes to jointly implement and guarantee the online teaching of universities during epidemic prevention and control through the “government-led, university main body, and social participation”, and ensure the teaching progress and teaching quality during epidemic prevention and control .

2.2 Online Technologies

In 2013, as many well-known universities in my country joined the international MOOC platform. Subsequently, the construction of China's open online course platform was launched immediately, which promoted the continuous improvement of online teaching. The Opinions on Strengthening the Application and Management of Online Open Courses in Colleges and Universities issued by the Ministry of Education in 2015 has promoted the construction of online open courses and platforms in China. The development and accumulation in the following years have given many online teaching platforms the ability to serve more educational institutions and learners.

During coronavirus disease 2019 period, many colleges and universities chose Tsinghua “Rain Classroom”, Super star “Learning Access”, Tencent Class and other Internet as online teaching platforms, and provided continuous platform training services for college teachers. Online technologies actively promote the steady development of online teaching for colleges and universities in the spring semester of 2020.

2.3 Students Demand

The strong demand from college students is also an important driving force. According to data released by the Ministry of Education in 2019, there were 2,663 ordinary colleges and universities in the country in 2018, and the total number of college students was 38.33 million, more than double the total number of colleges and universities in the SARS period in 2003. Some universities can be accepted for suspended school and suspended classes without technical support at the SARS period. However, according to the education situation in 2020, colleges and universities can only open on schedule for 8.74 million fresh graduates to finish their last semester of college and graduate on time.

3. Problems in Online Teaching

The teaching forms adopted mainly include online micro-class, online live, online homework tutoring and student autonomous learning during coronavirus disease 2019 period for school suspension without class suspension. The above

online teaching forms reflect the importance of information technology in the teaching process, and also reflect the seamless practice by engineering 2.0 training for teachers. However, many problems have also been exposed in the online teaching process, which can be summarized in the following aspects.

(1) Online technology

At present, hundreds of educational apps have launched live interactive functions, such as Spike, Tencent, QQ and Super star et al., teachers blindly pursue online teaching forms and spend a lot of time on the application of research technologies. It can be said that they have tried all kinds of online live broadcasting platforms and all kinds of live broadcasting equipment. The results show that it is difficult for teachers to choose the online teaching mode suitable for students, and most of the online teaching effect is not satisfactory. Teachers need to choose the appropriate online teaching form according to the teaching content, there is no perfect model, there is no perfect tool. The most suitable for students to learn is the best.

(2) Instructional design

Regardless of any type of teaching, instructional design is the most critical. In particular, online teaching makes teachers and students separated at a distance, and it is difficult for teachers to control students' learning state. Therefore, we cannot adopt the same teaching strategy as classroom teaching, and directly copy the offline teaching method into the learning content of online teaching. However, most teachers currently spend the preparatory time on the technical learning and debugging of the live broadcast platform. They have not done a good job of teaching design and comprehensive factors in the network environment and even the teaching ideas of teachers have not been sorted out. Is it true that you are in a hurry to go to battle!

(3) Students learning

“School suspension without learn suspension “is an important part of “learning”. It needs to stand on the perspective of students and provide flexible and diverse learning methods. It cannot be simply understood that students only learn knowledge in books, but should pay more attention to learn, learn to communicate, learn to be grateful and learn to take responsibility for students. Online teaching should be a learning process with full temperature that is full of human care, contains life wisdom, harmonious interaction between teachers and students. The main body of learning in classroom teaching is students, and online teaching is no exception, and the effectiveness of learning for students should be considered. The teacher use online broadcast format acts as the “host”, regardless the students are listening the micro-class, completing the learning tasks, or learning state. Some schools use a teacher online broadcast, all students of the same grade in the school to learn the teaching format. This form of live broadcasting does not consider the differences of students, lacks pertinence, nor interacts with students. Teachers are even less likely to pay attention to the learning status of students. Network interactive teaching should promote “one school, one case”, “one subject, one case”, “one teacher, one case”, “one class, one case”, and “one lesson, one case” to greatly improve students' learning effectiveness.

(4) Online teaching evaluation

At present, many teachers spent a lot of time to record the subject the micro-class for students to learn by their own teaching plan, and tested their learning and knowledge mastery through some test questions. On the one hand, they pay too much attention to the achievement of knowledge goals and ignore the ability goals and emotional goals. Especially in the current epidemic situation, we should cultivate the patriotism, sense of responsibility and core quality for students, while online streaming or watch micro-class is not the best choice for online teaching. That is to say, comprehensive consideration of students, society, online teaching platform and other factors can effectively organize online teaching.

4. Strategy in Online Teaching

(1) Online teaching design

Scientific and reasonable teaching method is importance to ensure the maximum learning efficiency of students. Task-driven mode is adopted to promote active learning for students in network interactive teaching. The design scheme of online teaching is shown in Figure 1. Wherein the section of guide learning is explained clearly the knowledge and skills required to master in this class. Arrange task is given specific instructions on task requirements, learning lists, learning resources and evaluation criteria for students. Independent research requires students to cooperate in online groups. In the process of independent learning, teachers should provide necessary scaffold tool, such as grouping, question guidance, learning progress monitoring, individual guidance and interactive questions and answers. Students upload their works through the display platform and conduct evaluation after submit homework. Finally make a summary, so as to improve learning efficiency for students. Teachers make full use of online teaching platform tools, and pay attention to collecting student feedback in stages, and use the analysis results to find the weak links of student learning and provide accurate supply. On the other hand, through the punch function, students upload texts, videos,

audio works, etc. to view student participation and homework works to form a student's electronic file, which can better understand the academic situation.

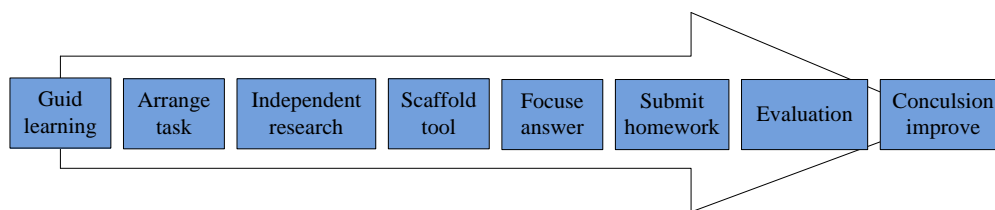


Fig.1 Design Scheme of Online Teaching

(2) Evaluation system of online teaching

The teacher conducts investigation and analysis of the academic situation in advance, master the student's learning environment, learning foundation and parental support before conducting online teaching, so as to arrange scientific and reasonable learning content. In the learning process, students should strengthen interactive communication, communication for teacher and student. Teachers can use homogeneous or heterogeneous grouping online forms for students, assign different learning tasks to different learning groups, and provide appropriate learning supports in the process of independent learning and problem solving. For each learning contents, it is necessary to use reasonable detection methods such as small practice, problem discussion, homework sharing, and so on to check the mastery of learning content for students, find the problem and correct it in time to ensure the learning effectiveness.

5. Conclusions

Based on a highway service area pavement maintenance project, this paper formulates a cracked pavement maintenance scheme and a maintenance effect detection scheme. On the basis of measured FWD data, through the analysis of deflection value in load center and deflection basin shape parameters, the evaluation index and standard of highway service area pavement maintenance effect based on FWD are proposed. The following are the main conclusions:

- (1) The combination of grouting treatment and crack pouring on both sides of the crack has a significant effect on the treatment of slab cracking and the improvement of pavement structural strength and structural uniformity. After repairing the damaged position, the average value of dynamic deflection is reduced by 20%-30%, and the load transfer coefficient is increased to 3-4 times of the original value.
- (2) It is recommended to adopt a detection method that the outer edge of the load plate is tightly attached to the crack for No.1 and No.2 sensor are located on both sides of the crack, respectively.
- (3) The influence range of cracking on the pavement structural strength is within 1m on both sides of the crack. In designing the maintenance scheme, the pavement structural strength within 1m on both sides of the crack should be mainly considered.

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