

# Research on the Influencing Factors and Countermeasures of College Students' Online Learning

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## ABSTRACT

Online learning is the only way for teaching during COVID-19 epidemic. To improve the effect of online learning and benefit more for college students, this paper discusses the influencing factors of online learning through literature research, including network platform problems, students' factors, teachers and teaching content. And on this basis, it put forward the corresponding countermeasures: improving the platform construction; strengthening education and giving correct guidance to students; active communication between teachers and students; strict rewards and punishments; rich curriculum design and reasonable assessment; large-scale training for teachers. The research is helpful to promote the construction of educational informationization and promote the sustainable development of online learning.

**Keywords:** COVID-19, online learning, college students, influencing factors, countermeasures

## 1. INTRODUCTION

At the beginning of 2020, a sudden outbreak of COVID-19 broke the steady and orderly pace of the new semester. In order to keep the normal teaching progress, the Ministry of Education issued "Guidance on the organization and management of online teaching in colleges and universities during the period of epidemic prevention and control" [1] (Hereinafter referred to as "opinions"). It is required to take the way of government leading, university main body and social participation to jointly implement and guarantee the online teaching during the epidemic prevention and control period in colleges and universities, so as to ensure "non-stop teaching and non-stop learning". After the release of the "opinions", all the colleges and universities responded positively and a huge online teaching activity began. This large-scale online teaching is a challenge for millions of teachers and students in our country, and a rare opportunity to promote teaching reform and innovation as well, not only successfully opened up the second battlefield of college classroom teaching, but also a world feat that embodies the government under crisis prevention and control, and the people from colleges and universities to all walks of life unite as one. However, at the same time, we should also realize that this online teaching highlights a lot of problems, such as network jam problem, teachers' poor online curriculum content, students' self-management ability is insufficient, and so on, which seriously affects the effect of online learning. Only by deeply mining the influencing factors of online learning and exploring the corresponding countermeasures, can we steadily improve the effect of online learning and further accelerate the

construction of educational informationization, and finally benefit the students [2].

## 2. ORIGIN AND DEVELOPMENT OF ONLINE LEARNING

With the rapid development of network communication, big data and cloud computing, the educational information environment has gradually matured, which has given birth to online learning. The definition of online learning refers to a new teaching form that uses internet technology to break through the limitation of time and space and realize the teaching of teachers and students in different places through the network platform.

The first large-scale open online course in the world was the Massachusetts Institute of Technology (MIT) in North America, which proposed an open-learning curriculum in 2001. In October 2003, the Open Course website began publishing online open courses covering a wide range of subjects, including business, engineering, natural science, art and music, which attracted nearly 100 million learners [3]. During 2012, the establishment of the three major online platforms Coursera, Udacity, edX made online learning more and more accepted, and more well-known colleges and universities began to offer open classes to the world. VOA has reported a lot of news about MOOC [4], which has aroused a strong response from people all over the world.

Since 2003, China has attached great importance to online education. the Ministry of Education issued "Notice of the Ministry of Education on starting the construction of high-quality Courses of the Teaching Quality and Teaching Reform Project in institutions of higher learning"

(JG(2003)No.1)[5], which opened the door to the study of online open courses in China. Its purpose is to accelerate the innovation of education and teaching effectively and promote the wide application of information technology through the construction of high-quality curriculum resources, so as to further improve the quality of education and teaching. With the rise of MOOC in some developed countries such as the United States and the United Kingdom, in 2013, well-known universities such as Peking University, Tsinghua University and Shanghai Jiao Tong University launched MOOC courses on international platforms one after another. Since then, Chinese versions of MOOC platforms such as "Xuetang Online" and "Good University Online" have been successively established. In 2014, the Online Education Research Center of the Ministry of Education was established, and announced that it would conduct in-depth research on "national online education development strategy, online education related technology, online course design, online education management and operation and other issues" to further promote the open sharing of high-quality education resources in colleges and universities. However, online learning has always been used as a supplement to optional courses and extracurricular self-study, only suitable for students with strong self-study ability, and traditional online learning still dominates. Until the sudden outbreak of COVID-19, the Ministry of Education issued "opinions", requiring the use of online education to ensure the normal progress of teaching, making online education appear in the public's view again, causing hot debate. What are the factors that affect online learning? What relative countermeasures should be taken? Only by clarifying the above issues can we promote the sustainable development of online learning and ultimately benefit students.

### **3. INFLUENCING FACTORS OF ONLINE LEARNING**

According to the theory of basic elements of the teaching system, the teaching process is mainly composed of teachers, students, teaching content and teaching environment. The only difference between online teaching and traditional teaching is the environment, that is, from the physical classroom to the virtual network. In addition, what are the changes in teachers, students and teaching content in the new virtual environment will affect the effect of students' online learning. This paper will discuss in turn.

#### **3.1. Network platform factors**

The outbreak of COVID-19 is a powerful driving force for the blowout development of online network platforms, as if overnight, all the platforms are blooming everywhere, scrambling to take a share in this online learning campaign. After a short period of preparation, colleges and

universities all over the country have successfully opened online classes, such as Tsinghua University in the spring semester of 2020 a total of 4254 courses, of which 3923 courses for online teaching, accounting for 92% of the total number of courses [6]. Tens of thousands of teachers and students carry out online teaching at the same time, bringing great pressure to the network platform, the most serious and common network jam problem, server crash, software login failure, live screen stagnation, noise echo, unable to send pop-up problem, network course resources download difficulties, homework cannot be submitted, etc., which greatly affects students' online learning effect and interest. In addition, the major teaching platforms are still in the early stage of construction, which inevitably leads to design loopholes, rough content, low quality, poor user experience and other problems, need to be further improved. At present, the school adopts the open principle for the choice of the platform, which is chosen by the teacher according to the resources and the characteristics of the curriculum. This measure facilitates teachers' online teaching preparation, but students often need to be master the use methods of multiple platforms, which to some extent increase their learning burden and affect the efficiency of online learning.

#### **3.2. Students' factors**

In the traditional classroom teaching, it is characterized by the active teaching of teachers and the passive acceptance of students, which highlights the dominant position of teachers, the forms and methods of teaching are all teacher-centered, and the students' subjective initiative is often ignored. Compared with traditional teaching, the status of students in online learning is changed from passive knowledge recipients to active learning acquirers. Therefore, students' autonomous learning ability seriously affects the effect of online learning. The traditional classroom teaching mainly depends on the teacher's simple teaching, which is rigid in form and single in means. But online learning has various forms and rich resources, breaking the shackles of time and space, which truly embodies the student-centered idea. But at the same time, we should also pay attention to the fact that the opening of the internet is a double-edged sword for students. While enjoying the convenient courses, it also brings many network temptations. The results of the online learning process survey for college students show that nearly 66% of students browse non-course-related web pages while studying, 59% of students chat online, 32% of students play games, and only 11% of students say they are focused on learning and do nothing else[7]. So it can be seen that students' self-supervision and control ability greatly affect the effect of online learning. How to guide the students actively and correctly, let the students fully realize their master position in online learning, so as to maximize the mobilization of students' autonomous learning and improve their self-management ability, is a problem that educators need to pay attention to.

### ***3.3. Teachers and teaching content***

In online learning, although the status of students is reversed, the teacher's dominance is not weakened. On the contrary, the requirements for teachers are higher. Teachers are not only the designers and executors of courses, but also the helpers and supervisors of students' autonomous learning. The teachers' professional level, the interaction between teachers and students, as well as the richness, difficulty and interest of online courses, have a huge impact on the effect of online learning. As for the COVID-19, all the teachers who have classes in this semester have adopted online teaching, which is the first attempt for many of them, and the use and operation of the platform are still in the exploratory stage. In case of network jams and other phenomena, many teachers will often be in a hurry, leading to teaching stagnation, class time delay, causing students to be upset and uneasy, affecting the effect of online learning. In traditional classroom teaching, teachers and students are face-to-face in the same classroom, they are open to each other. Teachers can capture the students' expressions in real-time, observe their response to the teaching and solve problems in time. Online learning lacks the visual sense of classroom teaching, even when the camera is turned on, there still a lack of eye contact and emotional communication. Students are not facing a living teacher, but cold electronic equipment. The emotional interaction between teachers and students is blocked, which seriously affects students' interest and enthusiasm in learning. Many teachers are beginners in online teaching with poor course design, which needs more students' autonomous learning. So it is necessary to increase the richness, interest and diversity of online course content, some teachers simply transfer the classroom teaching to online teaching in the form of recording, or simply read PPT, which is difficult to arouse students' interest in learning and greatly reduces the learning effect.

## **4. HOW TO IMPROVE THE EFFECT OF ONLINE LEARNING**

### ***4.1. Platform construction is urgent***

Platform designers, school administrators and teachers all need to pay attention to the construction of the platform. The platform designers should solve the network jam as soon as possible, repair the design loopholes in time, enrich the online teaching resources, and optimize the user experience. Developing regular communication and training for all teachers and students in order to promote the application of the platform effectively. The school must invest a certain amount of money for the construction of the online platform, and assign specific personnel responsible for daily management, ensure smooth and stable operation of the platform, minimize the negative impact of platform problems on the teaching process. At

the same time, the relevant management methods of the platform are drawn up to meet the requirements of teachers and students, so as to standardize the use of the platform. Teachers should further strengthen the application of each platform, by using the big data feedback of the platform, teachers could master more information to judge the learning effect of students, timely adjust the teaching content and progress, and ensure the teaching quality.

### ***4.2. Strengthening education and giving correct guidance***

Student educators should strengthen ideological and political education for students to make them clear their host status in online learning. Arousing their interest in autonomous learning as much as possible, guiding them to make reasonable strategies and plans so as to improve their online learning ability. When facing the temptation of a complex network, improve their ability of self-management so that they could distinguish right from wrong, supervise the students to develop honest and active learning, and help them to set up the right outlook on learning, life and values. Enable students to have a stronger ability of autonomous learning and self-control, thereby enhance the effect of online learning. Some students are not interested in online learning content, but only learn passively to complete the task, which is often due to a lack of understanding of the course and unclear learning objectives. Therefore, teachers should give correct professional guidance to students, make them clear about the importance of the course and its impact on their future career development, encourage students to improve their interest in learning as much as possible, help them to establish a positive learning attitude, and finally let them really participate in the learning process.

### ***4.3. Active communication and more confidence***

Long-distance online communication is sometimes more effective than short-distance classroom communication. This is because classroom communication often requires a short time to organize the language, to ensure clarity, and also need to face many students. These pressures could make some students fear, timid and choose to keep silent. While online communication is carried out through words, so the students have enough time to think. Although the distance is far away, the students are more confident. Teachers should seize this feature, encourage the students to communicate with themselves actively, answer their questions in time, and strengthen their confidence and motivation to continue learning. In addition, teachers should also timely publish some course-related topics for guiding the students to discuss with each other, deepen their understanding of knowledge, finally to achieve the purpose of knowledge transmission and fulfill mutual promotion of teaching and learning.

#### ***4.4. Strict rewards and punishments and proper supervision***

Due to spatial distance and other factors, online learning gives students a sense of being undisciplined and self-indulgent. Moreover, most students are still in the stage of passive learning, lacking in autonomous learning ability and self-discipline awareness. Therefore, it is more necessary to establish a complete curriculum system and discipline, give full play to the supervisory role of teachers. Students who actively participate in online activities and perform well should be rewarded, such as finishing their online assignments on time and obtain higher scores, or answering questions in class can get credit rewards, etc. On the contrary, students who do not sign-in on time and complete online homework should take some punishment measures, such as deducting credits, and in serious cases, they should be reported to the students' counseling office for criticism.

At the same time, the school should formulate scientific and reasonable online teaching standards and improve the teaching supervision mechanism. It is quite necessary to assign teaching supervisors to attend lectures in online classes, get real-time information of students' state of attending lectures, teachers' state of teaching, and their communications, find the problems in online classes, and give reasonable suggestions. Good practices should be set up as a model and popularize, so that teachers can learn from each other and improve the quality of online teaching faster and better.

#### ***4.5. Rich design and reasonable assessment***

Online learning emphasizes student-centered learning, therefore the curriculum design should be more diversified and hierarchical, so as to apply to students at different learning levels, meet their individual needs, gradually achieve learning goals, enhance students' sense of achievement in learning, and improve learning efficiency. While ensuring the accuracy of teaching, teachers should try to make the teaching content more interesting and easier, and teach in a light-hearted and humorous way. Teachers can often exchange their experience of online teaching and try diversified teaching methods, such as case study discussion, based on the task of team learning, scene experiential learning, etc., so as to improve the students' learning enthusiasm, deepen their understanding of knowledge. Reasonable teaching assessment can effectively urge students to study and improve the learning effect, but the way of online assessment should not only be determined by a test paper like traditional teaching, but should be the result of multiple indicators. For example, the score of each chapter test after class, whether to participate in classroom interaction, whether to initiate topic discussion, and the final score.

#### ***4.6. Large-scale training and Lifelong learning***

With the development of computer network communication technology, higher education informationization construction made great achievements in recent years, but in traditional classroom teaching, teachers who master the use of information technology is less than 10% [8]. The sudden outbreak of COVID-19 has greatly enhanced teachers' understanding of modern educational technology and made them deeply aware of their lack of ability. As users of the network teaching platform, teachers need to master the online course production, quality control and other skills, but also guide the student to use the platform correctly and reasonably to ensure the quality of teaching. Therefore, schools should increase information training for teachers, For example, solutions to common problems of the platform, sharing of excellent teaching cases, etc., In addition, we should pay special attention to the old teachers, because the old teachers have a shorter time to contact with modern network technology and are usually not proficient in using network platform, which may cause anxiety, For this phenomenon, we could select special technical personnel to provide one-to-one guidance, solve the technical problems of teachers, relieve their psychological pressure and strengthen confidence. At the same time, teachers also need to update their teaching concepts, establish a sense of lifelong learning, actively participate in information technology lectures, and improve their information literacy. After the implementation of online teaching, teachers should actively communicate with each other, share a good experience, discuss and solve problems together, so as to improve the quality of online teaching and finally realize the deep integration of information technology and teaching.

### **5. CONCLUSION**

The large-scale online learning during the outbreak of COVID-19 has joined the combined efforts of the government, universities and different sectors of the community. This is not only a full exercise of the modernization of education information, but also a historical opportunity to explore the new trend of teaching reform. In this online learning activity, teachers fully experienced the new changes brought by information technology to the traditional teaching concept, mastered new skills, opened up a new battlefield. The students have fully exercised their ability of independent learning, self-supervision and management, broadened their horizons and increased their knowledge. Of course, the effect of this online learning should not be exaggerated. After all, it is an emergency action, and needs further improvement in platform construction, curriculum design and other aspects. Therefore, only by carefully analyzing the influencing factors of online learning and taking appropriate rectification measures, can we steadily improve the effect

of online learning, deepen the informationization of education, and make online learning truly rooted.

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