E-Learning and Online Instructions of Higher Education during the 2019 Novel Coronavirus Diseases (COVID-19) Epidemic

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Abstract. E-learning and online instructions of higher education play a key role in no suspension of learning and no suspension of teaching during the 2019 Novel Coronavirus Diseases (COVID-19) Epidemic. This study summarizes the responses from online instructors and analyzes the difficulties and solutions of the online learning and instructions. The results indicate that although most instructors try to prepare the contents of instructions well, however, it is still not an easy way to monitor and change the students’ learning behaviors in such a short term. We outline implications for practice and ideas for future research. The results could be used to serve as a benchmark for comparing levels of online learning and identify the main difficulties of online instructors during the outbreak circumstances of the COVID-19.

Keywords: Online Learning, Online Instructions, COVID-19

1. Introduction
Since the outbreak of COVID-19 epidemic, the higher education institutions in order to implement the requirements of no suspension of learning, no suspension of teaching during the COVID-19 period, the Chinese Universities organized the largest e-learning and online instructions with the largest scale ever. Therefore, the largest number of online courses and the widest coverage of all of the courses are on-line in a very short period of time. This is a quick response to the epidemic, however, it is also a big challenge for most of the instructors who get used to lecture the courses offline in the classrooms.

Generally, e-learning and online instructions environments utilize interactive network system to enhance the quality of teaching and learning by managing content provided to learners across various learning activities [1-2]. Online instructors play a key role in the success or failure of the online learning and teaching, and they must be well-trained and technically comprehensive in order to apply and integrate technical tools to achieve the success of online learning and teaching [3-4]. Assessing the readiness of online instructors before and during the use of online learning system is important for measuring their learning outcomes [5-6]. In a university, online instructions have become one of the choice of course delivery. Nowadays, the university students can easily adapt to this digital learning environment. Despite the rapid spread of online learning at the university level, it seems that few people have studied the preparation or preparation of students for this learning environment. Subsequent studies explored the utility and reliability of this tool in different contexts [7-11].
2. The Main Factors Influencing the Effects of E-Learning and Online Instructions

According to the survey of each factor of participating teachers from Chinese Network of Internal Quality Assurance Agencies in Higher Education, the main factors influencing effect of online instructions can be roughly divided into five aspects:

First, students' autonomous learning abilities and habits of learning behaviors really influence the effect of online instructions, including students' autonomous learning ability, good online learning behaviors (such as on-time classes, learning self-discipline ability, etc.) and students' active participation.

The second aspect of main factors is the teaching inputs of instructors, platform function stability and teaching strategy and method. Among them, the factors are including the teaching attitude and energy input of instructors, the functions and stability of the teaching platform, teaching strategies and teaching (demonstration) methods of instructors, the terminal equipment supports.

The third aspect of main factors is school policy, software and hardware support. The order are as follows: school policy support for online instructions, network speed and stability, selection of courses suitable for online instructions, online technical service support, teachers' teaching space and equipment supports.

The fourth aspect of main factors is the training of teaching platform technical tools. Specifically, it includes: teachers' familiarity with teaching platform and tools, providing course supporting electronic teaching resources, students' familiarity with teaching platform and tools.

The fifth aspect of main factors is teaching evaluation and classroom program maintenance. The orders are as follows select appropriate evaluation methods, control and maintain classroom teaching order, equip a certain number of course assistants.

From the perspective of "very important" factors, about 70% of participating teachers think that "students' independent learning ability", "learning behavior habits" and "students' active participation" are "very important"; about 60% of participating teachers think that "teachers' teaching attitude and input", "platform function and stability", "network speed and stability" and "teachers' teaching strategies" It's "very important" to think about methods. More than 50% of teachers believe that "student learning space and equipment", "school policy support", "selection of suitable curriculum content" and "online technical services" are "very important".

Table 1. Main Factors Influencing the Effects of Online Instructions

| Factors                                                                 | Very important | Important | Not important |
|------------------------------------------------------------------------|----------------|-----------|---------------|
| students' autonomous learning abilities and habits of learning behaviors| 70%            | 26%       | 4%            |
| teaching inputs of instructors, platform function stability and teaching strategy and method| 63%            | 33%       | 4%            |
| school policy, software and hardware support                            | 55%            | 38%       | 7%            |
3. The Main Problems in E-Learning and Online instructions

According to the survey of each factor of participating teachers from Chinese Network of Internal Quality Assurance Agencies in Higher Education, the main factors influencing effect of online instructions can be roughly divided into five aspects:

The main problems of the first aspect in online instructions include some teaching contents are not suitable for online instructions, students' autonomous learning ability is weak, and students do not form good habits of online learning.

The main problems of the second aspect in online instructions include poor network speed and stability), imperfect teaching platform function and poor stability, and poor classroom teaching order (such as unrelated group chat problems, etc.).

The main problems of the third aspect in online instructions include insufficient student participation, insufficient E-teaching resources for supporting courses, and insufficient learning space environment and terminal equipment support for students.

The main problems of the fourth aspect in online instructions include insufficient support for teachers' teaching space environment and equipment, insufficient support for online technical services, unskilled students' teaching platform and tool, teaching evaluation method is not suitable for online instructions, teaching strategy and teaching method are not suitable for online instructions, "unskilled teachers in teaching platform and tools.

The main problems of the fifth aspect in online instructions include no course assistant or insufficient quantity, insufficient school policy support for online instructions", and insufficient teachers' attitude and enthusiasm in teaching.

From the perspective of the attitude of participating teachers, more than 70% of teachers agree that "some teaching contents are not suitable for online courses". About 70% of teachers agree that "students' autonomous learning ability is weak", "they have not formed good habits of online learning"; 60% - 70% of teachers agree that "network speed and stability are poor", "teaching platform function is imperfect and stability is poor", "students' participation is not enough" and "classroom teaching and learning order is not good". More than 50% but no more than 60% of teachers agree that "the provision of electronic resources for courses is insufficient", "students' learning space and equipment support are insufficient", "online technical support services cannot keep up", "teachers' teaching space and equipment environment support are insufficient" and "school's online instructions policy support is insufficient".

4. The Most Tough Difficulties and Challenges of the Instructors in Online Instructions

The most tough difficulties of online instructions for the instructors may encounter include the relatively difficult for teachers is how to mobilize students' learning attention, maintain classroom order, organize classroom discussion and online communication, feedback and discussion. According to the mean value of difficulty degree in order: keep students' learning attention online, maintain classroom teaching order online, organize classroom discussion online, communicate, feedback and discuss online after class, be familiar with and master various platforms and teaching tools. Online preparation, online live broadcast, online test or examination, online arrangement, correction and feedback, online recording.
From the perspective of the ranking of the degree of challenge, they are as follows: need to change teaching strategies and methods, need to change previous teaching habits (mean 3.96), need to change teaching concepts, need to change the boundaries of time and space online and offline, need to re-learn various educational technologies, the increase of teaching workload burden and the increase of psychological pressure.

In addition, more than 30% of the instructors agree that the challenges which increase the psychological pressure. More than 50% of the instructors agree that the pressures arose from all of the above aspects. Nearly 70% of instructors agree that online instructions increases workload; more than 70% of instructors agree that the following five aspects including the pressure and challenges from online instructions include online instructions makes the boundaries of time and space inside and outside the class blurred, need to relearn various educational technologies, need to change the concept of education and teaching, need to change the past teaching habits, need to change teaching strategies and methods. Among them, more than 70% of the instructors change their teaching strategies and methods which cause the challenges for themselves.

5. Conclusion
Results indicated that the instructors were not well-prepared for, or accepting of, online instructions. In particular, some of the instructors possessed low skills in sophisticated computer and Internet related tasks; had a preference for traditional methods of course instructions (i.e., face to face) over online instructions of learning. However, online instructions are still important and help the students keep learning without limitation. Despite this, the study remains valuable today as it helps establish a point of reference with respect to levels of participation of the instructors in the higher education during the period of COVID-19.

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