Qualitative Research on Effectiveness of Online Course during the COVID-19 Pandemic

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Executive Summary

In 2020, the COVID-19 pandemic relentlessly spread all over the world, online teaching appeared overnight led to in-effective teaching. How to improve the effectiveness of online teaching has become a difficult problem globally. Adopting qualitative research method such as observation and interview, this research focuses the live online Course of "Qualitative Research Methods" of the postgraduates in Yunnan University. It describes three problems before live online course, the experiences co-created by teacher and students, and the course assessments. Finally, this paper put forward four aspects to improve the effectiveness of the live online course: online platform, the multi-frequent interaction: the four-level management and e multiple assessments, which aims to provide a useful reference for quality assurance of online teaching during public emergencies and post-pandemic era.

Key words: effectiveness; live online course; qualitative research method (QRM)

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The pandemic of Corona Virus Disease 2019 (COVID-19) in the globe has had profound impacts on education. Inexperienced online teaching leads to in-effective teaching. How to ensure the effectiveness of online teaching has become an urgent problem to be solved. "Qualitative Research Methods for Primary and Secondary School Teachers" (hereinafter referred to as "QRM course") is an extremely important course for graduate students, which has to move from face-to-face teaching to online, from traditional face-to-face teaching to modern network teaching in the COVID-19 pandemic. This paper describes the QRM live online course taught in "Tencent Conference" by Prof. Jianxin Zhang in Yunnan University to 54 on-the-job graduate students majoring in Education Administration from June 20 to August 30, from three stages: before, during and after the live online course, and focus on the effectiveness of online courses during the COVID-19 Pandemic, which aims to provide a useful reference for quality assurance of online teaching during public emergencies and post-pandemic era.

1. Entering the live online course: three questions before course

Online teaching is a great challenge for both teacher and students. According to Wu Daguang's "*Survey Report on Online Teaching of University Teacher during the Pandemic*", about 80% teachers in China have never, ever carried out online teaching before. Therefore, when being told that the QRM course will be taught online, the teacher and students communicated a lot on the following three questions: 1) should we have live online course? 2) what to teach? and 3)how to teach?

1.1 Question 1: should we have live online course?

The QRM course as a method course, the most important thing is that students need to practice, which need students' constant practices, coursework after class and feedbacks to teacher to improve their ability to use the QRM step by step. Can the live online teaching achieve such an effect? How many students are willing to learn this course online? First of all, the teacher asked the monitor to make a small survey to all the students on two questions: "Do you want to take QRM course？" "Which do you prefer, online at present or offline after the pandemic？" (see Figure 1).

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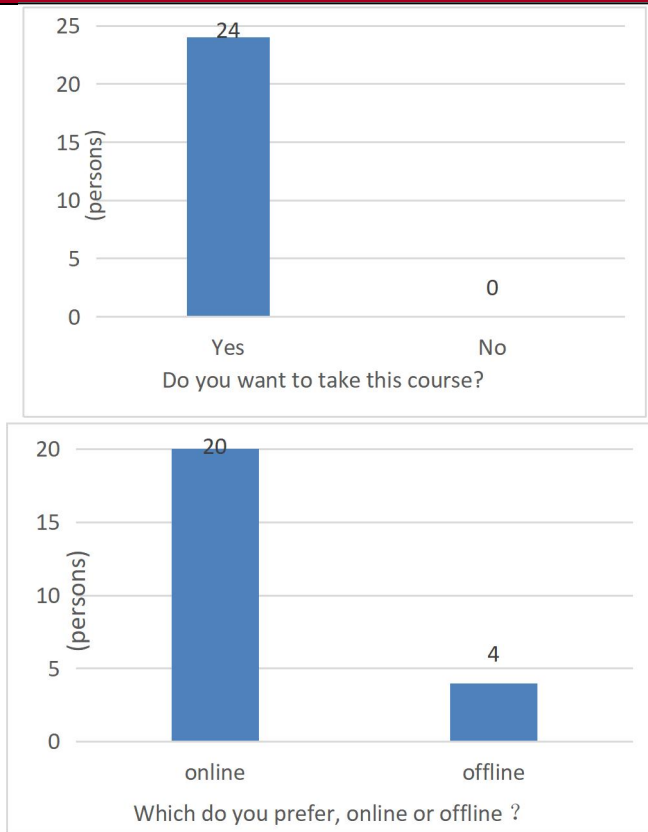
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Figure 1   Students' willingness about the live online QRM course

The figure above shows, among the 24 respondents, 100% of them were willing to take QRM course (the actual participators was 54 after the course began). This shows that no matter how serious the pandemic is, students still have a strong willingness to learn. 83% respondents (20 in total) chose "online teaching", which shows that the students have high acceptance of live online teaching, and consider that online teaching is more convenient during the pandemic, more economical and applicable for on-the-job graduate students, and online teaching can meet the curriculum requirements of   the QRM course.

But the teacher is much more worried than the students. In an interview with Prof. Zhang, she mentioned that: "*The QRM course needs students to practice and act in class during the whole process, just like learning swimming in the water, and spoon-feeding teaching and learning by rote are not allowed. Can live online courses achieve that goal in the live online course without face-to-face teaching and learning? I'm worried…* " It can be seen that there are some difficulties in using online platform for teaching method course, and students cannot complete the most important thing of qualitative research online: field/case study.

1.2   Question 2: how to teach？

As a new form of teaching, live online teaching puts forward higher requirements for both teacher and students. How to take this live online course? The

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teacher and students had a full exchange and discussion on this issue, and finally reached the following consensus.

1) "Participatory learning": Lecture + discussion + coursework + course paper.

As a method course, the most important of the QRM is "participatory learning". So the teacher refuses "the traditional spoon-feeding/ cramming teaching", adopts participatory teaching and learning method, and tries to diversify the course compositions, such as presentation of the students' coursework The teacher mentioned in the interview, *"the QRM course needs a lot of practices and actions. If the students 'could not swim in the water', then the effect of this course is very bad."* Except the role of teacher's lecturing and guide, the teacher believes that it is very important for student teams to conduct qualitative research, focusing select "real questions".

2) "Double work at one stoke": in-class activities + extracurricular activities

In-class activities mainly include 3 items: teaching, discussion and practice in class while extracurricular activities mainly include extracurricular reading and team research projects (see Figure 2).
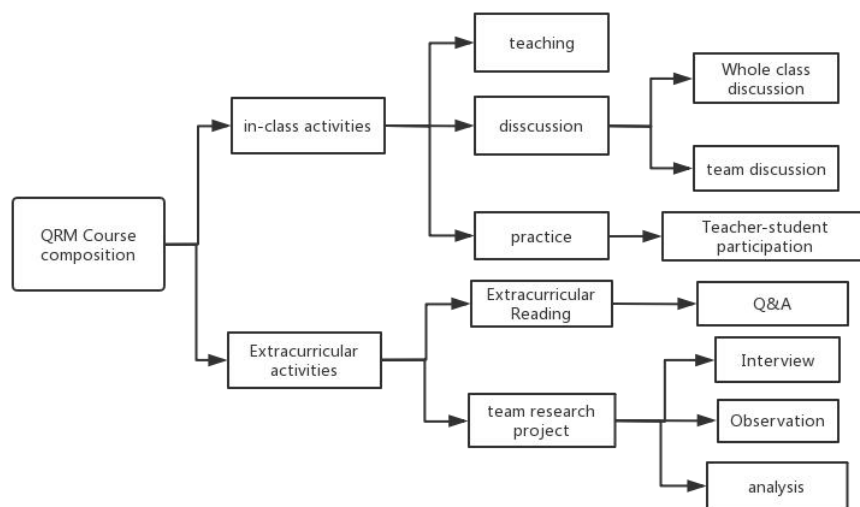

Fig. 2   the Composition of the QRM Class

From the course composition of the QRM course, we know that class teaching is only a small part, and it is more about discuss learning, practical operation, accumulation and improvement. The course composition is diverse. In the active class atmosphere, students' thinking is mobilized, and discussion and practice are the main methods. The combination of in-class and extracurricular activities focus on the content of the course.

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3) "Individual responsibility": clear team work and no more fake credit

The teacher attaches great importance to team cooperation in the QRM course and clearly requires that "*six students form a group, select the team leader, and divide the responsibilities one by one, so as to complete the research report of the team after the each lecture.*" At the same time, in the live class, each team reporter must take turns reporting each time. As the teacher said: "*it is forbidden if students just want to 'fool' the teacher to get the credit! Although the assignment is submitted in group, but the team work must be marked with each student's he contribution part.*" In the form of team work and individual assignment, each student in the course can learn knowledge and contribute to each assignment.

4)   "Multiple assessment": diverse and flexible assessments

The QRM course assessment is made up of three parts: (1)students' participation and individual work; (2) extracurricular team work and reflection; (3)and final research report. As a method course, the QRM   require students' learning effect is directly reflected in students' research report, so team work has become an important assessment basis. At the same time, in the live online class the interaction between teacher and students is particularly important, so students' participation and mutual assessments of all teams have become an important part of the assessment.

1.3   Question 3: what to teach？

When designing the teaching content, the teacher should focus on both the teaching content suitable for the QRM course and the teaching methodology of live online teaching. Face-to-face teaching method cannot be followed in the live online class, while the QRM course focuses on practices and actions. How to reconcile the two contradictions?   How to make up for the loopholes that the live online class cannot actually happen? The teacher designed the following course content (see Figure 3).
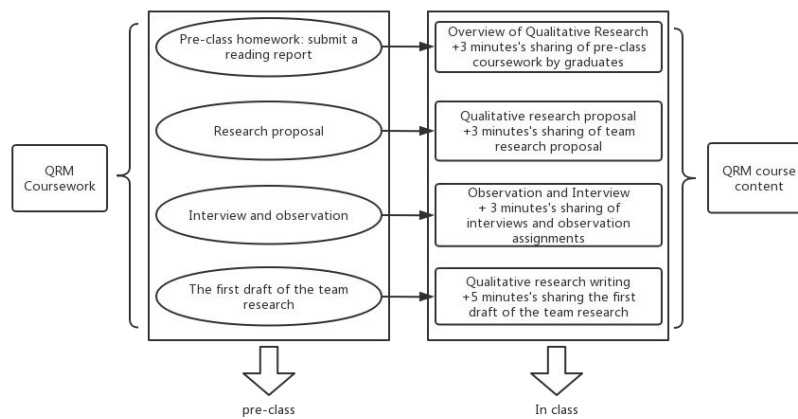
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Fig. 3   the Content of the QRM Class

One of the most prominent features is: offline work + online feedback. The course content is closely linked with the course assignment. As a method course, coursework is the direct feedback of students' learning effects. The content of the QRM course is divided into 4 major themes, and each corresponds to a different assignment. The combination of the 4 assignments is the final research report. Students must complete offline field interview, observation and other tasks, and the coursework is the practice of what they learned in live online class. This can ensure that students can also perform practices to ensure the effectiveness of the online course. When students complete their coursework, they are gradually learning how to use qualitative research methods to conduct their own research. As the teacher said: *"it's difficult to verify the attendance rate of online live teaching because phones or laptops could be online but the students might not be at the scene. But compared with traditional teaching, as long as students come to this online class, I believe they will learn something."* In order to make up for the decrease of attendance rate caused by line online teaching, the teacher adopts the form of offline coursework + online feedback to ensure that students "can learn something in this course".

In a word, before class, the teacher and students have shown a variety of new online teaching forms that they have never met before. However, the teacher and students communicate with each other on above "three questions", and reach a consensus before class in order to make joint efforts to ensure the effectiveness of online teaching.

2.   Experiencing live online class: co-creation of both the teacher and students

As part of the students in the live online course, we used participatory

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observation method to observe and record the teaching process of the QRM course. In the process of experiencing the live online class, we found that this course is a "big stage" jointly created by the teacher and students. The teacher and students discuss the content of the course in a relaxed and active atmosphere.

2.1 Basic situation of live online class: teacher-student cooperation

1) "Jointly creative class" of both the teacher and students. In the QRM course, the teaching is a "team report → teacher feedback → teacher teaching → teacher-student discussion" process. The whole course is composed of both the teacher and students. The team reporter summarizes the offline practice work of the team and reports to the teacher and classmates in class. The teacher gives feedback on the results of each team one by one. After the feedback, the teacher will teach the content of the course. During the teaching, students must record the relevant methods and content (otherwise it is difficult to complete the coursework after class), put forward their own questions, and finally, teacher and students discuss together.

2. Four level of strict supervision system: monitor's checking in + team leader' report + teacher's supervision + secret supervisor. As the teacher said in the interview, "*I can guarantee the class quality through a strict supervision system. First of all, the monitor is responsible for checking in; second the team leader tracks the attendance of the students in their group, and then summarizes the data to the monitor. The monitor will give me an attendance sheet after class…In one online class, the teacher, the monitor, the team leader, the secret supervisor are all monitoring. "*

3. Queuing for advice: frequent interaction between the teacher and students. In this live online course, the frequency of interaction between the teacher and students is very high, including Q&A, discussing between teacher and students, team report, teacher feedback and so on. The following figure shows team 7 reports their coursework on their research topic "*Case Study with the outstanding impact on the children of the Divorced Families*" (see Figure 4).
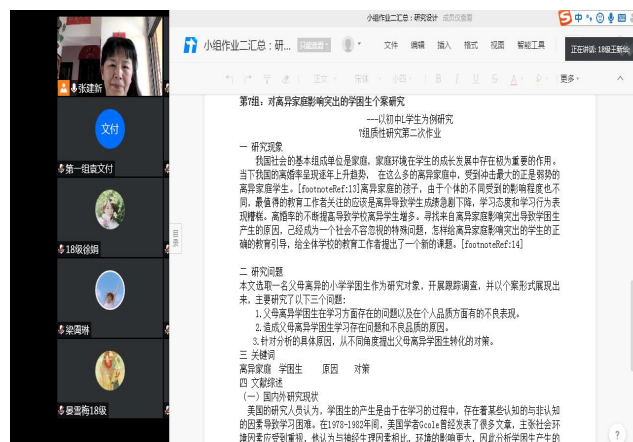

Fig. 4   The student from Team Seven report on team coursework

Frequent interaction is not only a way for teacher to test students' state in

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class, but also a good way to mobilize students' thinking activity. As the teacher said in the interview, *"it is necessary to design some small strategies or methods to make students 'alert' to be called by the teacher, such as spot check and calling the students to answer questions randomly."* At the same time, due to the fact that students need to conduct practical research after class, students must actively ask the teacher for relevant questions for further information and feedback from the teacher in tight class time, otherwise the coursework cannot be completed. According to our observation, the students are very enthusiastic. Queuing for teacher's advice is a common phenomenon. Many students volunteered to stay in the online class after class time ended in order to ask the teacher for advice. The most typical one was that the "Tencent Conference" studio could not be closed after 62 minutes of the class time, which fully shows that the teacher-student interaction of the QRM course is good.

2.2   Accidental "disturbances": the process of gradual adaptation

Although the QRM course is carried out smoothly under the careful design of teacher and the active cooperation of the students, there are still some "small disturbances" occasionally in class because of the new teaching form. The following is part of the "small disturbances" in the observation table:

Table 1   Field observation record of violation (time :on July 4th,2020)

Field Notes	Personal Notes	Theoretical Notes
At 2:30 PM, class began, but 5 students have not checked in the live online class	We are wondering whether they forget the class or didn't care.	The punctuality of students seems to decrease in the live online class
At 2:40, the teacher summarized that only one team submitted reading coursework on time, three teams submitted coursework overtime, and one team has not so far.	We know the reading assignment is easy to complete and am wondering whether the students have the habit of procrastination.	In online teaching, students seem to be less efficient at completing their coursework.
When one student reported the reading coursework, her speaking was broke because of the unstable network. While sharing the screen to all, another student could not be heard.	We feel, unfamiliar IT techniques greatly affect the class effectiveness and waste time.	The instability of network and IT techniques are the main issue of online teaching.
Two students forget to turn off the microphones and make lots noises and the	We feel irritated. How dare they affect others if they don't want to learn?	The management of live online class is more important than that of

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teacher criticized them and made their names known to all.		the face-to-face class.
A student accidentally turned on the camera when she wanted to speak, which showed she was sitting in a car.	Online teaching does not require students to be in class, but students should still study in a quiet and suitable place.	The space and environment of students' participation in live online class may have an impact on the teaching effect.

According to our observation notes and personal experiences in live online classes, the main problems are as follows: (1) students often carelessly make strange noises during the course, which affects teaching. (2) it is difficult for teacher to control the learning state of each student. (3) At first, the teacher did not know how to solve the IT techniques, later on she has gradually mastered the IT technology. The teacher said: "*The university recommended quite a few types of online course, but no training to teachers, what I can do is groping forward* ". (4) Some students often have problems with their Internet. One student said: "*I was in my hometown when I was in class. The network there was not very good, which caused me to listen intermittently, and greatly affected my learning state and effect.*"

Generally speaking, the live online class of the QRM course s has many twists and turns that the teacher and students never met before. But with the joint efforts of the teacher and students, the difficulties have been solved soon and the course has been successfully completed.

3.   Reflection on live online course: quality assurance

The core of the QRM live online course is to guarantee quality and train students' ability to apply qualitative research method. In the process of reflection, it fully embodies the "student-centered" education concept.

1. **Students learning outcomes (SLO) show "real knowledge comes from practice".** The QRM is a course in which the teacher requires that each assignment must be completed within the specified time to reflect students' learning outcomes. The teacher said: "*I pay more attention to the fact that everyone must complete the coursework. Even if you cannot come to the class, as long as you can complete the qualified interview and observation, I can accept.*" In addition, the reflection of learning outcomes also includes class Q&A and report. The teacher asks the students to summarize and report on the coursework completed by their teams, and the speaker for each report should be different, which ensures the participation of each student in class.

2. **Students' self-assessment and mutual assessment: discuss together and put forward the assessment rules.** The assessment of the students is embodied in 2

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tables, mainly carried out through Q&A performance, coursework completion, class attendance rate and online interaction times. Both tables are sent to the student before class. Table 1 is "Assessment score table of each team's sharing in class", and table 2 is the "The total scoring table of the QRM course". All the students, team leaders and the monitor complete them. Finally, the teacher balanced all the scores and gave the final score. This method ensures the completion of the assessment: self-assessment is carried out within the teams, mutual assessments are conducted among the teams. Team self-assessments ensure the participation of each group member.   Besides, the teacher and students "discuss together, and put forward the assessment rules", the process of consultation and discussion embodies "student-centered" ideal.

3. Teaching reflection: "secret supervisor". Teaching reflection is an important way to improve the effectiveness and teaching quality of live online class. The main forms of teaching reflection are as follows: teacher and students jointly discuss the course components, teacher's communication with the students in view of course effect and existing problems, teacher asking students for suggestions on the course and reflect on teaching effect through coursework, students' actively reflecting learning outcomes. During the QRM course, the teacher ask one student to be a "secret supervisor" to record and supervise each student's listening state, and give the records to the teacher after class, so that the teacher can understand the basic situation of the course. The following is a copy the "secret supervisor" reporting to the teacher (Figure 9).
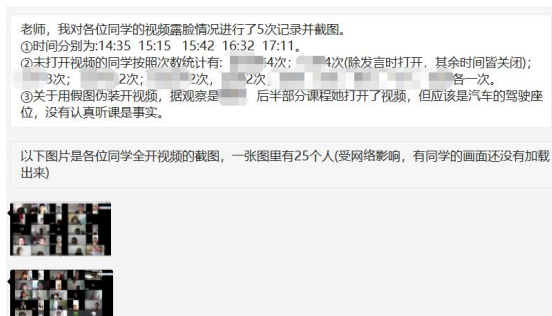

Fig. 5   The "secret supervisor" reporting to the teacher after class

4. Education reflection: "learn to be, then learn to know". In the assessment to the students, the teacher not only judge the quality of their coursework or performances, but also assess them from the four aspects of " class attendance, class discipline, academic ethics and commitment" (see Table 2). To ensure class attendance and discipline is an attitude problem in live online course. No plagiarism and keeping promise can reflect one's character. Therefore, the teacher's ideal is "*learn to be first, then learn to know*". In addition, according to the characteristics of the live online class, the teacher has also formulated unique scoring standards, such as "to violate class discipline" such as "the open microphone makes noises, deceptive head portraits, the mobile phone online but persons are not at the scene, etc.", which are quite different from offline teaching.

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Table 2   The grading standard of the QRM course

Criteria	Items	Deduction scores
Class attendance	Asking for leave for class	5
	Being late and leaving early for class	2
Class discipline	The violation of class discipline including the open microphone makes noises, deceptive head portrait and the mobile phone online but persons are not at the scene, so on	2
Academic ethics	No plagiarism, similarity of assignment, high repetition rate and other academic misconducts	10/ more
Commitment	Someone who doesn't submit the final report before the deadline agreed	2 (per person per day)

In short, after each class, the teacher uses methods such as "secret supervisor" to control quality assurance (QA) of the QRM course. "Students learning outcomes, students' self-assessment and mutual-assessment, teaching reflection and education reflection" are "four-in-one" quality assurance of the QRM course, which ensures the smooth development and effectiveness of online teaching effectiveness.

4.   The effectiveness of live online course: reflection and improvement

The slowing down of the COVID-19 pandemic does not mean the end of live online teaching. On the contrary, it remains a permanent topic of educational quality. This case study takes the QRM live online course as an example, and reflects on four aspects: online teaching platform and network, multi-frequent interaction, four-level management, and multiple assessments.

1) Online teaching platform and network: "every skyscraper is built from the ground". Online teaching platform and network are the basic guarantee for the effective development of live online teaching. Without IT techniques, live online course cannot be carried out; without people skillful people in operating online platform, the online teaching will lose its "pillar". However, the lack experiences of teachers and students, unstable network conditions and other unexpetablethings often occur in live online classes, which seriously affect the teaching effect. The teaching platform is just like the cornerstone of architecture. Teachers and students should play the role of "construction workers" to make "the skyscraper rise from the ground".

2. Multi-frequent interaction: "act as a go-between". Teaching is a bilateral activity of teachers' teaching and students' learning. The interaction between teachers and students is the core element of effective live online course, and it is an important hub to connect all parts of the class. Teachers and students are linked by an Internet screen, but they are still "thousands of miles away" from each other, and teachers cannot directly observe the students' learning state and class engagement.

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So the multi-frequent interaction and communication act as "a go-between" and stimulate students' learning "vigilance". In the QRM course, what is worth praising is the performance of "three questions" before class, "Q&A" in class, interaction and feedback after class. However, too much interaction may affect the progress and effect of the course, and even increase students' learning tasks. Reasonable and appropriate rate of interactive frequency needs to be further discussed in the future.

3. Four-level management and control: "be loose but never miss". In the traditional class, the teacher and monitor are the maintainers of class disciplines. But teachers are helpless when facing the problem of students' distraction and disorder in live online class. The original "four-level control mode" adopted in the QRM live online teaching provides us with countermeasures and helps to maintain the disciplines of live online class. This is the key to ensure the effectiveness of live online class.

4. Multiple assessments: the touchstone of teaching effect. Reasonable assessment standards and methods are the "touchstone" to reflect and guarantee the teaching effect. In the QRM live online course, the multiple assessments have been adopted by the teacher including teacher's assessment, students' self-assessments and mutual assessments have certain reference value. It is scientific to adopt a variety of assessment methods in online teaching, but it is also important to allocate the proportion of assessment methods reasonably.

Conclusion

No matter teaching happens online or offline, "effectiveness" is the unshakable bottom line of quality assurance. The QRM live online course ensures the effectiveness of the course to the greatest extent through the teaching-learning co-construction by the teacher and students before class, the teaching co-creation by the teacher and students in class, and the co-reflection by the teacher and students after class. However, many deficiencies and un-expectable disturbances challenge both teachers and students in this new educational form of live online course. The he problem of the effectiveness of live online course will continue to exist, and we still have is a long way to go, which needs more comprehensive exploration and research by educators.

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