Discussion and Practice of "Three Elements and Nine Grids" Mode in Online Teaching[1]

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Abstract: In the context of the epidemic, online teaching needs in-depth discussion and reform in teaching design, organization and implementation, and effective connection with the original classroom teaching plan. Based on this, the author draw lessons from in recent years to carry out the "applied undergraduate colleges and universities under the background of" online hybrid teaching mode reform experience, combining the reality of colleges and universities, a preliminary online teaching mode of "three elements nine grids", aims to promote the applied undergraduate education informatization construction and teaching reform and innovation, promote the quality of personnel training mode and continuous improvement and improve.

Keywords: Online teaching; Teaching design; Applied; Undergraduate institutions; Teaching mode; Three elements and nine grids; Cultivation of talents

The "three elements and nine grid" model of online teaching was put forward in the special period of COVID-19 prevention and control, in accordance with the overall requirements of "non-stop teaching and non-stop learning". It is different from the "online and offline hybrid teaching mode". It is a completely online teaching activity, which has been preliminarily tried on many courses[1]. This paper will take the implementation process of the course "Database Principle" as an example to explain the specific practice process and effect under the online teaching mode.

1. The Connotation of the "Three elements Nine Grid" Model in Online Teaching

The discussion of the new model of online teaching is mainly carried out in accordance with the "student-centered" teaching reform, so it includes teaching content, teaching methods, quality evaluation, teaching management and the remodeling of teacher-student relationship [2]. Its core is the coordination and transformation of "teacher center" and "student center", as well as the effective interaction between teachers and students. Based on this, the "three elements nine grid" model of online teaching is proposed. That is to say, the teaching process is divided into three elements: "teachers, courses and students", and each element is divided into three links: "before class, in class and after class", which are displayed in a "nine grid".

1.1 Teacher element

Teachers are the main element of teaching. According to the teaching process of online teaching, it can be divided into three links:

First, curriculum design. The pre class curriculum design requires teachers to clarify the teaching objectives, refine the curriculum content, reasonably allocate time, allocate teaching resources, select a network platform, and focus on the key points, clear levels, and strong logic. Teachers are required to "focus on the teaching materials, talk less, highlight the key

points, and understand the difficulties".

The second is teaching implementation, which is the key part of online teaching. Online teaching should give play to the leading role of the host platform and flexibly switch with the auxiliary platform. Attention should be paid to the lively, attractive and inspiring teaching language, which should be guided by questions and cases, fully and effectively communicate and interact with students, so as to "not waste" every minute and every word "worth a thousand gold".

The third is the postscript of the course. After class, we can communicate with students on individual questions and answers, and assign group assignments to promote group learning and discussion; Review and correct the homework, and summarize and sort out the feedback. Through answering questions and correcting homework, timely find out teaching problems, and conduct teaching effect evaluation and content method correction.

1.2 Student element

Students are the main elements of teaching and learning, which can be divided into three links according to the course link:

First, preview before class. First of all, we should be familiar with and master the syllabus, and make clear the objectives and requirements of course learning; Secondly, download courseware and other classroom learning materials, carefully read and understand the key points and difficulties of the course, and be able to preliminarily preset questions for online communication, so as to prepare for online classroom learning in terms of knowledge and ideas.

Second, online learning. Concentrate on following up the teacher's teaching, think carefully, actively participate in the interaction between teachers and students, consider problems with divergent thinking, and mark and record the doubtful points of problems.

Third, review after class. At the end of each online course, the first step is to review and summarize the course; Secondly, complete individual and group assignments as required, try to arrange time to communicate with teachers (or teaching assistants) privately to solve problems, and evaluate the teaching effect.

1.3 Course Elements

Curriculum is an important element of teacher-student interaction, which can be divided into three links according to the implementation process:

First, the content before class. It is mainly for teachers to design thought maps according to the curriculum objectives, guide questions and inspiration points of each link, the connection point of relevant knowledge and the entry point of case introduction according to knowledge points and curriculum progress. If the integration of theory and practice is involved, corresponding physical teaching aids shall be prepared when necessary.

The second is the content in class. This part is the core of the whole teaching process, mainly including: key explanation of the curriculum, problem orientation, case analysis, inspiration and guidance, teacher-student interaction, deductive reasoning, and joint solution, so as to clarify what students learn and do.

Third, after class content. Clarify the tasks and requirements of students' offline autonomous learning after class. Provide learning resources around the content of homework (individual and group), leaving students with space for independent extension and expansion of learning. At the same time, it is necessary to unblock the learning information feedback and mutual communication channels, and encourage students to carry out exchanges and discussions[3].

2. Students' participation in online learning courses and learning effects

In the test conducted by the teaching and research team on students, more than 51% of the students scored well, and 4 students got full marks; In the test questions of Jiangxi Normal University teachers team completed by students on the high-quality Muke course resource platform, more than 47% of the students got good grades, and 2 students got full marks.

The author uses the EXCEL chart function to make a comprehensive statistical analysis of the attendance, homework, evaluation and other learning conditions of the students in the teaching class of Database Principles. The results show that the composition of students' usual scores is not too big, their enthusiasm for learning is relatively high, and their learning effect is generally preferred.

3. Concluding remarks

The sudden COVID-19 has had a huge impact on undergraduate teaching in colleges and universities, greatly promoting the application of information technology and the overall popularity of online teaching[4]. The "three elements nine grid" model is just one of them. There are still many places that need to be gradually improved in the future teaching practice.

3.1 To be sure

First, classroom teaching has realized the transformation from "teacher centered" to "student centered". The application of the "three elements and nine patterns" model of online teaching has turned students into the center of the classroom and become the main body of the implementation of the curriculum, while teachers, as the promoters and boosters of students' learning, carry out all teaching activities closely around students. Teachers' careful teaching link arrangements have effectively promoted students' independent learning, and also help to cultivate students' innovative thinking ability and exploration and research literacy.

Second, it has improved teachers' classroom teaching ability and information technology utilization level. According to the interrelationship of the three elements of "teacher curriculum student" in the "three elements nine grid" model, centering on the core of "content in class", we should clarify the teaching objectives, sort out the teaching content, grasp the key and difficult points, allocate teaching time, master the teaching platform, and make reasonable use of information resources such as lessons and micro lessons. In the whole teaching process, teachers have spent more time and energy than traditional face-to-face teaching.

The third is to improve the students' learning initiative and enthusiasm. After the implementation of the online teaching mode of "three elements and nine grids", students can follow the three links of "preview before class - online learning - review after class" according to the curriculum requirements. Make full use of curriculum information resources to review repeatedly and promote autonomous learning. Its "fragmentation" of learning has more free time and better learning effect.

3.2 What needs to be improved

First, Database Principles is a course that combines theory with practice. Online teaching has many changes, and it will be more difficult for teachers to guide. In particular, the relevant teaching resources are not rich enough.

Second, the online classroom has not fully considered the students' own needs and interests, and has not customized a "personalized" learning program for students. The effective interaction between teachers and students needs to be improved and strengthened.

Third, due to the increasing dispersion of students' living places across provinces and the different network equipment, software and hardware conditions, the classroom interaction of individual students and the online communication between teachers and students and between students are affected to a certain extent.

With the normalization of epidemic prevention and control, "online and offline hybrid teaching will be the main teaching mode in the post epidemic era". In the future, we need to further strengthen the study of modern education and teaching theory, further master modern information technology, constantly enrich information teaching resources, combine the practical training of application-oriented talents, boldly innovate online and offline mixed teaching mode, and ensure the continuous improvement of talent training quality.

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