Thoughts on Online and Offline Mixed Teaching Design

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Abstract: *The characteristics of online teaching and offline teaching are different, and only the correct teaching design can achieve the desired effect. The blended teaching design is discussed, including online and offline learning content planning, teaching process design, and teaching quality evaluation. And the reasonable suggestions are given in the end. The aim is to implement the educational concept of four regressions, improve teaching quality. As long as we keep in touch with reality and constantly self-examination in teaching and improving the teaching process in teaching practice, the blended teaching can improve students' initiative and enthusiasm in learning, and achieve better teaching results.*

In 2012, two computer professors at Stanford University (Daphne Koller) and Andrew Ng), launched Coursera, which offers free courses to the world's top universities. Large-scale online open courses, namely Massive Open Online Courses (MOOC), small private online courses SPOC (Small Private Online Course), and other teaching mode emerged, the use of Internet technology, without time-limited learning mode, to teachers and students' learning, but also to challenge the traditional teaching mode. The ongoing outbreak of COVID-19 at the beginning of 2020 has brought unprecedented challenges to the education industry. It takes ten years to grow trees and a hundred years to cultivate people. Students' education and teaching work should not be stopped because of the raging epidemic, which is related to the overall training quality and development of a class of students. How to ensure the stable and orderly development of teaching work under the premise of ensuring public safety, and to ensure that the quality of students' training is not affected, is the problem that every educator needs to think about.

Students in epidemic areas and in high-risk areas make use of various teaching platforms, such as Dingding, Tencent Conference, Tencent classroom, rain classroom, etc., to ensure the smooth development of teaching work, and have accumulated rich experience in conducting online learning in how to ensure the teaching effect. In the normal teaching environment, with the deepening of education and teaching reform and the improvement of national and social requirements for the quality of higher education, the online and offline mixed teaching mode has its own advantages compared with the traditional classroom teaching mode and its own advantages, and has carried out research and implementation in various institutions of higher learning, which has achieved good results. For strong teachers, rich resources, to carry out the earlier school, accumulated rich experience in the process of implementation, but for just involved in mixed teaching colleges and professional, learning other institutions on the basis of this experience, should also according to their own learning, school, practical, in-depth research and practice, in the process of implementation suitable for their own experience. Mixed teaching refers to the teaching mode in which part of the course learning and the online learning should be planned according to the characteristics of the course and under the guidance of the teacher. This teaching mode can realize in the limited teaching class hours, the teaching content is not reduced, easy to realize students 'preview before class, review after class, increase students' learning initiative and consciousness, broaden students' knowledge, so as to improve the quality of education and teaching, has an important practical significance.

1. The necessity of implementing mixed teaching mode

With the requirements of social and economic development on the quality of students' training, and the impact of major public events such as the COVID-19 and natural disasters on teaching work, carrying out research and practicing mixed teaching is a beneficial attempt of education and teaching reform.

1.1. Requirements of the development of the times

Now is the era of knowledge economy, new knowledge and new technology are emerging in practice, developing rapidly; China has entered a new era of industrial revolution characterized by "intelligent manufacturing", in order to improve the level of industrial manufacturing, lead the industrial upgrading, cultivate high quality human resources that meet the needs of social development is the focus of great power competition. In the training of high-quality talents, colleges and universities play a fundamental role in. The application of Internet + has penetrated into all aspects of social economy, bringing revolutionary changes; online learning and teaching can enable students and teachers to teach activities without the limitation of time and space, and can use massive network resources, greatly expand the learning space, convenient and timely access to knowledge and skills [1].

1.2. Requirements of teaching reform

As China's economic development has entered a new stage, the social economy has put forward higher requirements for the knowledge breadth, depth and application ability of talents, which objectively requires colleges and universities to carry out education and teaching reform to meet the social demand for talent quality. The Ministry of Education on deepening the reform of undergraduate education teaching comprehensively improve the quality of talent training opinion pointed out that [2], "the implementation of national and provincial first-class curriculum construction" double plan ", strive to build a large number of high order, innovation and challenge of offline, online, online hybrid, virtual simulation and social practice" gold ". We will actively develop the "Internet + education" initiative, explore new forms of intelligent education, and promote the revolution in classroom teaching." At present, due to the limitation of class hours and teaching methods, it is difficult to complete the breadth and depth of knowledge, such as subject knowledge, interdisciplinary knowledge, cutting-edge knowledge, requiring students to read a large amount of relevant literature. In addition, with the help of network virtual simulation experiment, students can have a deep understanding of the corresponding knowledge points and laws, which improves students' "understanding". Correct guiding of online learning, in fact, can also play a role to cultivate students to consciously and actively use the network and library resources for "lifelong learning" habit.[3]

1.3. Requirements for responding to public safety emergencies

The COVID-19 outbreak in early 2020 has continued until now, and continues in local regions from time to time. In addition, other major public safety incidents should be prevented, so that students and teachers in different regions can teach and learn in real time. It is foreseeable that the current and future online teaching will be a normal activity; if the teaching design is reasonable and practical, it can improve the teaching effect and improve the quality of students' training.

2. Relationship and design between offline teaching content and online learning content

Online teaching and offline teaching are two completely different teaching modes, each with its advantages and disadvantages.

2.1. Advantages and disadvantages of online teaching

Main advantages: (1) it is not limited by time and space; (2) it is convenient to organize discussion; (3) it can cultivate students' habit of active learning; (4) it can use the statistical function of the software to reduce the burden on teachers.

Main shortcomings: (1) it is affected by the network transmission speed of both parties and the function of electronic equipment; (2) higher requirements for students' consciousness and self-study ability.

2.2. Advantages and disadvantages of offline learning

Main advantages: (1) teachers and students are in the same space, habit and nature; (2) it can master the overall situation of the classroom; (3) students' personality characteristics and acceptance ability can be well mastered; (4) students can realize the true connotation and understanding method of knowledge points through the teacher's language, body movements, repeated emphasis, etc.

Main deficiencies: (1) it can not meet the normal teaching requirements in such a special period because of major public safety; (2) class hours are limited; (3) it is not conducive to mobilizing students' learning initiative and learning potential; (4) the actual scene of the classroom cannot be reproduced.

2.3. Key points of online and offline mixed teaching design

According to the characteristics of online and offline teaching, the following principles should be followed when designing online and offline mixed teaching content:

(1) first of all, we should achieve the teaching objectives, which is the bottom line; (2) we should embody the principles of guiding and inspiring learning; (3) it should be able to stimulate the learning potential and motivation of excellent students and meet individual needs; (4) we should embody the principle of differentiation and meet the requirements of students at different levels.

In combination with the above principles, the following matters should be considered in teaching design:

(1) Correctly grasp the difficulty of learning content in combination with the training orientation of the school and the reality of students' ability;

(2) Clear teaching (learning) objectives. Teaching objectives at different levels should be set in order to test the effect of learning.

(3) The writing of syllabus, handouts and other teaching resources should be hierarchical to facilitate students' preview and review.

(4) Set up the homework questions and content reasonably. The purpose and function of students 'homework is to test the students' understanding and mastery of the explanation content, and to consolidate and deepen the understanding of the learning content. Therefore, at least three levels of homework should be set up: basic questions, elevated questions, and comprehensive exercises to meet the learning needs of students at different levels. Basic exercises are to meet the basic teaching objectives, all students must complete, should include understanding, simple analysis, comprehensive application types. The upgrading topic is to meet the learning requirements of the students above the middle school, through the part of the training, to further deepen the understanding of the true connotation of the knowledge points, to achieve the purpose of knowledge application. The purpose of comprehensive exercises is to be completed in the form of a team, which can include verification experiments. The purpose and function of setting such questions is to exercise students' ability in self-learning, communication and division of labor, literature retrieval and other aspects, and focus on improving the knowledge application ability of students with strong ability. Set different types and different levels of homework questions to meet the learning needs of different groups of students. In the teaching process, some relatively poor students also silently try to do relatively difficult homework. This is the role of leading and demonstration, in addition, everyone has an unyielding spirit, but the lack of demonstration and guidance; this is also in the teaching process to improve the students' learning interest, "return to common sense" teaching measures[4].

(5) Set up reasonable and appropriate ideological and political cases. Curriculum ideology and politics should focus on socialist core values, scientific spirit, craftsman spirit, etc., achieve "moistening things silently", and realize the unity of teaching and educating people.

3. Teaching process design

The teaching process should be different from that of offline courses, which can not only reflect the overall arrangement of the syllabus, but also reflect the characteristics of online learning; There should also be some flexibility to fine tune according to the actual situation and effect of learning. The content of online learning is mainly guided and inspired in classroom teaching, which appropriately increases the learning pressure of students.

The teaching content and teaching process of the course are integrated, and the fine-tuning should be combined with the actual situation of teaching and take the realization of teaching objectives as the basic principle. The whole teaching arrangement should be "student-centered" [5], with the goal of cultivating students' quality.

4. Teaching evaluation

Teaching evaluation is a test of teaching effect, judging whether the arrangement of teaching design and teaching process is reasonable. The evaluation of mixed teaching quality generally adopts the combination of quantitative evaluation and qualitative evaluation. For the quantitative evaluation of daily homework, we can set a standard value, and improve the daily performance by adding points, which is conducive to improving the enthusiasm and motivation of students' learning.

We should carry out quantitative evaluation on the comprehensive learning achievement of the course, and set different weights for different achievement types, so that the comprehensive evaluation not only reflects the minimum requirements, but also reflects the cultivation of response ability; The weight setting of the comprehensive evaluation of ordinary grades should not only take into account the actual situation of all students, but also the principle of improving students' learning enthusiasm and ability training.

Qualitative evaluation is adopted for the satisfaction, participation and other contents of the course learning mode, and students' feedback is emphasized for continuous improvement.

Online and offline mixed teaching practice and suggestions

"The principle of material forming" is a professional basic course for the major of material forming and control engineering. The recommended class hour is 96 class hours. The teaching class hour of our school is 64, which is seriously insufficient. After adopting mixed teaching, the teaching has achieved good results. Through the questionnaire survey, students' satisfaction reached 82%, and the average score of 2019 grade control students in the final examination paper was increased by 5.6 points to 81.2 points compared with previous students.

From the perspective of practice process and effect, the following five aspects should be paid attention to when carrying out hybrid teaching practice:

(1) Teachers should earnestly "return to their duties" and concentrate on thinking [6]. When designing teaching, we should not only improve students' learning enthusiasm, but also appropriately increase learning pressure.

(2) When designing assignments and discussion topics, we should refer to the teaching at the same level according to the training objectives and positioning of our major. It is not advisable to be too easy or too difficult.

(3) For applied courses, Teachers should pay attention to the importance of virtual simulation experiment in teaching.

(4) Teachers should correctly guide and inspect the relevant content of online learning.

(5)Teachers should pay special attention to teaching reflection, and summarize experience and lessons.

Online and offline mixed teaching mode is a test for educators and an exploration of diversified teaching modes in the future. Teachers should be fully prepared, actively respond, seriously study and correctly implement in practice.

Acknowledgement

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