

ONLINE TEACHING MODES FROM THE PERSPECTIVE OF CONSTRUCTIVISM

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ABSTRACT

China online education has been developing for more than 20 years, especially since 2013, with the tide of "Internet plus education", online teaching and MOOCs in colleges and universities have been unprecedented popularity, changing the traditional teaching mode and teaching methods. With the outbreak of COVID-19 epidemic in 2020, online teaching has rapidly become an important alternative to in person learning in colleges and universities. Teachers respond quickly and choose different online teaching platforms to carry out online teaching by using the national free open learning resources and their own curriculum resources. Based on the questionnaire survey of the students in E-commerce Department of Dalian Neusoft University of Information, it is found that the online teaching basically meets the teaching needs during the epidemic period. But there are many problems, such as large number of online teaching platforms, insufficient teaching resources, poor experimental teaching experience, traditional teaching mode online, and low interactive quality. Based on the constructivism teaching theory, this paper proposes to integrate teaching platform and enrich platform functions through technology empowerment; to improve teachers' teaching ability through training; to reconstruct teaching content with OBE teaching concept; to design reasonable evaluation methods and timely feedback students' learning effect by means of information technology; to promote online and offline "double line" integration to build a new normal of education and teaching. The purpose of this study is to provide reference for the development of online teaching in colleges and universities, so as to promote the reform of teaching mode and improve the quality of students training.

KEYWORDS

Constructivism, Online teaching, Teaching modes, Standards: 7,8

INTRODUCTION

With the development of information technology, especially the development of mobile Internet, big data technology and artificial intelligence, people's learning and lifestyle has been profoundly changed. According to the 46th "Statistical Report on the Development of Internet in China", there are 381 million online education users in China, accounting for 40.5% of the total Internet users (CNNIC,2020). Online education is a teaching method based on network access . China's online education emerged at the end of the 20th century, known as distance learning for adult education and vocational education at that time. After the year 2000, a series

of policies were issued by the state to increase the construction of education informatization and promote the reform of education and teaching. Therefore, a large number of excellent courses and excellent resource-sharing courses have been constructed. Especially since 2013, with the tide of Internet plus education, the state has launched a large number of high-quality MOOC resources, which has changed the traditional teaching mode and teaching methods (Xu et al.,2020). With the outbreak of COVID-19 in 2020, the Ministry of education of the People's Republic of China proposed to "suspend classes without suspending teaching, suspend classes without suspending learning", in order to reduce the impact of the epidemic on school teaching (Wu&Yue 2020). College teachers quickly respond by learning and testing the functions of different platforms to seek the best solution to transfer offline courses to online teaching. During the whole epidemic period, although the online teaching design of each course has been carried out, the design concept is still based on the traditional teaching design, which is difficult to effectively arouse the enthusiasm of students. In May 2020, the Ministry of education announced that after the epidemic, online teaching will be normalized. In order to better carry out online teaching in the future, it is necessary to introduce constructivism to explore online teaching modes.

THE CONCEPT OF CONSTRUCTIVISM

According to constructivism, the acquisition of learners' knowledge is not one-way transfer from teachers to students, but through the cooperation and interaction with others by using certain learning resources, and the way of meaning construction. Students who participate in cooperative interaction output their own knowledge, and give their different opinions among members, so that knowledge can be assimilated and adapted in sharing to promote the development of students (Yao,2003). Constructivism theory emphasizes that the students are the main participants in the research learning process, and students learning is a synthesizing experiencing process of knowledge construction and socializing. Teachers create a teaching situation for students to stimulate the original knowledge and experience, and link new knowledge, so that students can practice knowledge in various real situations and promote the transfer of knowledge. Constructivist learning theory holds that "situation", "cooperation", "conversation" and "meaning construction" are the four elements of the learning environment. Based on constructivism theory, teaching content, teaching strategies can be reconstructed to form a good environment for online teaching (Gao et al,2008).

CURRENT SITUATION OF ONLINE TEACHING

This paper investigates the implementation of online teaching of E-commerce Department in Dalian Neusoft University of Information through questionnaire and interview. A total of 384 questionnaires are collected, which can reflect the situation and existing problems of online teaching.

Network Jam

During the epidemic period, all of the schools including the primary schools, middle schools and college schools in China have changed their offline teaching to online teaching, and tens of millions of students accessed to the network at the same time, therefore, the network jam occurred frequently. Due to the network jam, teachers couldn't release online tests successfully, and students couldn't join the virtual classroom by scanning the code and submit their online test and assignment smoothly. Meanwhile, video and sound were not synchronized due to the network delay. Some teachers had no choice but to use an alternative way, using voice and

text instead of live broadcast, or recording courses for students to watch after class. Through the questionnaire, 81% of the students regarded network jam as the number one problem during the online learning, which directly affected the students' online learning experience.

Frequently switch platforms

Many colleges give teachers the right to choose their own teaching platform. Due to the imperfect function of online teaching platforms, or limited network traffic access, a platform cannot meet the requirements of teachers' online teaching. Teachers usually choose online teaching platforms according to their own preferences, resulting in a student using different platforms for different courses. Even for the same course, teachers also use multiple platforms to improve their teaching efficiency. Taking Dalian Neusoft University of Information for example, teachers used Dingding, Tencent classroom, Tencent conference, QQ classroom, Chaoxing when they delivered online teaching. When teachers interacted with the students, they used Rain Classroom, Ke tang pai, Wen juan xing, etc. When students submitted homework, the school's homework management platform was utilized. More than 1/3 of the students evaluated that frequently switched platforms made them experienced inadequate learning. Some students complained they missed submitting homework because of the multi-platforms.

Poor experimental teaching experience

The main forms of teachers' online teaching include: live teaching, video + online Q&A, MOOC + online discussion and Q&A, etc. The live teaching mode basically transfers the offline teaching mode online through the online platform. Students can interact with teachers in real time and have a high degree of participation, the live teaching mode are more popular with students than the other forms. At the same time, the teachers record the live teaching video, so that students can repeatedly watch the episodes they do not completely understand to ensure the students' learning effect. 91% of the students are satisfied with the live teaching, especially for the management courses. More than 90% of the students thought that the teaching pace was moderate. But in the computer experiment class, students' satisfaction was low. For experimental courses, if the courses are taught offline, students are usually arranged in a well configured experimental environment. Even if students install the experimental environment by themselves, teachers can provide on-site guidance to solve students' problems in time. While online teaching, even if the teacher provides the video of the experimental operation steps in advance, the students spend the time in studying and practicing independently after class, and the teacher answers the question and solves the problem in class. Students have different computer configurations and it is not so convenient for teachers to provide online guidance as offline guidance, so that some of the students' problems cannot be solved timely and effectively. For students with poor self-learning ability, they cannot grasp it well.

Insufficient learning resources

Some courses have insufficient teaching resources, only PowerPoints and auxiliary extracurricular reading materials are available for the students. During the epidemic period, students did not go back to school, so they did not have hardcopy textbook. When students encountered knowledge difficulties, it was not easy for them to find learning resources for further study. Due to insufficient learning resources, some teachers used the free MOOC of other schools, but MOOC contents were not completely suitable for students. Students learning abilities are different among schools. Different schools have different teaching

orientation, teaching objectives and teaching system, the teacher must choose the appropriate MOOC and reconstruct teaching contents.

Inefficient classroom interaction

Influenced by traditional teaching mode for a long time and lack of design experience of online teaching, it is difficult for teachers to quickly adapt to online teaching in a short time. Teachers usually used platform tools to know students' class performance by online answering questions, bullet screen or quiz. For the class with a large number of students, students replied to a lot of messages in a short time, and some messages were quickly covered, which made it difficult for teachers to pay attention to students' learning feedback. In addition, students had a sense of novelty and participated actively in this form at the beginning. As time went on, the enthusiasm of students had declined and they did not participate in the class interaction as before. A few of the students directly copied other students' answers or searched for the answers online in order to get a formative assessment score.

Unreasonable course assessment and lack of timely feedback

The assessment and evaluation design of some courses is unreasonable. For example, students were asked to watch the recorded video or MOOCs in some courses. The learning attitude and effect of students were measured by the watching time of students. Some students increased the watching time without actually watching it to meet the requirements of teachers. According to the questionnaires, many courses increased the task before and after class to improve the learning effect. However, with the increase of homework and the large number of students, students could not get the feedback from the teacher in time. 33% of students complained that they did not receive the evaluation. As we know, if students' learning process cannot be effectively evaluated, the closed-loop ecology required by constructivism cannot be realized, which affects the teaching effect.

ONLINE TEACHING MODE STRATEGY BASED ON CONSTRUCTIVISM

Enrich platform functions through technology empowerment

The integrated platform with perfect functions is necessary for online teaching. With the development of big data technology, artificial intelligence and 5G technology, it is possible to develop an integrated platform with the functions of online teaching, classroom attendance checking, learning process tracking by recording watching video and reading material time, assignment release and submission, performance feedback data analysis of students' learning effect, group video discussion, etc. The integrated online platform builds a virtual classroom for teachers and students, which provides students with learning convenience and increases their learning experience. Teachers can provide personalized support and guidance for students by the help of learning process track and students' learning effect reports generated by the platform. At the same time, the platform can help teachers build and archive teaching resources and the students' material generated by teaching activities. Furthermore, the platform provides teaching quality monitoring and daily teaching organization management for the department of educational administration.

Improve teachers' teaching ability through training

Although many teachers have rich professional knowledge, they are lacking scientific teaching methods and the skills for using information-based teaching. (Xue&Guo,2020). Teachers

should strengthen self-learning in their own teaching ability. Colleges should provide teachers with relevant knowledge and skills training and carry out online teaching training through teaching method lectures, observation of famous teachers' demonstration courses, teaching experience sharing, etc. Teachers should update their teaching ideas, master online teaching methods, and effectively improve their online teaching skills.

Create teaching situation

Constructivism holds that students need to learn new knowledge actively. Generally, they learn new knowledge on the basis of their acquired knowledge. The process of their own construction of the knowledge requires the participation of the situational factor. Therefore, in teaching design, teachers should attach the importance to analyzing and evaluating students' original knowledge and experience, and provide students with various learning resources and scaffolding to meet the needs of self-learning of students with different cognitive levels. Creating the teaching situation is one of the most important factors in Constructivism. The real-life scenario is the best teaching situation. However, it is difficult to meet the learning needs of students due to the difficulty of cost, safety, organization management, etc. Virtual simulation experiment can create a good learning environment for students (Liu et.al,2020). Students can enter the virtual practice place by wearing wearable devices, experiencing relevant business operations concretely and personally, to improve practical ability and to deepen the meaning of construction of knowledge.

Reconstruct teaching content with OBE teaching concept

Online teaching should be based on the OBE (Outcomes-based Education) concept. Teachers organize teaching activities flexibly according to students' characteristics, course nature and implementation conditions, so as to realize the fundamental transformation from "teaching centered" to "learning centered". Teaching content, teaching links, learning strategy, learning resources and learning evaluation are based on the learning objectives. Teachers refine all the teaching contents into individual knowledge point. Different teaching strategies are used for the different difficulty level. For the easy knowledge point, students can learn by themselves before class. On the contrary, the key and difficulty points will be taught and discussed fully in class, even the scaffolding needs to be provided by the teachers if necessary.

Design reasonable evaluation methods and give timely feedback

In the course evaluation, teachers not only need to evaluate the mastery of students' knowledge and skills, but also pay attention to the comprehensive evaluation of students' cognition, emotion, attitude and so on (Yu&Zhang,2020). The evaluation is not limited to the simple memorization and reproduction of the knowledge learned in the classroom and textbooks, but more emphasis on the application of knowledge in different situations. The ultimate goal of knowledge learning is to solve problems in real life, so in the process of evaluation, teachers should also highlight the ability of students to solve practical problems. No matter what kind of evaluation methods, timely feedback is required to be given for their learning effect at each stage. With the support of information technology, real-time feedback of close answer questionS and some open-ended questionS have been realized. In the near future, more open-ended questions can be evaluated based on big data technology and artificial intelligent technology to improve the feedback time and reduce the teacher's workload.

Promote online and offline "double line" integration

With the effective control of the epidemic, teachers and students will return to the classroom for face-to-face teaching. However, after a round of online teaching during the epidemic period, teachers and students have realized the advantages of online teaching. In their opinion, online preview, online quiz and online Q&A are more effective than those of offline. Therefore, it is a tendency to study the integration mechanism of online and offline, and build a new normal of education and teaching by activating the existing resources, and carrying out blended teaching practice.

CONCLUSIONS

Although the online teaching mode is a new attempt for most university teachers, who encounter various problems in the process of implementation, the mode of thinking, the form of communication and the mode of course teaching of online education will have a far-reaching impact on the teaching of many courses. Big data, artificial intelligence, 5G and other information technologies bring more possibilities for the development of education. Under the guidance of constructivism theory, teachers should make full use of information technology to carry out student-centered classroom teaching and improve students' learning effect. It will be an important task to improve online teaching quality and build a teaching mode of integration and collaborative development of online and offline teaching in the future.

REFERENCES

- CNNIC(2020)Statistical Report on the Development of Internet in China(2020-09-29).Retrieved from: <http://www.cnnic.net.cn/hlwfzyj/hlwzxbg/hlwtjbg/202009/P020200929546215182514.pdf>
- Gao W.,Xu B.Y.,Wu G.(2008).Constructivism Education Research. Education Science Press
- Liu S.Z.,Zhang W.Z.,Xu G.G.(2019).Virtual reality teaching mode based on constructivism. Educational review.(04),127-130
- Wu X.L. Yue Q.L.(2020).Online teaching in Universities from the perspective of constructivism and suggestions for improvement: a case study of online teaching during the new epidemic period. Journal of Guangxi Normal University (Philosophy and Social Sciences Edition)(05),59-68. doi:10.16088/j.issn.1001-6597.2020.05.005.
- Xue C.L.Guo Y.X.(2020).The transformation of online teaching reform in Colleges and universities and countermeasures. Journal of East China Normal University (Education Science Edition)(07),65-74. doi:10.16382/j.cnki.1000-5560.2020.07.005.
- Xu X.F.,Zhang C.,Jiang J.W.(2020),Discussion on innovation and experience sharing of online teaching mode in China from the perspective of coping with epidemic crisis. China University Teaching(07),42-46.
- Yao. M. L.(2003).From cognition to situation: the change of learning paradigm.Research on the cultivation of children,(2)60-64.
- Yu X. , Zhang Y. W.(2020).Research on the strategy of improving the quality of online teaching evaluation in the new curriculum -- Taking organic chemistry course as an example. Journal of Jilin Institute of Chemical Technology(10),1-5. doi:10.16039/j.cnki.cn22-1249.2020.10.001.

BIOGRAPHICAL INFORMATION

Dan Mu is an Associate Professor at E-commerce Department, Dalian Neusoft University of Information. Her research interests include international trade, cross-border e-commerce, innovative and entrepreneurial education, CDIO teaching reform and practice etc. She has published more than 10 papers, presided and participated in more than 10 scientific research and teaching research projects of municipal, provincial and national projects. As the presiding person, she won the third prize of the school teaching achievements twice in 2018.

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