

Teaching Design of Online Education Platform Based on Constructivism Theory

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Abstract: With the popularity of Internet mobile terminals and the construction and improvement of digital network facilities in colleges and universities in China, the construction and development of online education platform is showing a significant growth trend. But there are still common problems that the construction of online education platform is imperfect, online learners are passive and lazy, online learners cannot rebuild the new knowledge systems based on online education platforms to achieve real learning. From the point of view of solving problems, through the theory of knowledge construction, this paper analyses the influencing factors of online education platform learning for college students on knowledge construction, that is, conversation, negotiation and cooperation, to help researchers to design and manage online courses.

1. Introduction

In recent years, with the construction and perfection of digital network facilities in China's colleges and universities, the construction and application of online education platforms has grown significantly. So far, the number of online courses has reached more than 5,000, and the number of students in colleges and universities and social learners has exceeded 70 million people^[1]. Although online courses have many incomparable advantages over traditional classrooms, the construction of online education platform is still imperfect. For example, online supervision is difficult, costly, online learners' learning attitude is not correct, they are passive and lazy in learning, and their enthusiasm and initiative are poor. The passing rate of online courses is generally less than 7%^[2]. Even some online courses have a completion rate of only 3% to 4%^[3] (Belanger & Thornton, 2013). Ultimately, online learners' learning effect is not very satisfied. In addition, due to lack of supervision, about 32.6%^[4] of online course learners have such behaviors as substituting exams for others and absentmindedly playing online classes. These online course participants have completed the corresponding learning tasks at the superficial level, however, in terms of process and result, they have not really achieved the goal of absorbing knowledge. In addition to the above two situations, in some online education platform study, students only to watch high-quality video resources with the help of new media technology, so that they cannot use online platform for in-depth thinking, and they lack qualitative change. This means that they cannot rebuild the new knowledge systems based on online education platforms to achieve real learning. Not only that, in the process of off-line learning in universities, there are also problems such as low efficiency of learners and low absorption of knowledge and skills. When learners transfer to online platform for education, the absorption of knowledge and skills will be further reduced. Ni Tingting (2017) also believes that if learners lack basic learning of a certain course, it will lead to backward learning progress, decreased interest in learning and even drop out of school in the later period^[5]. Finally, according to the research of He Chun et al. (2014), among MOOC learners in China, Observers who only browse the course content but not participate in any form of evaluation account for the most, accounting for 32.0%; Drop-Ins who only occasionally participate in the course activities account for 29.8%; Active Participants who actively participate in the online course and complete the course is only 12.0%^[6], which directly

reflects that online learners in China are not very active, and the lack of subjective initiative of them is inevitably one of the reasons for the low level of learners' knowledge construction.

In the background of current times, many scholars have done a lot of research on how to construct an efficient classroom and improve the absorption of students' knowledge and skills. Foreign scholar Bowman (2000) believes that immersive virtual environment can be combined with traditional classroom, allowing classroom students to interact meaningfully with the virtual world and enhancing the interest of the classroom ^[7]. Jacobson (2015) believes that team-based learning (TBL) teaching method and video lecture observation strategy can effectively educate beginners whose experience and academic background is very different, and effectively impart new knowledge and skills ^[8]. However, most of the research focuses on improving the efficiency of traditional classroom and better knowledge construction for traditional learners. With the popularization and promotion of online education platform, more and more scholars have shifted their focus to the level of curriculum construction and classroom efficiency improvement based on knowledge construction theory. The content of the research has gradually spread to more effective construction of knowledge structure system to help online learners to truly in-depth learning.

He Kekang (1997) will summarize the teaching mode that is suitable for the constructivist learning theory and the constructivist learning environment as follows: "Student-centered, teachers play the role of organizer, instructor, helper and promoter in the whole teaching process, and make full use of the learning environment factors such as situation, cooperation and conversation to give full play to the initiative, enthusiasm and pioneering spirit." And ultimately achieve the goal of enabling students to effectively achieve the purpose of constructing the meaning of the current knowledge ^[9]. In terms of knowledge constructivism, Jiang Hui (2018) believes that teaching design based on the information interaction layer of online education platform can solve learners' problems anytime and anywhere, and cultivate learners' ability of autonomous learning and self-knowledge construction, so as to improve learners' learning efficiency ^[10]. Linda Harassim and Xiao Junhong (2015) believe that we should design an online learning environment conducive to Teacher-Student communication, promote online collaboration and better carry out knowledge construction ^[11]. Wei Yuanyuan (2018) believes that it is necessary to create a real situation based on the new construction theory to enhance the educational effect of tacit knowledge and encourage students to consciously transform into part of knowledge construction while receiving education ^[12]. Gan Yongcheng (2014) proposed that the construction of collective wisdom knowledge construction community in virtual environment can solve the dynamic problem of knowledge construction which is not recognized in traditional classroom education, so as to cultivate online learners' problem-solving ability, and improve learners' high-level cognitive level through collaborative cognition ^[13].

2. Theoretical basis

Based on Constructivism Theory, in the process of learning, learners do not passively receive information stimuli, but actively construct meaning. It is based on its own experience background, active selection, processing and handling of external information, so as to obtain its own meaning. External information itself has no meaning, meaning is constructed by learners through the repeated, two-way interaction between old and new knowledge and experience. Constructivists emphasize the initiative, sociality and situationality of learning. Knowledge is acquired through meaning construction with the help of others in certain situations, such as collaboration, communication and the use of necessary information between learners. The ideal learning environment include four parts: situation, cooperation, communication and meaning construction. Situations in the learning environment must be conducive to the meaning construction of the learners' learning content. Communication is the most basic way or link in the process of collaboration. In fact, the process of collaborative learning is the process of communication, in which each learner's ideas are shared by the whole learning group. Communication is a vital means to promote the learning process of every learner; the construction of meaning is the ultimate goal of teaching activities, and everything should be carried out around this ultimate goal. From the point of view of solving problems, through the theory of knowledge construction, this paper analyses the influencing factors of online education

platform learning for college students on knowledge construction, that is, conversation, negotiation and cooperation, to help researchers to design and manage online courses.

3. Analysis of the process and effect of network teaching

3.1 Negotiation

In the network learning community, multi-party participation makes negotiation a teaching mode to promote efficient learning. It stimulates students' interest and ability to actively study and explore problems by involving learners and formulating curriculum teaching programs themselves. Cook (1978) believed that negotiation in the process of education can integrate the minds of many subjects, so that the goals of teachers and students can be agreed, and the educational effect can be optimized ^[14]. Zhong Zhixian (2005) pointed out that in order to improve the rationality of knowledge construction and acquire knowledge, individuals need to communicate and negotiate with groups or communities ^[15]. Negotiation includes repeated interactive discussion between learners and assistant scholars (learning material providers, relevant experts and scholars) on the teaching content to determine the appropriate learning content. Before carrying out the practice of online teaching, there are two aspects of sufficient consultation basis between learners and assistant scholars, and between learners. Thus, the higher the degree of negotiation, the better the learning effect and the better the effectiveness of knowledge construction.

3.2 Conversation

Conversation is an important way for learners to construct their knowledge and develop learning community. It is a process in which the subject of conversation collides and fuses his original knowledge background with new knowledge to produce a new knowledge background. Generally speaking, conversation has two effects on learning: one is that the learner transforms public knowledge into personal knowledge through conversation; the other is that the learner uses collective wisdom to solve problems through conversation ^[16]. It is a process of learning from each other. In this process, conversation influences each other and promotes learning effect. From this point, conversation is closely related to the establishment and development of learning communities. Conversation is an important factor of interactive learning in online learning communities. The higher the frequency of conversation, the better the effect of course absorption and the better the effectiveness of knowledge construction.

3.3 Cooperation

According to the theory of goal structure, cooperative goal structure establishes a positive partnership among learners, which has a positive and lasting impact on learners' learning. Therefore, we believe that cooperation is another important factor of interactive learning in online learning communities. Ni Danping (2015) believes that in the cooperative learning environment, learners trust each other and share common goals. They support each other, cooperate with each other and learn together, so that they can quickly achieve their learning goals and achieve knowledge construction ^[17].

Cooperative refers to the positive influence on the cognitive construction and knowledge construction of others and themselves by communicating among learners in online learning. Through cooperative learning, learners can compete and stimulate learning motivation. At the same time, cooperative learning also creates a positive learning atmosphere for the community learning on the network platform. The members of the learning community have the same goals and the same learning needs. In cooperative learning, members help each other. They pass on their recognition of knowledge through communication. The higher the degree of cooperation between learners and their assistants (including teachers, experts, counselors, etc.) in the learning process, the better the learning effect and the better the effectiveness of knowledge construction.

4. Curriculum design and platform management

First, when designing the courses on online education platform, it is necessary to strengthen the interest to make sure students are interested in the courses, along with the cooperation between universities, and promote the credit certification and degree qualifications of online courses, as a result, learners will pay more attention to the online courses that they are learning, and be more active to learn.

Second, before the implementation of online teaching practice, a more sufficient basis for negotiation between learners and scholars or learners should be established. Through the innovation of the curriculum, of the platform system, and of the incentive mechanism, negotiation can be more convenient. Based on repeatedly interacting with the learning content of the online courses, the instructor can respond to the questions raised by the online learners in a timed and interactive manner and improve something wrong by listening carefully to the suggestions made by them. Continuously and inclusively, the learning content which is the most suitable for learners to learn can be constructed.

Third, strengthen the conversation and cooperation between learners and assistant scholars or learners. During the curriculum design, for the purpose of allowing learners to conduct multi-dimensional exchange discussions online and offline, allowing each one to collide with their original knowledge background over new knowledge, it is used to establish a network system with smooth communication and cooperation for the online education platform, such as computer network and multimedia technology. At the same time, it can also offer a cooperative mutual assistance and positive learning atmosphere in the learning community on the network platform, which will have a positive impact on the cognitive construction and knowledge construction.

Fourth, in order to improve the effectiveness of online learning, several methods have been proposed. For example, special curriculum tutors and the content of each chapter of the online courses should be supplied to the learners, which can promote the integration of new knowledge and existing knowledge, and the degree of learners' knowledge construction. And providing a communication platform with public opinion guidance and supervision to promote the cooperation among learners, while avoiding frequent or negative conversations affecting learning satisfaction and commitment.

5. Conclusion

Compared with the traditional teaching mode, there are several disadvantages of the quality course on the online education platform, such as single style overall, high professionalism but lacking of interest, long update period, long content remodeling time, and difficulty of style transformation.

Meanwhile, the problem of heterogeneity of knowledge background between the online learners is prominent. Their ability to accept and self-integrate knowledge and skills is uneven. which leads to the increasing contradiction between supply and demand. That means, the courses on online education platform cannot fundamentally meet the demand of the online learners for the construction of knowledge and skills. As time goes by, the learner's own enthusiasm for learning decreases, and the problems of emotionalization, formalization, and coping on online courses are highlighted, and the learning efficiency of online learners is lower and lower.

With the vigorous development of online courses, it is necessary to give full play to the high-quality role of the curriculum, and take advantage of the learners' independent learning, but also to explore the learning mode of conversation and negotiation and cooperation between learners and assistant scholars or learners. Therefore, the online education platform can further increase the passion of college students for online learning, and specifically stimulate them to study more efficiently.

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