

Research on the Construction of MOOC Teaching Resources in College Mathematics Based on Relevance Theory

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Abstract: In the context of the rapid development of modern information technology and communication technology, MOOC learning has become one of the most common learning tools in the process of mathematics teaching in higher education institutions. However, there are currently various problems such as insufficient resource sharing, excessive scattered and disordered data resources, and weak knowledge system. Currently, some higher education institutions have begun to use the theory of relevance as guidance to construct a MOOC teaching resource system for university mathematics courses, hoping to better bridge the sharing and interconnection relationship between students and educators, reflecting the characteristics of teaching resource mobility and openness. This is undoubtedly a new innovation for the education of university mathematics courses. This article mainly analyzes the overview of relevance theory and explores the construction of university mathematics MOOC teaching resources and the application of teaching plans under the context of relevance theory.

Keywords: Relevance; College Mathematics; MOOC Teaching; Resource Construction

1. Introduction

The outline for medium and long term education reform and development issued by the state clearly points out that it is necessary to give full play to the application value of modern information technology in higher education, and promote the sharing and development of high-quality teaching resources. This has also opened up new ways

and channels for the emergence of modern information technology in education and teaching activities in Colleges and universities. At the same time, a large number of online learning courses have appeared in front of students and become an important tool to help students use fragmented time for learning. In the context of large-scale open online course teaching, the learning resources faced by students are extremely rich and diverse, but for the integration of online teaching courses, the ultimate educational value and goal is not to stay in the shallow knowledge transfer. The key is to help students learn to self explore and self apply knowledge, so that these knowledge can be transferred and internalized into the practical situation[1], So that students can make more efficient use of these digital learning resources. Therefore, how to help students gather and find the knowledge resources they need in the network platform more accurately and quickly, form personal knowledge views to meet the learning needs of students, and achieve the goal of sharing and systematizing massive learning resources has become a hot topic of concern for educators in many colleges and universities. This article is based on the relevance theory as the starting point, connecting the construction of MOOC learning resource platform with the relevance theory of scientific guidance, hoping to establish a MOOC learning resource platform with learners' needs as the core, so as to provide effective help for improving the effectiveness of college mathematics teaching.

2. An Overview of Relevance Theory and MOOC Teaching

2.1 An Overview of Relevance Theory

The theory of associationism was first proposed by Simons, a famous Canadian scholar, in his book "associationism: learning theory in the age of mathematics". The scholar believes that the core of associationism is to build an interconnected learning system based on the fragmented relevant knowledge points and learning resources and the learning needs of different students, the bridge connecting interpersonal relationships and the network framework, So as to present more intuitive and three-dimensional learning resources with high application value for learners, and effectively improve the efficiency and quality of learners' access to and learning data resources. In the relevance theory, the so-called nodes are actually different knowledge connection points created according to different learners' own needs, and the connection between these knowledge is the connection network built between learners and learners, learners and educators, or learners and others' interpersonal relationships[2]. Through these networks, the transmission of learning resources can form a new platform and bridge. The online MOOC teaching resource database constructed based on the relevance theory exactly reflects the knowledge transfer concept based on students' learning needs and interpersonal relationship sharing, and can effectively solve the problems of disorderly knowledge points, lack of correlation between each other, and relatively low learning search efficiency in many colleges and universities.

2.2 The Connotation of Relevance Learning Theory

Connection is a naturally formed process. It is not constructed through specific intentional behavior, but through the connections at the neuron level to represent the knowledge and understanding. These connections are at the social level between people, people and other entity groups in the network. Therefore, the connections exist not only within the learners, but also in the formation process of the external network. In the process of network learning, not all nodes can continuously maintain the state of correlation. Over time, some nodes will gradually lose their influence. With the development of intelligent networks, our minds will constantly be reconstructed and adjusted to adapt to the changing environment

and information, and those nodes that are no longer valuable will gradually lose their importance[3]. Therefore, when there is a certain association between nodes, a "strengthening" relationship will be formed, which makes the network more stable and reliable. In the whole network, those nodes that have lost value will be weakened in various forms, but the most direct and thorough case is that these nodes lose contact with other nodes. Therefore, we regard weakening as a cognitive phenomenon, and believe that it has a positive effect, but also give full attention to its negative effects. Weakening occurs in a variety of ways, but the most significant is the destruction of the correlation within the network. Therefore, reinforcement has become a necessary and effective method for learners. When learners are exposed to new information and knowledge, they will constantly update and reconstruct their learning and belief network to adapt to the changing environment. Therefore, strengthening these nodes can effectively weaken their influence. If the node itself is a central node or a node with multiple associations, it may take a long time for the node to weaken in the great change of the whole network. Relevance doctrine holds that the storage and processing of knowledge can only be realized with the help of information technology. As a unique external structure, technology can effectively promote individual learning process. This view limits the role of technology in learners to a great extent. Supporting anytime and anywhere learning and information processing technology not only enhances the interconnection between individuals and resources, but also promotes the interaction between people. Technology is no longer just a simple learning tool, because its intelligence and cognitive characteristics can partially replace human cognitive processing activities. In the past few years, with the deepening understanding of the role of technology, people have paid more and more attention to the impact of technology on learners' cognitive structure. Through the use of various tools, we can successfully realize the decentralization and transfer of cognitive load. These tools can not only help us establish a learning network, but also liberate us from low-level learning (such as memory) to obtain more high-level thinking (such as

critical thinking), so as to reshape our way of thinking. These changes enable us to complete work and gain new experience at any time, place or environment, so it has a huge impact on our way of life. In order to achieve continuous learning, we must use advanced technical tools to establish and maintain various contacts. In this case, if we do not use search to process information, we cannot continue to obtain new information or solve problems, because it may lead to errors. We rely so much on search links that if we don't, we will lose part of our knowledge.

2.3 Overview of MOOC Teaching

The so-called MOOC teaching actually refers to the open teaching method. This teaching mode is a new teaching mode based on the Internet platform. It is hoped that through the opening of large-scale online courses and educational resources, it can help students obtain the learning resources they need anytime and anywhere in the education platform. It has the characteristics of autonomy, openness, flexibility and sociality. Simons, a Canadian scholar, once expounded the concept of MOOC learning, and believed that MOOC learning refers to students' use of large-scale data information in Internet resources to achieve the teaching goal of resource sharing by retrieving these data information. Moreover, the MOOC resource teaching process is extremely open and will not be limited by time and space. At the same time, it can also encourage students to independently obtain resources and share them with others according to their own needs, so as to better meet students' personalized learning needs. At present, the advantages of MOOC education mode in the application process are mainly summarized in the following five aspects[4]:

First, carry out the course teaching with small knowledge points. MOOC teaching can finely distribute the course content, make different knowledge points form basic modules, and make micro lecture videos on this basis. In addition, MOOC teaching video can also divide the different knowledge points under the theme according to the different themes of each course, so that each knowledge point can be carefully transformed into a small video within ten minutes. Through this teaching method, students can use their spare time and

use fragmented time to internalize their knowledge. At present, in the process of mathematics teaching in many colleges and universities, in order to strengthen the processing of the content, the assessment mode is also embedded in the detailed knowledge video teaching, which can not only catch up with students' fragmented time, but also enable students to use their spare time to think and transform problems. Second, it is convenient for interaction and communication between teachers and students. MOOC teaching resources take network teaching as a platform. By building a network teaching discussion area, students can freely express their opinions and opinions in the comment area anytime and anywhere, which is more conducive to the sharing of the same type of curriculum resources, students' Reflection on their own problems, brainstorming and other activities, so that students can also use the online chat platform to realize learning interaction and resource sharing. That is to say, MOOC teaching platform makes use of the social advantages of the Internet itself, which can enable educators to combine with students interested in the same type of knowledge, which is more conducive to answering students' questions anytime and anywhere, and helping students help each other and make common progress. Third, MOOC teaching can realize intelligent teaching interaction. The human-computer interaction platform of MOOC teaching can realize real-time information interaction in the process of video playback. Students can test their learning effect at any time, and can also integrate background learning materials by inserting hyperlinks to help students timely understand the relevance behind it. Fourth, educators can use MOOC teaching method to obtain feedback information of educational achievements in time. Under the background of MOOC teaching mode, educators can timely adjust the content of handouts according to learners' online time and exercise completion level, understand various types of problems encountered by students in the learning process, and get students' learning feedback at the first time. This teaching mode makes use of the advantages of big data technology, and can also summarize students' common and error prone centralized knowledge points, which is convenient for

students to consolidate these knowledge points repeatedly. The big data technology can realize the capture and deep mining of educational data information, so as to obtain the learning rules of students for a period of time, so that educators can timely understand the learning status of students, so as to develop more personalized education programs for students[5]. Fifth, MOOC video content is exquisite. The video system in the MOOC teaching platform can show the knowledge points in a detailed way. At the same time, users can also timely release the syllabus and other teaching course information about the course through the MOOC platform. They can also distribute teaching videos and teaching assignments in the MOOC platform according to certain rules, which has the characteristics of comprehensive functions.

3. Construction Strategy of MOOC Teaching Resource Database of College Mathematics under the Background of Relevance Teaching

3.1 Framework Composition of Resource Library

The core condition of relevance theory is to form a relevant learning network based on students' actual learning needs and interpersonal relationships, so as to achieve the goal of interconnection and sharing of learning resources. The construction of MOOC system can better mobilize students' enthusiasm and interest in learning. At the same time, it can also present knowledge points in a systematic way, and build a teaching resource database that is interrelated and easy for students to retrieve, Using the interpersonal interaction network between students and educators to build a learning framework effectively improves the utilization efficiency and quality of College Mathematics online courses. The university mathematics MOOC teaching resource library built under the background of relevance teaching is actually an information resource network system built with the needs of students and the interpersonal relationship between educators and students. Different nodes reflect the relationship between educators and students. Through these platforms and bridges, data resources can be shared and connected, By gathering all nodes together, a complete data

resource library is formed. In the whole MOOC network teaching platform, teachers and students can use the interpersonal network to associate with each other. Educators can also encourage students to upload high-quality teaching resources to the network platform as the creator and transmitter of resources, and form a sharing relationship with other students. In the long run, educators can also understand students' learning needs from the perspective of students, and judge students' learning preferences and learning status according to the resource content uploaded by students. On the premise of meeting students' learning needs, they can build a more personalized education resource database, so as to maximize the convenience and psychological needs of students for data information acquisition.

3.2 Construction Countermeasures of MOOC Teaching Resource Database

At present, the university mathematics curriculum system mainly includes higher mathematics, engineering mathematics and other different education modules, which can be carefully divided into calculus teaching, differential equations, linear algebra, probability and mathematical statistics and other education modules. These teaching contents are extremely difficult for students in many ordinary undergraduate colleges and universities, and the learning contents are also complex and diverse[6]. Under the traditional MOOC educational resources, the construction of College Mathematics online course mainly takes educators as the core, through which educators upload learning resources to enable students to actively use learning resources for learning. However, for some students who are weak in mastering basic knowledge, the MOOC teaching resources uploaded from the perspective of educators do not necessarily meet the learning needs of this type of students. In the long run, many students will fall into a situation of passive acceptance, unable to generate enthusiasm and interest in MOOC teaching resources, and even fall behind. The college mathematics MOOC teaching resource library constructed under the background of relevance theory can fully consider the individual differences between different students in the class, encourage students to combine their own personalized

needs and learning level with the participation of educators, so as to construct a teaching resource library suitable for their own learning ability[7]. On the one hand, the mathematics knowledge contained in the MOOC teaching resource library based on relevance theory is not only limited to the traditional micro class videos and mathematical exercises, but also can be combined with the mathematics teaching content of this course according to the differences of students' own abilities, allowing students to upload some topics that meet their own learning standards, so that students can choose the learning content on demand. On the other hand, in the context of relevance theory, it also makes use of the interpersonal network relationship between teachers and students and students to build a new data resource transmission node and bridge, which is convenient for students to obtain learning resources in a more convenient and rapid way in the MOOC platform, and effectively improves the sharing efficiency and quality of learning resources.

4. Implementation Strategy of MOOC Teaching Mode in College Mathematics under the Background of Relevance Theory

4.1 Implementation Plan of College Mathematics Teaching Process

The university mathematics MOOC teaching data resource database constructed on the background of relevance theory can not only establish a data sharing platform according to the learning needs of students, but also use the interpersonal relationship network between teachers and students as a framework for the transmission and sharing of learning data, which also reflects the humanistic teaching thinking and spirit in the modern education concept. Based on this thinking concept, the college mathematics teaching implementation plan created can also better reflect the connotation and value of humanism from the side. On the whole, the implementation of MOOC teaching mode can be divided into three modules: pre class preparation, in class education process and after class review. Among them, in the pre class preparation phase, educators mainly release relevant preview videos and materials through the online platform, and can also integrate learning resources according to the needs of

students. The principle of uploading learning resources is the way of Co Construction between teachers and students[8]. This requires educators to give full play to their guiding role, so that students can preview the knowledge points to be learned in the next course in advance through logging in to the learning account of MOOC platform. In the preview link, students' questions can be communicated with educators online at any time. If students can use their own interpersonal network to find learning resources more in line with their learning needs in the platform, they can also supplement the resource library uploaded in the platform after discussing with educators. Secondly, in the process of MOOC teaching, considering that this teaching method is a combination of online and offline teaching methods, educators should also give full play to the advantages of MOOC learning in the scene of offline platform, create a shared and interconnected learning atmosphere and framework in the class by narrowing the relationship and distance with students, and explain relevant key knowledge to students around the teaching resources in the MOOC resource library. Finally, in the review stage after class, educators can also use the MOOC platform's homework design and homework completion function to directly publish homework in the MOOC platform, and can also observe the students' homework completion level through the MOOC platform. These three links together build a MOOC resource network based on the needs of students and the interpersonal relationship between teachers and students, which can not only further improve the mathematics learning materials in the MOOC resource library, but also shorten the distance between educators and students.

4.2 College Mathematics Teaching Strategies from the Perspective of Relevance Theory

Under the guidance of relevance learning theory, we can conclude that an effective teaching sign is to establish a booming "learning ecology", in which mature learners should master the skills of learning and information management, including who to ask questions, how to find such people and who to ask questions; An experienced tutor is

not only proficient in learning skills, but also proficient in providing personalized guidance and guidance; In the process of learning, there is a set of system and environment that can provide comprehensive support and help for learners. These three aspects are the embodiment of the relationship among teachers, students and the environment, and this new classroom teaching mode is based on the above view[9]. From the perspective of relevance theory, the roles of teachers and students as well as the classroom environment have undergone earth shaking changes, which are significantly different from the teaching mode in the industrial era (i.e. fixed time, fixed classroom, row by row students facing the old teachers provided with expert filtered content).

In order to keep up with the latest development trend of science and technology, University Mathematics workers should pay attention to and effectively transmit the latest information to students, so as to keep themselves not backward. Therefore, the school library should provide an online system to help them better understand scientific and technological information and improve their access ability. Teachers should subscribe to relevant e-mail list services, browse e-learning blogs, visit technology integration sites, and use aggregation services to track the development of current scientific trends and problems. Through these ways, teachers can timely understand students' attitudes and views on scientific knowledge. Teachers should master how to use the teaching materials to transcend their limitations and apply them to questioning and discussion rather than rote learning, so as to achieve better teaching effect. In addition, teachers must understand students' lifestyles and their views on the future world. There is no doubt that teachers' teaching is based on students' learning style preferences, and when students' world outlook is recognized, students' learning effect will be greatly improved[10]. If the relevance strategy is adopted in the classroom, it can not only promote students' understanding of knowledge, but also stimulate their interest in physics, so as to improve their academic performance. The practice of relevance theory is closely related to the daily life style of "digital indigenous" students. Therefore, by using the means and methods of relevance theory,

students can maintain a high degree of concentration in the learning process.

Compared with the traditional classroom teachers' views and the limitations of curriculum related textbooks, the application of Relevance Theory in the classroom can promote students' exposure to a variety of views and views, and the key to success is to stimulate students' initiative, let them innovate and build in their own research field, so as to achieve the purpose of standardization[11]. This process can help them understand how knowledge is generated and how they react to the connections between different disciplines. When using the sharing method of these research results, students will pay more attention to it, so as to produce thoughtful and intelligent contributions. At the same time, they will learn how to defend their position clearly with facts and logic, be proud of their contributions, and maintain momentum throughout the course.

In face-to-face classroom teaching, teachers should guide students to use search engines to supplement the content of classroom discussion, so as to promote students' learning effect. Search engine is one of the important sources of learning content. It provides rich information resources for students to retrieve. Search engine plays a key role in acquiring knowledge for people to a large extent. Therefore, if people do not search, they may feel that their knowledge has gradually disappeared. Now, most schools use the Internet as the main learning tool, which means reducing the dependence on traditional learning methods. Many teachers are reducing the requirements for memory so that students can easily obtain the types of information they need, while the focus of teaching is to build and establish relationships.

Although relevance theory as a new theory has attracted much attention, it still lacks a large number of empirical research literature support, so its credibility still needs to be further improved. This paper argues that the core concept of relevance theory is "knowledge", not "ability". The so-called "knowledge" is what people can master through learning. Assuming that digital computer technology and the Internet have been popularized in everyone's life, then everyone has the opportunity to obtain these technologies. Clearly, this situation does not

cross global boundaries. The access base of digital learning resources is affected by the digital divide, which limits the effective use and development of skills required by digital resources. Due to the lack of funds and the inability to purchase more equipment or software, as well as the lack of a suitable network environment, it is difficult for people to obtain the information they need from the Internet. Although the cost of technology purchase has been reduced, these tools are still out of reach for many developing countries.

Associationism draws on the power of open source educational materials, but is limited by strict intellectual property laws and the economic mind of publishers, which may hinder the access to valuable learning resources and the promotion of new teaching methods. These factors make relevance theory unable to provide learners with enough opportunities to acquire knowledge and affect their attitudes, which limits its application in teaching practice. Political and administrative leaders may encounter difficulties in the face of the acceptance of connectivism, because students need to evaluate variables and strictly adhere to specific learning outcomes, which may have been established. Therefore, these factors also affect the interaction between teachers and students in the teaching process. In order to realize the radical change advocated by relevance theory, the educational model must be systematically restructured to ensure its integrity and sustainability.

4.3 Establish a More Sound and Perfect Education Evaluation Mechanism

The application of MOOC teaching platform is not only to realize the transfer of knowledge, but also to supervise and inspect the learning effect of students in the learning platform. Only in this way can educators carry out teaching according to students' actual learning needs and learning level, and adjust their own teaching strategies and teaching contents. The traditional education evaluation mechanism is mainly based on the examination results as the only judgment standard. Such an evaluation mode is too single, which is not conducive to the effect of stimulating students' learning enthusiasm and interest[12]. Therefore, under the background of the construction of MOOC education resource database, colleges and universities should build a university

mathematics evaluation system based on the application efficiency of learners' resources in the process of college mathematics education, so as to further judge students' knowledge absorption and learning efficiency in the MOOC platform. In fact, this evaluation system is still based on the relevance learning theory and core conditions[13]. It can evaluate students' satisfaction with the application of MOOC teaching platform resources, utilization efficiency, matching with their own learning needs, transitivity, and network interactivity in the process of college mathematics learning, and build a more diversified evaluation index and, So as to detect the application efficiency and learning effectiveness of students for MOOC platform under the background of MOOC teaching platform construction, build a one to many logical mapping correlation system, and divide the indicators in the correlation system into several detailed evaluation indicators, so as to better judge the internal logical relationship between the construction and application of MOOC teaching resource database and the output of students' learning efficiency, Based on this, the corresponding evaluation index is constructed. In addition, educators can also use spss19.0 software system to conduct quantitative and qualitative analysis on students' learning process and learning results in MOOC platform. Through detailed quantitative analysis, they can detect students' topic completion level, online course viewing time, knowledge transformation level, etc, So as to understand the learning effect of students in college mathematics teaching courses in Colleges and universities and the internal relationship between MOOC video resource aggregation under the background of relevance, and finally, build the relevant MOOC teaching resource library based on the students' real learning needs, so as to effectively improve the construction effect and value of the data resource library[14].

5. Conclusion

In summary, the university MOOC teaching resource library constructed under the context of relevancy can effectively connect fragmented knowledge points and utilize the interpersonal interaction network between students to achieve efficient transmission and sharing of data resources, effectively solving

the problems of low integration of MOOC teaching resources in the classroom in the past. Therefore, in the process of constructing the MOOC teaching platform for university mathematics, higher education institutions should also take the real needs of students and the interactive relationship network between teachers and students as the basic conditions, in order to better utilize the application value of MOOC teaching platform resources in university mathematics teaching courses.

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