

Impact of Cloud Computing Technology on Teaching Thinking Mode

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Abstract: At present, cloud computing technology is commonly used in college classrooms, which effectively enhances the dialogue and communication between teachers and students in classroom teaching practice. Technology promotes the transformation of teaching methods and teaching thinking modes, and new teaching methods promote the innovation of cloud computer technology in teaching. The application of computational thinking in college teaching practice includes: determining problem sets, strategies for achieving goals, teaching according to logical clues, and determining clear discourse expression system etc.

1. Cloud computing technology and teaching thinking

1.1 Understanding of technology

There are two main forms of related theories about "technology": instrumental theory and substantive theory. The instrumental theory is derived from "Common Sense" constructed by human experience, and is the main theoretical source for modern policy scientific formulation programs. Modern governments generally believe that technology is mainly used to serve instruments such as political formulation. Therefore, technology is often regarded as a neutral product in the historical cognition of human beings. It has no attribute of value judgment or moral judgment, and belongs to other fields involved in human civilization.

American scholar Andrew Feinberger once believed that technology would have democratic connotation under the technical entity theory, and proposed that the communication and interaction between the public and design developers had been included since the birth of a technology, which precisely reflected the democratization characteristics of technology. "Interaction" is its key word. Only through dialogue and communication can some transformation and innovation be made to the original technology. The main constituent elements of the school education field are teachers and students. The social function of the school is realized through the "discourse" interaction between teachers and students, that is, to realize the sub-instrumenting of cloud computing technology. The impact of cloud computing technology on the interaction between teachers and students, in a deeper sense, involves a change in teaching thinking mode.

1.2 Infiltration of cloud computing technology into teaching thinking mode

Teaching thinking mode refers to a set of basic methods of thinking and teaching behaviors integrated into teaching practice that can be used to guide teachers and students in teaching activities, which can influence teaching. According to the current research on this concept, the thinking mode can be linear or non-linear. Judging from the current state of classroom teaching in China's colleges and universities, the transmission of knowledge systems is mainly presented in a linear manner, but teaching is not limited to the transmission of knowledge and is not limited to the classroom. Discourse communication between teachers and students is an important part of teaching work and plays a very important role in teaching. Judging from the status quo examined by researchers, the discourse communication between teachers and students is not always presented in a linear manner. In fact, there are more non-linear communication modes between teachers and students. Researchers

are not opposed to such non-linear communication methods, but in terms of the content and tasks of college classroom knowledge transfer, linear communication methods are undoubtedly better than the latter.

The emergence of cloud computing technology has allowed researchers to see a possible way to deepen the discourse communication between teachers and students in college teaching practice. The implementation of cloud computing technology is based on advanced servers, which can process resources in more detail and allow resources to match demand better. Therefore, effective communication between teachers and students can be achieved at the technical level.

1.3 Cloud computing technology promotes computational thinking in teaching

Cloud computing technology provides the possibility of the integration of the two groups of teachers and students in the world of life for classroom teaching in colleges and universities. The communication between teachers and students can become a necessity of a lifestyle. The philosophical value of "inter-subjectivity" is more easily reflected. However, the biggest promotion of cloud computing technology to college classroom teaching is still the promotion of thinking methods, especially in the content of more logical subject courses, which has promoted the development of computational thinking in teaching.

Turing Prize winner Karp believes that the many possibilities of computer algorithms are included in natural and social problems, and the richness is limited by the transformation of matter, energy and information. Therefore, the same can be done in the field of humanities and social sciences. According to the changes in the information of various variables, a corresponding understandable and acceptable way can be designed so that it can be visually presented. Therefore, computational thinking can be defined as a form of thinking that is based on mathematical and logical thinking and has procedural characteristics in a human way of thinking. The widespread use of cloud computing technology in college teaching practice can promote the development of teacher-student computing thinking, which can be observed in practical teaching practice.

2. Enlightenment of computational thinking in teaching practice

In the current process of education and teaching in colleges and universities, both teachers and students face the problem of smooth communication. On the one hand, teachers need to make their views and teaching knowledge as acceptable as possible to students, and on the other hand, students need to keep up with the teachers' thinking and rhythm. Then the two parties need a recognized and reasonable form of communication to communicate, so fixed grammar rules are particularly important. In the application environment of cloud computing technology, if the thinking mode of computational thinking is borrowed, the teaching practice process will be re-optimized for combination and design. Specifically, there are the following steps.

2.1 Teachers define knowledge as a problem area

First and foremost, the teacher needs to integrate the content of the knowledge he teaches, and places the knowledge points in a suitable position according to a certain logical clue, so as to run through the entire classroom teaching process. Furthermore, the teacher must fully consider the difficulty of each knowledge point to determine the timing of its appearance. According to the path of logical thinking, it should be presented in the order of easy to difficult, but also the degree of correlation between the knowledge points, Higher-level knowledge points can appear in advance and then be strengthened later. In the end, the knowledge points to be presented in a class are attributed to a problem area. Based on this, a unit and a set of all knowledge points of the subject in a semester are finally formed.

2.2 Setting teaching goals

Teachers also need to determine the teaching goals before teaching. The goal-setting should be determined according to the logical clues of the knowledge points. The knowledge points in the set

are combined with the classification goals in the curriculum standards to form a corresponding relationship. The introduction of knowledge points can guide students to the teaching design of the next knowledge point or teaching goal, and enable students to naturally transition from A knowledge point to B knowledge point. The logical clues must be clear, which is relatively easy for the course content of the natural sciences, but the humanities and social sciences curriculum contents need more time and energy to design.

2.3 Identifying a clear discourse expression system

Before formal teaching, teachers must conduct a comprehensive review of knowledge points to ensure that the logical connection between knowledge points is smooth. Meanwhile, they need to organize a discourse expression system applicable to the curriculum to present the logical relationship between knowledge points. In the teaching process, teachers also need to adjust their thinking based on the real-time situation in the classroom and express it with the help of this discourse system, which also reflects the demands of teachers' professional skills. For example, are the questions provided and the arguments about the knowledge appropriate? Is it possible to find better questions and arguments? In addition, because an important feature of computational thinking is that its words have unique meanings and to avoid the possibility of multiple understandings in understanding, teachers must uniquely define knowledge points, that is, to ensure the connotation and the denotations have clear boundaries so that they do not overlap or confuse each other.

2.4 Provide relevant information that helps students understand the knowledge points.

Vygotsky's "recent development zone" theory provides a possible explanation for the development potential of human cognition. In combination with teaching practice, the transfer of knowledge points can be deepened to a certain extent, and this kind of attempt has always existed in the practice of school teaching in our country. Computational thinking provides a new idea for this kind of attempt. The knowledge point set constructed based on human logic can provide convenient conditions for deepening the transmission of knowledge points. Students can more effectively explore knowledge points by themselves based on logical clues. Most knowledge of mankind is constructed according to logical clues. As long as students can search according to logical clues, they can obtain more knowledge content, which is merely limited to factors such as their own thinking ability, background knowledge reserve, energy and time etc.

3. Application of computational thinking in college classroom teaching

3.1 Reflections on teaching knowledge points

Teachers must constantly update their knowledge system and continuously improve their professional quality. Reflection on their teaching is the fundamental way, and it is also the basic ability of modern teachers. Computational thinking points to the integration of knowledge content into a system of logical clues. This system must be tested by logic and experience. At the same time, this system is not static. This requires teachers to repeatedly verify their rationality and accuracy in teaching practice and through continuous reflection to perfect this system. Therefore, this is the prerequisite for teachers to use computational thinking for instructional design and practice, and it is also the first task that teachers must complete before implementing teaching. This work requires teachers to have an overall grasp of their teaching content. Second, under the premise of being familiar with the main points of all knowledge points and the logical relationship, they must have an understanding of the subject knowledge system involved in the entire knowledge content and find all knowledge points. The expandable range of this is also required by the "recent development zone" theory. Last but not least, teachers must maintain the necessary sensitivity to their professional knowledge, that is, constantly update their professional knowledge content.

3.2 Introduce logical ideas at the right time

In teaching practice, teachers need to introduce students to the teaching content that they have designed based on logical clues. At the same time, they need to set problems and guide thinking in accordance with the actual situation of students. This involves the setting of the key knowledge points mentioned in the previous context, and the teacher needs to put the inherited "key knowledge points" into proper positions. The key knowledge points are used to link the logic system of the entire classroom knowledge, and through the guidance and expansion of these knowledge points, students' thinking potential is stimulated.

Taking the teaching of public courses in pedagogy as an example, when explaining the content of knowledge related to the "disciplinary centric view of curriculum", the key knowledge point that has a predecessor role is Bruner's "disciplinary centrality" theory. First, the historical background of the theory will help students to better understand the logical inevitability of this curriculum concept being raised. Then it is necessary to mention the negative consequences of Dewey's pragmatic pedagogy concept of "active curriculum" in practice, and then naturally lead to the difference between the "disciplinary centered curriculum view" and its concept and practice. The difference between these two curriculum concepts guides students to a deeper understanding of the two curriculum concepts, their role in their times, and their impact on future generations. At the same time, teachers can show all the similarities and differences between the two curriculum concepts through design comparison, showing the inheritance relationship before and after. More importantly, in the process of imparting such knowledge points, classroom problems must be set up to stimulate students' interest, guide students to carry out their own association and logical reasoning, and strengthen the understanding and memory of knowledge points.

3.3 Lead students to get the right understanding through clear conclusions

With the continuous improvement of cloud computing technology and its widespread application in classroom teaching, classroom teaching is facing more and more information quality challenges. On the one hand, teachers and students face massive amounts of information, and the content of classroom teaching must maintain its core position; On the other hand, massive amounts of information will force teachers and students to screen them effectively. Therefore, it is necessary for both teachers and students to give clear conclusions in classroom teaching, which is especially important for students who need to acquire the right professional knowledge content.

The fundamental of computational thinking lies in logic, which determines that its conclusions must be interpretable within the scope demonstrated by logic, or that the conclusions obtained by applying computational thinking to teaching practice in different disciplines are likely to be limited to this discipline or even knowledge points are explained within a limited scope. Limitations in the range of explanatory power make the conclusions more accurate and logical. In addition, the knowledge of a subject involved in classroom teaching is also extremely limited, so teachers should take a cautious attitude when drawing conclusions and facing students' questions, and can make limited extensions based on logical ideas, but conclusions and questions cannot be over-generalized (although this generalization may be beneficial to the development of students' imagination, it affects the overall logic of the knowledge system). It is also important to develop a scholarly attitude for students to question reasonably.

3.4 After the purpose of imparting knowledge points is reached, teacher-student communication at the expansion level is carried out

The previous point mentioned that the conclusions reached by teachers in classroom teaching must have their limitations, but because of the limitations of teaching objectives and teaching tasks, especially in the face of examinations, a "standard answer" must be given. In order to avoid the interference of this realistic factor, the communication of knowledge development between teachers and students is particularly important. For example, Rousseau's "naturalism" theory was taught in the classroom. After the class, students can be guided to use Herbart's ideas for comparison and

discussion. Of course, this process of discussion and communication can also be designed with computational thinking.

4. Conclusion

From the perspective of existing technology theories, any technological update of human beings will expand our perspective on the world and change our ways of thinking. It can be further deduced that the development and use of cloud computing technology in college classroom teaching will also have the above effect. Therefore, the relationship between technology and teaching practice is often that technology promotes the progress of teaching practice, and the change of thinking mode in the process of teaching practice also puts forward more requirements for the development and use of technology.

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