Research on the Implementation Method of Task-driven Teaching Method in Computer Teaching Based on Computational Thinking

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Abstract: Computer teaching based on computational thinking is a brand-new teaching mode which is quite different from traditional computer teaching. It will be a further attempt to use network resources to carry out computer teaching in task-driven classroom teaching mode. The application of university computer task-driven teaching mode based on computational thinking can improve the teaching efficiency of university computer course and students' computer ability, and fully embody the teaching idea of taking teachers as the leading factor and students as the main body. It is believed that computational thinking should be a basic skill of human beings, not just a theory in the computer field. In the near future, computational thinking will become a reality like proctor's calculation, which will play an important role in the progress of science. This paper introduces the basic concept of task-based teaching method, analyzes its application in computer teaching based on Computational Thinking, and points out that task-based teaching method can stimulate students' enthusiasm and initiative, thus greatly improving the teaching efficiency of university computer.

1. Introduction

Cultivating students' computer skills in university computer teaching has always been the primary purpose of teaching. The acquisition of knowledge is the result of people's interaction first, and then it is transformed into their own knowledge, emphasizing the social nature of learning and the important role of teachers and peers in promoting personal learning [1]. At present, the teaching reform regards the teaching model as the main goal of the teaching reform, because the teaching model refers to the stable structural form of the process of teaching activities carried out in a certain environment under the guidance of certain educational thoughts, teaching theories and learning theories [2] . In order to improve students' practical operation and practical ability and cultivate students' computational thinking, task-driven teaching methods are also tried in the teaching in recent years. Experiments have shown that task-driven programming teaching courses have improved students’ Learning interest [3]. Teachers provide timely help and guidance to students, so that students can focus on a common task activity center, driven by strong problem motivation, through active application of learning resources, to carry out independent exploration and interactive collaborative learning [4]. Computational thinking adopts heuristic reasoning method, which can plan, learn and schedule under uncertain conditions [5].

Computer understanding is an important activity in college computer teaching, and improving computer ability is the primary teaching goal. The new curriculum requirements will advocate task-based teaching approach, cultivate students' comprehensive language application ability, and let students complete tasks by using language, thus improving their cognitive ability and problem-solving ability [6]. The authenticity, interest, communication and expansion of tasks can connect students' language use with social needs, and make students learn better in a natural and relaxed learning environment [7]. Teachers should provide enough thinking space for learners, try to motivate and guide learners to learn independently, find out the problems and then solve them. The center of thinking teaching is the learner, aiming at cultivating the thinking ability, and realizing the learner's learning in thinking activities, and learning thinking itself at the same time, the two processes are complementary [8]. Although some teachers use task-driven case teaching method to

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teach, they can not use interesting tasks when implementing task-driven case teaching method, which can not attract students well and improve their learning efficiency [9]. This paper attempts to introduce the task-driven teaching mode into computer teaching, change the traditional teaching mode, and form a brand-new teaching mode with students as the mainstay and teachers as the auxiliary by means of the network environment.

2. Main Characteristics of Task-driven Teaching Mode

The task-driven teaching model is a teaching method based on tasks. Traditional computer classrooms only focus on the teaching of language knowledge and skills, but ignore the practical application of computers. The network not only provides a colorful and real language learning environment for computer teaching, stimulates the sensory input of students, but also makes computer teaching more advanced and diverse. The development of computers and computing is so fast, the main reason is that computers have a unique way of thinking to solve problems. This way of thinking can be extended to computers and all industries except computers. The task-driven teaching method is an inquiry-based teaching model, aimed at cultivating students' innovative ability and the ability to independently analyze and solve problems. The teaching work focuses on completing a specific task, the teacher's teaching process is simple, and the student's learning task is clear , To facilitate students' grasp of knowledge. The use of computational thinking to solve problems is a gradual accumulation process. The computer programming courses have many knowledge points and rich contents. The course teaching should be based on the principle of gradual progress, fully considering the differences in the professional qualities of the students, and achieving the design tasks with levels and gradients. .

In the task-driven teaching mode, the teacher arranges and designs the teaching content from the perspective of the students. The students' learning activities have clear goals and specific learning requirements. In task-based teaching, tasks are the carrier of teaching, and completing tasks is the driving force of teaching. Since its emergence, computer technology has developed very rapidly, providing strong support for humans to solve various practical problems. Students study with tasks, there is bound to have a sense of urgency and motivation to complete the tasks, so as to urge students to try their best to complete the knowledge learning within a limited learning time, and complete the operation tasks on a certain theoretical basis [10]. The task-driven teaching model based on computational thinking is not only the training method and application method of computational thinking, but also provides better learning and teaching methods for learners and educators, allowing learners to use efficient learning methods for effective information screening And the construction of subject knowledge. Teachers can divide students into several different groups according to the characteristics and difficulty of the task. In the process of completing the task, they can use their respective advantages to complete the task together. In the planning process, students can learn from each other and cooperate with each other according to their own tasks. Teachers should make a comprehensive evaluation of the completion of students' tasks, the degree of participation, the spirit of cooperation, and learning attitudes, so that students can recognize their own problems and make greater progress.

3. Thinking of Task-driven Teaching Mode

3.1. Theoretical Basis

Task-driven teaching mode takes learners as the center of teaching activities, emphasizing the combination of teaching tasks and learners' learning process, and stimulating learners' learning interest by completing periodic tasks. Under this teaching mode, learners lead all aspects of learning, and teachers help learners to complete learning activities smoothly. Interaction and cooperation between teachers and students, students and students play an important role in promoting students' learning process and meaning construction. Through the interaction between teachers and students, students can find their own problems, improve their learning methods and further construct new

knowledge. Task-driven activities are not ordinary classroom group activities, which require students to use various network tools to solve problems in the process of completing tasks. Because the students' cognitive level is different, the depth of understanding the problem must be different. Teachers should inspire students to find and analyze problems from different perspectives, find different algorithms to complete the same task, and stimulate the students' active computing thinking. As the leader of teaching activities, teachers should monitor the progress of teaching activities in real time to guide and answer questions for students. Students should pay attention to the cultivation of their ability to analyze and solve problems, the ability to strive for innovation and the ability to unite and cooperate. Task-driven teaching mode, which aims at cultivating computational thinking, pays more attention to solving problems and designing systems by using computer science methods, and emphasizes the cultivation of computational thinking consciousness and the ability to solve practical problems by using computers, so that students can form the habit of autonomous learning and applying information technology. The advantage of task-driven teaching mode is that it can provide students and teachers with the necessary materials to complete teaching activities around tasks with the help of rich network and multimedia information resources.

3.2. Organization and Implementation

Computer-based collaborative learning based on computational thinking is not absolutely limited by time and space. Learners can flexibly arrange their own learning time and place, and adopt the learning method that suits them to improve learning efficiency. Computer-based collaborative learning based on computational thinking is not limited by time and space. Students can flexibly arrange their learning time and place, and use the learning method that suits them to explore the issues they are interested in. In the task-driven teaching mode based on computational thinking, teachers and students carry out teaching activities around tasks. Teachers should set up tasks from shallow to deep, so that students will have a sense of accomplishment in the process of completing tasks, so that students' confidence is greatly increased and they have a strong interest in computers [11]. In the task-based reading classroom teaching activities, teachers should be able to design teaching activities according to their understanding of language, language learning and language teaching, and students’ language needs and abilities, and can adjust teaching design according to the situation of students completing tasks. When students complete the tasks assigned by teachers, in order to achieve good results, they will invest in the tasks with a more proactive mental state. Teachers and students should also pay attention to teamwork, explore new ideas to solve problems in continuous exchanges, collectively display and evaluate learning results, exchange learning experiences, and make extensive innovations in existing knowledge structures.

4. Conclusions

Driven by the transformation to applied technology and skill-oriented colleges, the application of task-driven teaching method in programming courses accords with the requirement of paying attention to practical teaching in curriculum system reform. Learning and thinking are not independent of each other, but closely and complementarily linked. The growth and development of computational thinking has a great impact on the whole teaching. Computational thinking is based on the related concepts and theoretical knowledge of computer science, which can improve the efficiency of solving practical problems. Learning and thinking are not independent of each other, but are closely and complementarily linked. The growth and even development of computational thinking have a great impact on our teaching. With the goal of cultivating students' computational thinking ability, the task-driven teaching of computer programming course is carried out, which enables students not only to have the ability to analyze and solve problems by using computational thinking method, but also to master computer methodology, thus effectively improving their comprehensive information literacy. In task-based reading classroom teaching activities, teachers should be able to design teaching activities according to their own understanding of language, language learning and language teaching, as well as students' language needs and abilities, and adjust teaching design according to students' completion of tasks.

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