Teaching reform and exploration of Game Programming Design to cultivate Computational thinking

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Abstract: Computational thinking can effectively reflect the essential characteristics and core methods of computer science, so in the process of teaching work, relevant educators should pay attention to the effective cultivation of students' computational thinking. This training work not only meets the actual requirements of the current national society for computer science and technology discipline, but also has a very important practical significance for promoting the development of students' core literacy of computer discipline. Below, therefore, will be the first in-depth analysis of computational thinking training, clear the education teaching may encounter problems in the process, and then from the perspective of the game programming, put forward the basic scheme of teaching reform, finally clear computing thinking training the game programming the development of teaching reform strategy, aims to promote the further improvement of education teaching quality, help students realize the all-round development of comprehensive quality.

Keywords: Computational thinking training; Game programming; Teaching reform plan; Subsequent development strategy and in-depth exploration

Introduction

In the context of the information age, computational thinking has become a literacy that contemporary young people must have. Therefore, this literacy has been widely concerned by many universities and research institutions at home and abroad, making the cultivation of computational thinking become one of the important contents of computer teaching. In this environment, in order to realize the effective cultivation of students' computational thinking, China Engineering Education Certification Association put forward the quality standards of engineering education professional certification, the core concept of the relevant requirements is: ① clear the main position of students in the teaching work. ② Take the teaching results as the basic guidance. ③ In the process of teaching work, actively promote the reform and development of the subject. With the support of the three basic teaching concepts, the teaching quality of computer science will be further improved to ensure that the talents of this major in relevant universities can be fully trained. The following will explore the development of computer courses and the cultivation of computational thinking from the perspective of Game Programming Design.

1. Computational thinking cultivation and analysis

Computational thinking is embodied in the program design and realization ability, abstract thinking ability, logical thinking ability and algorithm design and analysis ability. However, through the understanding of the training of computational thinking in relevant colleges and universities, it can be found that in the process of teaching work, teachers and students will pay too much attention to the cultivation of a certain ability, resulting in the neglect of the overall computational thinking training to a certain extent. In addition, in the process of teaching work, the communication level between teachers and students is relatively low, which makes it impossible for teaching to have a comprehensive understanding of the actual learning needs of students, thus leading to the relatively general actual training effect. In addition, in terms of teaching resources, because relevant teaching resources have not been fully integrated, the process of subsequent teaching work leads to the lack of actual curriculum support, which cannot achieve the segmentation of highly complex knowledge points, resulting to the decline of teaching effectiveness. In addition, the calculation thinking training work can be found in the process of the teaching evaluation system of the work perfect degree is relatively insufficient, cause students and teachers cannot reflect the problems of the teaching work, cannot promote the subsequent teaching quality, is not conducive to the sustainable development of computer discipline.

In the process of cultivating students computational thinking, related education workers should be adhering to the systematic teaching ideas, in view of today's social actual demand for high-end computer talent, in the process of training students computing thinking, should

strengthen the teaching material theory knowledge teaching, good computer basis for students, to improve the computational thinking training efficiency has important practical significance[1]. Second, in the process of teaching work, teachers should actively organize practice teaching activities, strengthen the attention of the practice link, makes the specific teaching process, the relevant teaching content, teaching link can be effectively optimized, and realize the comprehensive cultivation of computational thinking to the students, makes the students can have good ability to analyze problems, ability to solve problems and the ability to design complex system. In the process of computational thinking training, the specific teaching objectives should be as follows: ① Help students understand the solution methods of abstract level problems, so that students can have good abstract thinking ability, and master the corresponding logical thinking methods. ② Master the solution technology of language-level problems, clarify the logical structure and storage structure of related problems, effectively master the basic computability theory, clarify the analysis method of complex algorithm problems, and fully master the basic idea of program design. ③ Master the solution method of computer system-level problems, and further improve their own system software design and implementation ability.

2. Teaching reform plan of Game programming to cultivate computational thinking

2.1 Based on the grammar

Because grammar is the basis of the whole computer discipline, so in the process of computational thinking training teaching reform design should be grammar as the basis of the whole teaching reform, through active grammar teaching work, makes the students can have a full grasp of basic teaching content, for the cultivation of students' subsequent computational thinking to lay a solid foundation. In addition, after taking grammar as the basic teaching content, the classroom teaching resources will also become more abundant, which can provide sufficient opportunities for students to exercise their basic computer skills[2]. Therefore, in the process of carrying out their work, the relevant educators should pay more attention to the basic grammar teaching, so as to promote the high-quality and efficient development of the follow-up teaching work.

2.2 Take the example analysis as the content

In the process of teaching work, it is necessary to strengthen the attention to practical teaching and promote the coordinated development of students' computational thinking and computer skills through practical practice. In the process of applying the example analysis model to carry out the teaching work, the relevant staff can design the teaching content through the top-down way of the examples. Because the game programming of the course teaching goal to let students have the ability of game programming, so in the process of choosing teaching examples, the teacher should choose three teaching case in stages to cultivate students' computing thinking, and in the process of choosing teaching examples, the relevant staff shall ensure the corresponding instance effectively match the visual dimensions of the game. In the process of the actual teaching work, teachers should first show the completed teaching examples and demonstration procedures to ensure that students have a basic understanding of the corresponding examples. Secondly, teachers explain the teaching content according to the course order in the teaching materials, so that students can understand the professional knowledge of computer science from the shallow to the deep. After the completion of the explanation work, in order to effectively consolidate students' professional knowledge, teachers should reasonably arrange homework after class content in the process of carrying out teaching work, so that students can complete certain program projects alone or cooperatively. Through this "theory-practical case-practical programming operation" way to carry out the teaching work, so that students 'various computer literacy can be effectively cultivated, and in this process, students' computational thinking ability level will also be subtly improved [3]. Carrying out teaching work through this teaching mode can not only realize the high-quality and efficient development of teaching work, but also effectively cultivate students' computing thinking. In this process, students will not feel great teaching pressure, which also has important practical significance for promoting the healthy development of students.

3. The development strategy of the teaching reform of game programming to cultivate computational thinking

3.1 Interactive innovation between teachers and students

In the process of teaching work, in order to further improve the effectiveness of teaching, teachers and students should maintain a high level of interaction and communication. Through interactive communication, teachers can have a full understanding of students 'actual learning needs, and then optimize and improve the follow-up teaching plan to ensure that students' learning needs can be fully met. Since the actual educational value of game programming lies in exercising and improving students 'computational thinking ability, students should not just use the teacher's thinking way to solve related problems in the teaching process. In the process of teaching work, teachers should help students develop a good sense of innovation through communication, and exercise students 'innovation ability through reasonable teaching cases, so that students can solve practical problems through their own way, which plays an important role in enhancing students' learning enthusiasm.

3.2 Teaching reflection and evaluation

After complete the teaching work, teachers and students should actively carry out reflection and evaluation work, teaching and students can clear their deficiencies in the classroom, and help teachers optimize teaching plan, help students change learning attitude, further enhance the teaching level of teachers and students and interactive effect, realize the game program design of high quality and efficient teaching work.

Conclusion

To sum up, the effective cultivation of computational thinking can promote the comprehensive development of students 'comprehensive quality. Therefore, teachers should pay attention to the cultivation of students' thinking ability in the process of carrying out the work of "Game Programming Design", and adopt multiple means to promote the improvement of teaching effectiveness, so as to promote students' all-round development.

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