

Research on Cultivation of Innovative Thinking and Innovative Ability of Computer Major Students

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Abstract: Innovative thinking of college students is the basic requirement of the society for computer major students. This innovative thinking is an indispensable basic ability in future work. Computer major students in colleges and universities are the backbone of the development of computer career in the future. It is an important task for computer teachers in colleges and universities to cultivate the innovative thinking ability of computer major students. In the process of innovative activities, innovative thinking plays a leading role. Innovative thinking plays a huge role in the process of transforming knowledge into intelligence. The main body of innovation is talents, the source of innovation is knowledge, and knowledge comes from learning. Therefore, the competition among countries in the world, in the final analysis, is the competition of education and the competition of cultivating the ability of innovative talents. Innovative thinking refers to the innovation in thinking. Innovative thinking is one of the basic abilities of human beings. This paper will focus on the computer course, how to make the classroom become the birthplace of students' innovative thinking, innovation awareness and innovation ability.

1. Introduction

At present, computer language is not only a compulsory course for computer majors in colleges and universities, but also a compulsory course and a main basic course for the second level of basic computer teaching for non-computer majors. Today, the computing speed is faster and faster, the processing capacity is stronger and stronger, the storage capacity is larger and larger, and the volume and energy consumption are smaller and smaller [1]. Innovation has continuously widened the application field of computers, from numerical calculation to data processing, from automatic control to artificial intelligence. In an innovative activity, the novelty of thinking plays a decisive role. The emergence of innovative results cannot be separated from innovative activities, which must be guided by innovative ideas [2]. How to cultivate students' innovative thinking ability in the education stage is a question worth pondering by every educator. The subject of innovation is talents, the source of innovation is knowledge, and knowledge comes from learning [3]. Therefore, the competition among countries in the world is ultimately the competition of education and the competition of cultivating innovative talents. As the main position for training high-quality talents, colleges and universities are an important measure to rejuvenate our country through science and education to cultivate high-level talents with innovative spirit and ability. The computer teaching should be adjusted and optimized reasonably, and the teaching method of knowledge dissemination should be changed to the method of cultivating ability, so as to cultivate comprehensive quality talents.

With the development of computer technology and the popularization of computers, students have been exposed to computers since childhood, which has laid a certain foundation for language learning, but also poses challenges to teachers' teaching. Innovative thinking will push forward the development of computer industry. Young people with innovative thinking play a very important role in pushing forward the development of computer industry [4]. In the era of knowledge economy characterized by knowledge innovation and high-tech industrialization, colleges and universities, as the main front for training high-quality talents, train high-level specialized talents with innovative spirit and practical ability, and continuously train students' innovative thinking [5]. Innovation is the soul of a nation and an inexhaustible motive force for the prosperity of a country.

Innovative thinking refers to innovation in thinking. Innovative thinking is one of human's basic abilities [6]. The computer education circle is following the trend of the times and pushing forward the reform of computer education closely around the development of computer technology. Students majoring in computer science in colleges and universities are the backbone of the development of computer science in the future. To cultivate the innovative thinking ability of students majoring in computer science is an important task for computer teachers in colleges and universities [7]. This article will analyze how to make the classroom the birthplace of students' innovative thinking, innovative consciousness and innovative ability for computer courses.

2. Intrinsic Quality Required for Cultivation of Innovative Thinking and Ability

With the continuous development of modern computer technology, the mutual integration and thorough understanding of various fields and industries will give rise to more and more demands for talents, which puts forward higher requirements for computer major students. Without passion for learning, there can be no innovation. Teachers should actively play the main role of students and change "passive" to "active" learning. Students' enthusiasm and initiative in learning are generally not high, which is manifested in passive learning to cope with examinations. Due to the relatively fast development of computers, the computer knowledge is updated relatively fast. The knowledge that teachers impart to students in the classroom is far from meeting the needs of students' work and innovation after graduation. Therefore, students should not only learn the knowledge taught by teachers in class, but also learn how to learn new knowledge by themselves so as to study new problems and promote the development of the computer industry. In the process of training computer software talents, we must pay attention to the education and training of students' software program design and train students' thinking methods. To learn scientific knowledge, one must first learn to be an honest person, who is useful to the society. All people who are content with the status quo, lazy and do not want to make progress will never reach the peak of hope. Learning is hard work, without paying, there can be no gain.

The intelligence of the computer is not innate, and needs to be endowed by designers and implemented by users. For students majoring in computer science, they not only need to master the skills of using computers to solve problems, but also need to have certain software and hardware design capabilities that endow computers with intelligence. The exploration of new teaching methods should take full account of the use of computer networks and can make use of the existing teaching resources on the Internet to help students obtain relevant information. For students majoring in computer hardware, the future development direction will mainly focus on hardware safety maintenance and numerical control programming. They need to master the basic theoretical knowledge of electronic computer knowledge and comprehensively apply all aspects of knowledge [8]. In terms of skills, the mastery of basic skills has a great impact on the learning of later skills. The relevance and comprehensiveness of the courses require students to be able to learn continuously, have the ability to apply knowledge comprehensively, and apply the knowledge learned in the previous courses to the solution of problems in the subsequent courses. Any opportunistic behavior is incompatible with the spirit of scientific innovation. In view of the above quality requirements, we can train students' innovative thinking and ability through the carrier of computer language course from the following aspects. For future students engaged in the computer industry, they need to have a spirit of struggle that is not afraid of hardships and difficulties, and can show calm and strong will in the face of pressure.

3. Cultivation of Innovative Thinking Ability of Computer Major Students

3.1 Renew the Cultivation Concept

With the continuous development of network technology, the society is increasingly demanding for computer talents. More and more colleges and universities have set up computer courses. The more open the school is, the more sensitive it will be to external requirements. The more dangerous

it will be to adapt too rashly to immediate needs and give up long-term responsibilities. The computer language course involves a wide range of knowledge, and teachers cannot simply teach examples and exercises in textbooks. It is necessary to collect data from various sources and bring creative exercises and questions to the classroom in combination with practical applications. In general, in the actual examination process, the vast majority of colleges and universities regard theoretical examination as an important part in assessing the results of relevant subjects, while internship or experimental examination only regards the results as a small part of the final examination. Colleges and universities must establish the concept of “people-oriented” to promote the all-round development of students as the goal, all take students as the starting point and foothold, encourage and collectively analyze the problems raised by students, fully respect students' ability to question and question knowledge, and protect students' innovative thinking. In order to change this situation to the greatest extent, teachers and relevant departments need to work together. University teachers should also constantly improve their innovation ability and update what they have learned.

3.2 Adjust Teaching Content

To cultivate the innovative thinking of computer major students, it is necessary to add links to cultivate students' innovative ability in the daily teaching plan, which can enable students to understand and master the process characteristics and forms of the formation of innovative ability in the usual learning process, purposefully cultivate innovative consciousness, and continuously stimulate students' innovative enthusiasm. When computers are applied in various fields of society, new situations and new problems will emerge. Students participate in social practice, and through studying new situations and solving new problems, innovative thinking is developed. In the process of computer development in the past, it can be seen that the first computer used a long time ago was itself the beginning of relatively brilliant innovative thinking in human history [9]. Teachers can set up problems from multiple angles, arrange multiple thoughts, think from multiple angles, and analyze in depth and in a simple way. After several years of study and innovative thinking training, students will come up with some innovative ideas. Schools should create conditions for students to boldly practice and explore the realization of such ideas. Of course, students' ideas should be demonstrated before they practice. In practice, students' innovative thinking will be further developed. Teachers choose some real cases that occur in actual situations to analyze with students, so as to urge students to analyze and discuss various situations encountered in practice with the theoretical knowledge they have mastered.

3.3 Cultivate the Spirit of Innovation

In daily teaching activities, teachers should not only take on the task of guiding students to teach and solve their doubts, but also play a corresponding role in the situation of students' creative thinking education and inspire students to consider problems from various angles. The training goal of computer major in ordinary colleges and universities is application-oriented innovative talents, requiring students to use innovative ideas to solve problems in the real world development with computers as tools, which mainly reflects the ability of integration and integration of hard and soft resources. The hardware of the computer itself has been updated to a certain extent in the development, and the software emerges one after another. However, under such circumstances, the computer teaching will have no fixed teaching content or a separate teaching method. During the teaching period, teachers should encourage students to ask questions, not easily deny students' ideas, and not judge students' innovative thinking views hastily. Computer teaching can help teachers to enrich resources or create vivid interfaces with pictures and texts. Under such circumstances, teaching will have obvious characteristics, such as receptivity, novelty or combinability.

4. Conclusion

There will be different teaching environments and methods in the actual teaching mode. The cultivation of computer quality need not be the same. It is necessary to analyze the specific situation and choose appropriate methods to solve the computer problems in the group teaching mode. From

the essence of the development of students' thinking, the development of students' thinking itself is a dynamic generation process, and every student's nature contains the desire and potential for innovation. The hardware of the computer itself has been updated to a certain extent in the development, and the software emerges one after another. However, under such circumstances, the computer teaching will have no fixed teaching content or a separate teaching method. Only when the teacher changes from the traditional view of education to the view of quality-oriented education, can he become the enlightener and supporter of students' innovation and practice. Only when teachers have the courage to put forward innovative ideas on the traditional education methods and examination modes can the education reform be carried out. Innovative thinking will promote the development of computer industry. As the base of training talents, colleges and universities should run through the concept of "people-oriented" education, and provide more innovative talents for the country to promote knowledge renewal and technological progress.

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