Research on Computer Application and Cultivation of Scientific Thinking Ability

Yong He$^{1,*}$

$^1$School of Preschool Education, Jiangxi Teachers College, Yingtan, China, 335000

$^*$Corresponding author e-mail: heyong@jxsfgz.com

Abstract. With the development of information technology, computer teaching has become an important part of college education. To improve the computer application and scientific thinking ability is conducive to improving the quality of computer teaching. This paper firstly explains the significance of the application of computer science and technology in computer education and the main problems existing in computer application teaching. At the same time, it studies the application of computer and the cultivation of thinking ability in basic computer education for the reference of readers.

Keywords: Computer Application, Scientific Thinking Ability, Information Technology; Innovative Thinking

1. Introduction

With the advent of the era of big data, the traditional teaching mode has been replaced by the information-based teaching mode, and colleges and universities pay more and more attention to computer education [1-3]. To enhance the cultivation of computer science thinking ability is conducive to the cultivation of computer talents and to meet the demand for computer talents in China. Therefore, in view of the cultivation of computer application thinking ability, effective measures should be taken to improve the ability of computer application thinking.

2. The significance of the application of computer science and technology in computer education

Computer science and technology in computer education application has a very broad, such as the computer can be used as auxiliary tool in the work of teaching, in the teaching process using a computer can complete all basic teaching in the teaching activities and teaching management, the computer can be used as a student's learning tools, students learn in using computer can improve the students' learning efficiency [4-6]. Strengthen the learning ability of students, so that students can study in many places easily, even in the home can also use the computer to complete the teaching task in school. Computer can be used to check whether there are insufficient aspects in teaching activities, so computer teaching plays a very important role on the basis of teaching (Figure. 1 Computer teaching is an important part of education).
3. The main problems in computer application teaching

3.1. Teaching content lags behind the actual development of information technology

At present, China's information technology development level is quite high, the development of network technology and multimedia technology has made People's Daily life style and way of thinking has changed a lot. Computer, big data, electronic technology, smartphone and other new technological means have been widely recognized by the society, and related products have entered the lives of ordinary people. This era is the era of information technology, new information technology will be developed every day. However, the content and textbook setting of computer education in China and the development level of information technology do not adapt to the fact that the teaching content falls behind the development of information technology. This restricts the further development of student computer application technology. The lag of the teaching content is unitary, which makes the students' computer application foundation is relatively weak and difficult to keep up with the pace of the development of The Times.

3.2. The computer course structure can not meet the needs of application

At present, colleges and universities mainly follow the principle of systematicness and completeness of knowledge in setting up the computer course structure. In the structure of computer course, the proportion of theoretical content is larger, but the proportion of practical content is smaller. Although students learn the necessary theoretical knowledge of computer has a positive role in guiding their practice, but the weak content of the practice course also leads to the lack of practical opportunities for students to operate, which leads to the low ability of computer application and practical operation. This kind of curriculum structure is unreasonable, which affects the development of students' computer application ability and restricts their diversified learning, leading to students' disinterest in learning computer. Therefore, it is very necessary to set up the computer course structure scientifically based on the principle of effective application and highlight the application characteristics of the course structure.

3.3. The computer teaching setting is not closely combined with the major

College computer in the teaching Settings, do not consider the students' professional reality. This leads to the occurrence of a situation, even if the students have mastered a certain computer application technology, but in the work, can not apply this technology for their own work service, so the development of students' professional computer application innovation ability is restricted, it is difficult for students to meet the needs of the continuous development of society. Therefore, in computer application education, both basic knowledge teaching and professional computer course teaching should be able to combine with students' professional needs in the process of teaching setting, so as to ensure the quality of talent training. And the lack of this combination restricts the innovative
development of students' computer application ability.

4. Research on computer application and cultivation of thinking ability in basic computer education

4.1. Integrate computer application and thinking ability into the training of basic computer education

In the basic education of computer, it is necessary to combine scientific thinking and computer application ability organically, so as to improve the teaching effect of each major of computer, and make the cultivation of students' computer application and thinking ability reliably guaranteed. Teachers need to understand the cultivation of students' computer application and thinking ability, and be able to take the initiative to apply computer throughout the whole teaching activity in the teaching process, so that students can realize the importance of forming scientific thinking in the process of learning and applying computer. For teachers to scientific thinking have a full understanding of, can't simply calculates thinking into scientific thinking, break through the thought of cognitive bias, in scientific thinking, in addition to the computational thinking, and creative thinking, critical thinking and logical thinking, such as a variety of different forms of thinking, so the teacher need to clear and understand and define the concept of scientific thinking, through in the teaching process into the scientific thinking on the teaching practice are fully reflected, will be in the students' scientific thinking play a role in training, so that students can carry on the innovative solutions to the problems in real life,It not only improves the computer application ability, but also achieves the goal of cultivating applied computer talents in colleges and universities (FIG. 2 logical thinking).

![Figure 2. Logical thinking.](image)

4.2. Basic computer education should highlight students' main learning status

In order to equip students with stronger computer application ability and cultivate their scientific thinking, colleges and universities need to carry out corresponding reform on the existing teaching mode. For a long time, in the process of computer teaching in colleges and universities always continue to use the traditional teaching mode, and this kind of teaching mode of teacher is a main status, which makes students' subject position can't stand out, leading to student in the computer professional learning enthusiasm greatly reduced seriously hindered the university computer application in computer basic education for students and the cultivation of thinking ability. Therefore, in the reform of the teaching mode, it is necessary to guide students to actively participate in various computer application practice activities, and to explore the potential of students, so that students in the continuous practice and application of the correct scientific attitude and learning methods to improve students' computer application ability. Need to ensure that the students can actively in the teaching reform, actively participate in teaching activities, so that the students can independently in the study of creation and learning, the teacher may through the use of modern teaching means, in order to change the previous blackboard writing teaching through setting a variety of teaching in the teaching process to guide students to independently explore the problems in the teaching and encourage students to
solve problems and innovation, which fully reflects the students' subject position. For teachers, their role in the teaching process is more of a guide and a collaborator, and they do not need to actively intervene in students' learning activities, so that students' application and thinking ability can be effectively cultivated.

4.3. Actively explore the second class to cultivate students' computer application and thinking ability

In the computer basic education, colleges and universities should actively develop the second classroom, through which the former teaching mode can be completely broken, and then make the computer teaching more characteristic, so that the students' personalized characteristics can be fully reflected. By adopting the second class in the basic computer education, students can further develop their scientific thinking in the study of computer science and improve their application ability to computer in an all-round way. Teachers can make use of the second class to fully stimulate the enthusiasm of students so that students' innovative thinking can be effectively played in the second class, so as to realize the training of computer application innovative talents. Teachers in the basic computer education, for example, can be set through software writing activities to guide students to apply a computer for writing software, teachers can put forward a direction or topic, let the students to choose from and then guide students through the way of cooperation for writing software, for software to write the problems in the process, teachers can organize students to discuss, to help students form the corresponding solution, which enables students to for independence, autonomy, to solve the problem of. Software writing activities, therefore, it is equivalent to the second classroom, through the opening of the second classroom, not only can make the students have a broader knowledge in computer applications, but also make the students learning motivation has been further strengthened, so that the students ability of autonomous learning and to independent solve the problem, make the students' team cooperation consciousness and creative thinking effectively cultivate online education (figure 3).

![Figure 3. Online education.](image)

5. Conclusion

To sum up, in the process of cultivating the ability of computer application and scientific thinking, to apply computer and thinking ability in computer-based education training, at the same time highlights the students' subject status, and actively develop the second classroom to develop the students' ability of computer application and thinking, precise to improve overall level of computer application and scientific thinking capability.

References

[1] Hua Zhengwei. Computer application oriented and scientific thinking ability training [J]. Science and technology style, 2018 (09): 23 + 25.
[2] Hu Mulan, Liang Zhiqiong. Teaching strategies for the cultivation of computer application and scientific thinking ability [J]. Computer fan, 2016 (11): 212-213.
[3] Wu Huinan. Thinking on the cultivation of computer application and scientific thinking ability
in basic teaching [J]. Journal of science and technology economy, 2016 (01): 156.

[4] Wang Wenyong. Facing the cultivation of computer application and scientific thinking ability -- Thinking on deepening the reform of computer basic talents training [J]. Shang, 2015 (39): 212.

[5] Tang Xinguo. Training of computer application and scientific thinking ability -- thinking on deepening reform of basic computer education [J]. Computer CD software and application, 2014, 17 (14): 240 + 242.

[6] Tan Haoqiang. Cultivation of computer application and scientific thinking ability -- Thinking on deepening reform of basic computer education [J]. Computer education, 2014 (07): 4-8.