Ways to cultivate students' innovative ability in computer teaching in adult education

Junjie Cao
Jing'An Branch of Shanghai Open University,Shanghai 200040

Abstract: This paper will focus on the feasibility of cultivating students' innovative ability in adult education computer teaching. Combining theory with practice, this paper aims to find out effective methods and strategies to stimulate and cultivate students' innovative ability in adult computer teaching through exploration and research, and provide operable and highly instructive suggestions for adult computer teaching. Finally, improve students' computer application ability and innovation quality, and help them better adapt to social development.

Key words: Open education; Adult education; Computer teaching; Innovation ability

Introduction

Adult education, as an important part of lifelong education, its computer teaching aims to help adults update knowledge, improve skills and adapt to social development. However, the current adult computer teaching to a large extent still stays in the basic knowledge and skills of the imparted, the lack of innovative ability of students. As adult learners with work experience, innovation ability is an important skill for adapting to and changing the world, as well as an effective way to practice lifelong learning. It is also an extremely valued ability in modern society. Therefore, how to cultivate students' innovative ability based on adult computer teaching has become an important topic that educators and researchers pay attention to.

1. Innovation ability and innovation ability training

1.1 Overview of innovation capability

Innovation ability refers to the ability of individuals to solve problems or propose solutions in novel, unique and innovative ways when facing problems or challenges, including innovative thinking, innovative practice and the transformation of innovative results. Innovation ability plays an important role in modern society, which helps individuals to succeed in the highly competitive society.

The cultivation of innovation ability mainly depends on a series of educational methods and means, through stimulating and improving the individual's innovation ability, so that they have the ability of innovative thinking, innovative practice and innovative achievement transformation. For adult computer teaching, the importance of cultivating students' innovative ability is self-evident, the most fundamental reason is the rapid development of the computer field, research shows that only students with innovative ability can better adapt to social changes and development, and grow into a useful talent for the society.

1.2 The main factors affecting the formation of students' innovative ability

First of all, the subjective level, that is, students, on the one hand, they themselves lack the consciousness and desire of innovation. This is not only reflected in adult students, in fact, most students in our country have similar problems, and the fundamental reason is that it has a close connection with their learning purpose and career planning. On the other hand, the design, organization and construction of students' knowledge structure will also affect students' innovation ability. If students' knowledge structure is not perfect, their innovation ability will be severely limited. Secondly, the objective level, that is, unreasonable and unscientific teaching methods or teaching modes, is also an important factor affecting students' innovative ability. If teachers can adopt diversified teaching methods and encourage students to think actively, then the innovation factor may be more easily stimulated; otherwise, the training effect of innovation ability may not be ideal.

1.3 Innovation ability cultivation principle

First, the principle of putting people first. This means that teachers should respect students' personality, give full play to their subjectivity, encourage them to actively participate in the teaching process, and take the initiative to express their views, so that students' innovative ability can be subtly improved. Secondly, the principle of practicality. The reason why innovation is called a capability is mainly because it needs to be applied or performed in daily life or in the actual production process to evaluate and test its effectiveness. From this point of view, the cultivation and formation process of innovation ability must follow the principle of practicality, if it has not passed the practice test, then the relevant innovation performance is difficult to call it ability.

1.4 Current situation of innovation ability training

First of all, teachers pay too much attention to the teaching of theoretical knowledge, while ignoring the cultivation of students' practical ability and innovative thinking. As a result, students cannot truly understand and master computer knowledge, let alone flexibly apply it to practical work. Secondly, the single teaching method, the lack of diversity and flexibility, it is easy to lead to students lack of interest and motivation to learn, unable to stimulate their innovative thinking. Finally, there is a lack of connection to practical applications. Computer technology is constantly developing and changing. Once the theory is not connected with practical application, students may not be able to truly understand and master the latest computer technology, which will directly affect the stimulation of students' innovation potential and the effectiveness of ability training.

2. The importance of cultivating students' innovative ability in computer teaching

2.1 Meet the development needs of the digital age

In today's digital age, computer technology is changing all aspects of society, whether it is industrial production or daily life, can not be separated from the support of computers. More importantly, in this context, the social demand for talents is no longer just focused on basic computer operation skills, but a higher degree of programming and algorithm ability and the ability to use advanced tools to solve real-world problems. Computer courses have the innate advantage of cultivating students' ability to cope with the digital society. In the process of learning basic computer knowledge and training professional skills, students will accumulate certain programming ability, data processing ability and innovative thinking ability, which is conducive to playing an active role in the digital society in the future.

2.2 Develop problem solving skills

The computer field has always been a hotbed of innovation and problem solving. To cultivate students' innovative ability in the field of computer is to equip them with the way of thinking and ability to solve problems. Through practical projects and case studies in the computer science course, students will further learn how to face complex problems and come up with innovative solutions, which will play a crucial role in their future career path. For example, through organizing programming competitions, students are encouraged to creatively use their programming knowledge and skills to solve practical problems. On the one hand, students' innovative thinking is stimulated, and on the other hand, their problem-solving ability is also targeted.

2.3 Promote the all-round development of students

Innovation ability is one of the important requirements for talents in today's society. A person with innovation ability can not only stand out in the era of complex knowledge, but also be invincible in the highly competitive workplace. Independent thinking, teamwork and innovative practice are all reflected in the computer teaching process, which is not only the improvement of academic ability, but also the shaping of personality quality. By participating in the development of computer projects, students can not only gain technical knowledge, but also effectively exercise team cooperation ability, and ultimately improve the ability to solve problems and resist pressure, laying the foundation for all-round personal development.

2.4 Develop a lifelong learning attitude

In the traditional teaching mode, students are often infused with a lot of knowledge, but computer teaching is different, it pays more attention to cultivate students' independent learning ability. Through the practice of computer programming, design and problem solving, students can explore and learn independently, gradually develop the ability of independent thinking and learning, and gradually stimulate their interest in learning, so that they always maintain a positive learning attitude and are willing to continue to learn and explore new knowledge.

3. A feasible way to cultivate students' innovative ability in computer teaching

3.1 Respect the principal position of students and stimulate the consciousness of innovation

Students are the main body of education, they are not only the container to receive knowledge, but more importantly, they are the creator of knowledge. In the actual teaching process, teachers should always adhere to the "student-oriented" teaching concept, eliminate all forms of mechanical filling and technical operation training, give full play to students' subjective initiative, encourage them to think positively and try, listen to their voices, respect their choices, allow and welcome their mistakes and lead to new problems. Encourage them to learn from and absorb new scientific and technological achievements, form a systematic knowledge system, and then in the subtle stimulation of students' innovation consciousness, mobilize their active learning enthusiasm. Taking the teaching of "Introduction to Big Data" as an example, the author replaces the traditional mechanized teaching model with vivid and interesting stories and examples. At the same time, the author also encourages students to speak freely about the question "Application of big data in social network analysis", and then leaves enough space for students to fully imagine, aiming at cultivating their innovative thinking. In fact, programming is a way to innovate, and students can create new programs through their own imagination and creativity. In the teaching process, teachers should encourage students to innovate and transform ideas into practical actions. At the same time, they should also provide adequate support, such as providing relevant resources to guide students to find solutions to problems and help students realize their innovative ideas.

3.2 Create a good task situation, mobilize the passion for innovation

First, develop challenging and engaging tasks and projects: whether it is software development, system design, programming competitions, or technological innovation, teachers need to make students realize that what they are learning is not only theoretical knowledge, but also has broad application space. Only when the task itself has a strong attraction and a certain degree of difficulty and challenge, can we maximize the stimulation of students' positive thinking and spark innovation. For example, after learning the relevant content of "Word typesetting", the author created an "interview" scene in the class, allowing students to apply for their favorite position with a resume that was completed in advance. In this process, students not only need to apply the knowledge of Word typesetting, but also need to carry out innovative design in combination with actual needs, such as how to design a resume to highlight personal advantages and how to arrange the layout more beautiful. In the process of independent practice and innovation, a series of knowledge and skills related to it have been further consolidated and strengthened.

Second, focus on the process of task implementation: innovation pays more attention to the process than the result. In the process of computer teaching, teachers should always pay attention to the implementation of students' tasks and encourage them to actively participate in the design, development, testing and other aspects of the project, so as to cultivate their ability to find, analyze and solve problems. For example, when completing a "website development" project, the teacher can divide the students into different groups, and each group can

work together to complete the project. In this process, teachers should encourage students to communicate and discuss more. At the same time, teachers should guide them to learn how to record and sort out all the information in the process of project implementation, so as to help them better organize their thoughts and form a complete report.

3.3 Carry out rich extracurricular activities to improve innovation ability

The knowledge and technology in the computer field are changing rapidly, and it is far from enough to rely on classroom teaching. Based on this, teachers should also focus on organizing and carrying out a variety of extracurricular activities, so that students can deepen their theoretical knowledge understanding in practice and improve their innovation ability. Specific activities can be found in:

(1) Student innovative experiment projects: Students can propose and start their own personal computer experiment projects, and teachers will provide the most necessary resources and suggestions as guidance. Students are self-driven, through finding information, setting goals, planning the realization process, it is important to practice, adjust and think around the problem, which is an important step to cultivate students' innovation ability.

(2) Set up technical clubs: Through the establishment of programming clubs, robot competition clubs, etc., gather like-minded students to learn and grow together. In addition, regular academic discussions, project sharing or skill competitions are organized, such as programming competitions, hackathons, etc., so that students can be influenced by others' innovative thinking in the "accompanied learning" environment, and then improve their own innovation ability.

(3) Participate in national or regional competitions: Students are encouraged to actively participate in various national and regional competitions, including computer programming and innovative design. The process of actually participating in the competition will effectively stimulate students' interest in learning and practice, improve their hands-on ability, and enhance their psychological ability to resist pressure and frustration, so as to cultivate students' ability to think independently and solve problems.

(4) Hold workshops: For example, in programming workshops, teachers set a theme for students and encourage them to design and write codes by themselves. In this way, they can not only deepen their understanding of classroom knowledge, but also enhance their practical ability and cultivate their good spirit of innovation.

By participating in these extracurricular activities, students will have the opportunity to access more computer knowledge and technology, broaden their horizons, and improve their overall quality. At the same time, these activities also play a positive role in cultivating students' innovative consciousness and teamwork spirit, which can lay a solid foundation for their future career development.

3.4 The means of teaching evaluation are diversified and innovative thinking is respected

Teaching evaluation is a process of objective assessment and feedback of students' learning, which can help teachers to fully understand students' learning progress and ability development. Through the use of diversified teaching evaluation means, it can better promote the cultivation of students' innovative ability. For example, teachers can set open questions or design project-like practical questions in traditional exams to encourage students to use innovative thinking to answer questions. At the same time, students can be encouraged to propose creative and innovative problem solutions and stimulate their innovative potential through comprehensive and objective evaluation. In addition, practical evaluation is also one of the effective ways to cultivate students' innovation ability, including classroom experiment, project design, scientific research practice and so on. Through these practical tasks, students will have more hands-on opportunities to solve practical problems and develop innovative thinking in the process of problem solving. Teachers' evaluation should focus on students' problem-solving methods and innovation points, not only on the quality of the final result. Only in this way can students be constantly encouraged to innovate in practice. At the same time, in the evaluation process, teachers should adopt an open attitude, accept and encourage students to face and accept mistakes correctly, and guide students to face and solve problems with a positive attitude, rather than treating mistakes as a blow. In such an assessment environment, students' thinking will become more open, better release themselves, in-depth exploration of the mystery of knowledge, and then enhance the ability of innovation. Of course, just because each student is different and there are differences in all aspects, teachers should pay more attention to their differences and individuation in the evaluation process, so that the evaluation can be more objective and fair.

Peroration

Innovation ability is a basic ability that quality education needs to cultivate, and it is also more in line with the development needs of the Internet era. Computer courses have become the main position and important carrier for adult colleges to implement innovative education and cultivate students' innovative ability. Therefore, teachers should combine the characteristics of adult education and the characteristics of students, take the computer classroom as the main position, take effective measures, focus on the cultivation of students' innovative ability, and lay a good foundation for them to shine in the post in the future.

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