Exploration and Practice of Computer Fundamentals Teaching in Vocational Colleges in the New Era

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Abstract: In the information age of contemporary society, the teaching of computer fundamentals in vocational colleges is facing enormous challenges. Computer fundamental courses not only have a profound impact on students' personal development, but also have important significance for their foothold in society. However, the current content and teaching mode of computer fundamental education cannot meet the needs of technology and talent in the information age. There is an urgent need for reform and innovation in computer fundamental teaching in the new era. Based on this, this article explores the existing problems in computer fundamental teaching in colleges in the new era and proposes solutions to improve the efficiency of college computer fundamental teaching.

1. Introduction

Nowadays, computer fundamental courses have become an essential course in vocational education, emphasizing the need to strengthen students' fundamental computer practical abilities and cultivate their learning awareness, combining theoretical knowledge and practical operations to improve teaching quality. However, there are problems in the current computer fundamental teaching in vocational colleges that are not in line with the development of the times. Therefore, it is necessary to reform and innovate computer fundamental teaching in vocational colleges to improve teaching efficiency and push the comprehensive progress of vocational college students.

2. Existing Problems in Computer Fundamental Teaching in Vocational Colleges in the New Era

2.1 Lack of Quality of Teaching Staff

The development of computer fundamental courses in the education industry is relatively short, and education and development are not yet mature. When recruiting computer teachers, colleges are usually affected by educational qualifications and professional titles. Many schools require teachers to have at least a master's degree, which makes it difficult for some professionals with rich practical experience but lack educational background to enter vocational colleges to teach [1]. The requirement of promoting senior professional titles also limits the development space of some teachers, leading to difficulties in recruiting computer teachers in colleges. Many teachers lack rich teaching experience, and these teachers lack understanding of emerging technologies and the latest teaching methods, cannot apply them to teaching, affecting teaching effectiveness. In some vocational colleges, the average age of teachers is relatively old, and there is a lack of young teachers to supplement, leading to problems such as outdated ideological concepts and lagging educational concepts.

2.2 Disjunction between Theoretical Knowledge and Practical Ability

In the computer fundamental courses of vocational colleges, theoretical knowledge and practical operation are two indispensable aspects. However, many teachers currently fail to attach importance to the combination of theoretical knowledge and practical operations. Firstly, computer fundamental courses require teachers to impart theoretical knowledge and guide students in practical operations.

Theoretical knowledge includes fundamental principles, algorithms, data structures, and other contents of computers, while practical operations involve programming examples, project development, and other methods to enable students to apply the knowledge they have learned [2]. Vocational teachers place too much emphasis on instilling theoretical knowledge and neglect the importance of practical operations. Students' learning only stays at the level of "talking on paper" and cannot apply the knowledge they have learned to practical problems. Secondly, students generally have a mismatch between theoretical knowledge and practical abilities. Although they have mastered a certain amount of theoretical knowledge, they lack practical experience and opportunities for practical programming or project practice. Due to the lack of practical experience, students often cannot effectively combine their learned knowledge with practical problems, resulting in a mismatch between theoretical knowledge and practical abilities.

2.3 Insufficient Teaching System

In vocational computer fundamental courses, there are problems of inadequate teaching system, complex computer knowledge content, and difficulty adapting to traditional teaching methods. Some teachers still use traditional blackboard writing and multimedia forms for teaching, but this teaching method often cannot stimulate students' learning motivation and broaden their learning thinking. Firstly, the universality and rapid updating speed of computer knowledge make it difficult for traditional blackboard writing and multimedia teaching methods to keep up with the pace of the times. The knowledge and technology in the field of computer science are changing rapidly, and it is difficult to cover all the content solely through simple classroom explanations. Secondly, computer courses are not only about imparting knowledge, but also about cultivating students' creativity and problem-solving abilities. However, traditional teaching models often place too much emphasis on the transmission of theoretical knowledge, neglecting the cultivation of practice and practical applications.

3. Research on Teaching Strategies for Computer Fundamentals in Vocational Colleges in the New Era

3.1 Build A High-quality Teaching Team and Establish a Teaching System

To carry out computer fundamental teaching in vocational colleges, it is necessary to establish a high-quality teaching team. To achieve this goal, vocational colleges can adopt a "old leads new" system, allowing experienced old teachers to impart experience to new teachers, and promoting the improvement of the teaching level and ability of the entire teaching team. For example, by regularly organizing interactive communication activities, new teachers can draw inspiration from the teaching experience and methods of old teachers.

Vocational colleges can establish specialized training courses to provide systematic training for new teachers, including supplementing and deepening fundamental computer knowledge, learning teaching theories and methods, as well as knowledge in educational psychology, to promote the comprehensive improvement of new teachers' professional literacy and teaching ability. They can also establish a good teacher-student interaction mechanism and urge teachers to regularly interact and exchange with students, so that teachers can understand students' needs and questions for computer fundamental teaching, and provide timely answers and guidance. Teachers can organize students to participate in practical projects, competitions, and other activities to stimulate their interest and motivation in learning. Colleges can also actively introduce excellent computer fundamental teaching resources. For example, they can invite industry experts to come to the school regularly for lectures and exchanges, providing teachers with the latest industry information and knowledge. They can establish cooperative relationships, share teaching resources with other colleges or enterprises to enrich students' learning content and methods. They can hire external experienced teachers for training and communication. These teachers usually have rich teaching experience and practical application experience, and their joining brings new ideas and methods to the teaching team. Computer fundamental courses emphasize the cultivation of students' thinking

and hands-on abilities, so teachers should have corresponding educational abilities and levels, and have practical application experience. Teachers need to have a deep understanding of the core concepts and practical application scenarios of computer fundamental knowledge to better guide students' learning and practice. They also need to have good communication and guidance skills, stimulate students' interest in learning, and promote their learning motivation.

3.2 Reform Teaching Methods Based on Individualized Teaching

Vocational computer fundamental teaching requires educational reform and innovation. In this process, teachers play a crucial role. To better meet students' learning needs, teachers should pay attention to their own teaching methods and not blindly deny students' ideas and characteristics [3]. Firstly, individualized teaching is an essential teaching philosophy, as each student has their own unique learning style and ability level. Therefore, teachers should tailor teaching methods and content according to the needs and characteristics of each student. For example, when teaching computer programming, if a student is more interested in graphical programming, the teacher can guide him to use visual programming tools and encourage him to try more complex projects. If a student is more interested in algorithm design, then the teacher provides deeper theoretical knowledge and challenging programming tasks. By teaching students according to their aptitude, the teacher can better stimulate their learning interest and enthusiasm. Secondly, teachers should innovate their teaching methods to adapt to the constantly changing needs of students and educational environment. With the rapid progress of computer technology, teachers should update their teaching content and methods in a timely manner to keep pace with industry development. They can use innovative tools such as multimedia technology and online learning platforms to increase students' participation and interactivity, and better cultivate their core subject literacy. For example, in a PPT production course, teachers can share some pictures that are suitable for PPT production and work with students to determine the theme. Through discussions and decision-making, students will better understand how to choose pictures that are suitable for the theme and content, making the PPT production course more attractive and professional. When students first try to create PPTs, they may encounter various problems. At this time, teachers should encourage students to operate and solve problems themselves, rather than blindly providing answers or assistance, in order to effectively exercise students' hands-on ability, promote students' exposure to new knowledge, and improve learning effectiveness. In the process of problem-solving, students are encouraged to seek help from classmates or engage in independent thinking and exploration. Through collaboration and discussion with classmates, students will inspire each other, share experiences, continuously improve their PPT production skills, then promote innovative thinking and team cooperation spirit.

3.3 Base on Online Teaching and Cultivate Students' Thinking

With the progress of society, students in vocational colleges need to possess certain professional abilities and fundamental qualities to find employment after graduation. In the teaching of computer fundamentals, it is particularly important to cultivate students' innovative thinking and abilities. As an emerging teaching mode, online teaching has many advantages and significance. Firstly, online teaching breaks the time and space limitations of traditional teaching, allowing students to learn anytime and anywhere. Secondly, online teaching provides diverse learning resources and tools to better meet students' personalized learning needs. Online teaching also promotes interaction and cooperation among students, cultivating teamwork spirit and communication skills. Therefore, combining online teaching with computer fundamental teaching is of great significance for cultivating students' innovative thinking. For example, when learning to create Excel spreadsheets, teachers choose data content that is relevant to students' lives and of interest to them as learning materials, attracting students to participate more actively in learning and developing a strong interest in the knowledge they have learned. Specifically, teachers can guide students to create a table that includes their own living expenses, allowing them to conduct data analysis based on their own expenses. This not only cultivates students' data analysis ability, but also allows them to directly apply the knowledge they have learned to practical life, enhancing the practicality and

operability of learning, and enabling students to better understand the principles and techniques of Excel table making.

4. Conclusion

In summary, the computer fundamental courses in the new era have a significant impact on vocational students. Currently, there are some drawbacks in computer fundamental teaching in colleges. Therefore, colleges should build an excellent teaching team and establish a teaching system to improve teaching quality and level. Specifically, it is necessary to teach students according to their aptitude and reform teaching methods to better meet their personalized learning needs, stimulate their interest and enthusiasm in learning, and online teaching is also an important teaching method for cultivating students' thinking ability and innovative consciousness. Therefore, computer fundamental teaching in colleges should adapt to the needs of the times, continuously explore new teaching methods, and make contributions to cultivating talents with practical abilities.

References

[1] Zhang Qing. Research on the teaching of fundamental computer application courses in higher vocational education under the background of "Internet plus" [J]. Computer experts, no.3, pp.563-564, 2020.

[2] Zhang Yonggang. Design and Application Analysis of Blended Learning in Higher Vocational Computer Fundamental Teaching [J]. Comparative Study on Cultural Innovation, vol.4, no.32, pp.80-82, 2020.

[3] Liu Jun. Analysis of Teaching Reform Measures for Computer Fundamentals in Vocational Colleges in the Era of Big Data [J]. Interactive software, no.7, pp.4216-4217, 2020.