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The Reform Path of Computer Teaching in Colleges and Universities under the Background of New Engineering Disciplines

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Abstract: The development of technology enterprises has put forward higher requirements for computer talents. Starting from the background of new engineering disciplines, to strengthen the cultivation of computer talents, colleges and universities need to innovate computer teaching, optimize educational activities, create a good professional atmosphere, and promote the improvement of students' professional learning efficiency. Starting from the computer teaching in colleges and universities, this paper analyzes the professional qualities necessary for computer talents under the background of new engineering disciplines and proposes specific teaching reform strategies, aiming to improve the professional teaching model, enhance teaching quality, and provide a reference for subsequent teaching practice.

Keywords: New engineering disciplines; Colleges and universities; Computer teaching

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1. Introduction

With the continuous development of society, a new round of technological and industrial transformation has emerged. In order to adapt to the development of the times, the government has proposed many strategic development goals, such as "Intelligent Manufacturing in China" and "Fudan Consensus," which have pointed out the direction for the deepening of the new engineering education in colleges and universities, and can cultivate more outstanding innovative talents for society. Based on this, in the educational practice process of colleges and universities, it is necessary to pay attention to the construction of new technologies and new industries, clarify the training goals of new engineering talents, and achieve good computer teaching quality through the innovation of teaching methods, effectively cultivating students' practical and innovative abilities.

2. Analysis of the qualities required for computer professionals in colleges and universities under the background of new engineering disciplines

2.1. Professional quality

The implementation of practical activities cannot be separated from the assistance of a good theoretical foundation. The computer talent cultivation activities in colleges and universities need to attach importance to the situation of students, pay attention to their mastery of professional basic knowledge, clarify the operational problems that students may encounter in future employment, and conduct rapid analysis to determine the causes of the problems, and propose good problem-solving skills based on the causes [1].

2.2. Analytical and judgmental ability

When facing computer-related problems, the precondition for solving them is to clarify the causes of the problems, and in combination with the characteristics of the industry, conduct analysis activities on the problems, clarify the process of problem occurrence, and flexibly use various methods for presentation [2]. From the perspective of the computer major, relevant talents need to possess good observation and analysis capabilities in order to effectively meet the demands of the industry.

2.3. Creativity

The development of the social economy has accelerated the pace of innovation in computers. Among them, technologies such as artificial neural networks and genetic algorithms are constantly progressing and maintaining a sustained and stable development. By exerting technological advantages, the innovation of traditional industries can be promoted. [3] In this context, both computer application technology and the traditional computer industry have undergone good development, with a large number of new theories and practical knowledge emerging and gradually being applied in various industries, promoting the economic development of society [4]. To promote the integration of computer field technology and traditional industries, computer talents not only need to be familiar with computer-related technologies but also need to deeply grasp industry technologies and maintain a good learning attitude to truly achieve the effect of understanding by analogy. In the process of computer teaching in colleges and universities, the concept of lifelong learning needs to be implemented. The construction of new engineering majors, such as data science and big data, can optimize the teaching plan and cultivate computer application talents that meet the needs of social and economic development [5]. Although the social economy shows a good development trend, the principal requirements it poses for talents are different. In order to meet social needs, computer talents need to have good practical and creative abilities.

3. Reform strategies of computer teaching in colleges and universities under the background of new engineering disciplines

3.1. Strengthen school-enterprise cooperation and optimize practical teaching

In the process of computer teaching in colleges and universities, practical teaching plays an important role. Through the optimization of the practical curriculum system, it is helpful to cultivate a large number of applied computer talents. From the perspective of the computer curriculum, increasing the practical part is helpful to improve students' professional qualities and has important value and significance [6]. Therefore, in the process of practical teaching, teachers need to grasp the situation of colleges and universities, take the improvement of students' computer application level as the basis, continuously carry out experimental teaching courses,

attach importance to the improvement of students' application ability, and help students lay a solid foundation [7]. At the same time, in the process of computer practical teaching, teachers need to attach importance to the implementation of supervision and feedback, adjust and improve the teaching mode, and promote the improvement of students' problem application and processing ability.

In addition, the computer practical teaching activities in colleges and universities are affected by factors such as the campus scale and financial support, resulting in fewer practical teaching bases. Therefore, colleges and universities need to find suitable enterprises, carry out good cooperation and exchanges, and create a good practical platform for students. In computer practical training activities, colleges and universities can exert their subjective initiative and strengthen in-depth cooperation with enterprises [8]. The cooperation can include the formulation of training plans, enriching practical training content, and improving the evaluation mechanism, demonstrating the importance that colleges and universities attach to computer practical teaching. The cooperative enterprises of colleges and universities need to actively integrate into practical teaching, grasp their own needs and the characteristics of computer teaching, and formulate vocational courses to improve students' practical ability [9]. Under the guidance of teachers, a good teaching model can be constructed for college students, and a good mechanism can be provided to help students comprehensively understand the content of computer practice and cultivate computer talents that meet the needs of society.

3.2. Optimize teaching methods and establish an evaluation mechanism

With the deepening of the concept of new engineering, in the process of talent cultivation in the computer major in colleges and universities, teachers need to understand the situation of students, be aware of their social experiences, knowledge mastery, etc., and select appropriate students to carry out internships in off-campus enterprises. Through effective linkage between enterprises, more internship opportunities can be provided for students, accelerating the optimization of the classroom teaching model and helping students identify the deficiencies in their professional knowledge during the internship, achieving a good effect of filling the gaps [10]. Based on the background of new engineering construction, not only can the adjustment of the education method enable teachers to be familiar with advanced teaching methods and improve their teaching level, but it is also the key to educational activities. In the practice of college teaching in the past, the development of any course was inseparable from the teachers' lesson preparation. Only by clarifying the teaching goals of various courses can classroom teaching activities be effectively carried out, promoting the realization of teaching goals and significantly improving students' computer knowledge literacy.

In the process of computer teaching in colleges and universities, teachers can establish a complete teaching evaluation mechanism to cultivate computer application talents that meet the needs of the times. In the teaching evaluation mechanism, the evaluation subjects include teachers, students, and enterprises. Facing the optimization of teaching evaluation content, the cultivation of computer application talents can be taken as the basis. Facing the situations of teachers, students, and enterprises, scientific evaluation content can be designed to effectively stimulate the initiative of the three [11]. When facing the teaching evaluation content, attention should be paid to the meticulousness and rationality of the design. It is not only necessary to grasp the teaching results, but also to pay attention to the teaching process and understand all aspects of teaching to effectively exert the significance of the teaching evaluation mechanism. Starting from the content level of the teaching evaluation mechanism, the following perspectives can be adopted:

(1) Pay attention to the situation of teachers, and grasp the teaching content, teaching methods, and teaching channels.

(2) Understand the situation of students, and judge their mastery of computer professional knowledge, innovation ability and problem-solving ability [12].

(3) Judge the situation of cooperative enterprises, such as resource overview, practical training and guiding activities. Help teachers understand the practical links and promote the organic integration of classroom teaching and practical activities.

At the same time, in order to make the teaching evaluation objective, colleges and universities need to attach importance to the establishment of the teaching evaluation platform, give full play to the role of the visualization system, encourage teachers to draw on students' suggestions, carry out good teaching reflection, adjust the teaching content, and effectively improve the education effect.

3.3. Strengthen teacher training and build the teaching staff

In the process of computer teaching, universities need to clarify the role played by teachers. By improving teachers' qualities, new engineering talents that meet the needs of the times can be cultivated. Through the construction of a "dual-qualified" teaching staff, teaching practice can be adjusted, and students can be guided specifically, creating a favorable environment for their healthy growth [13]. However, considering the situation of university teachers, most of them engage in teaching directly after graduation and lack practical enterprise experience. Their teaching experience is insufficient and it is difficult for them to adjust teaching activities by industrial demands, resulting in the teaching effect needing to be improved. Universities need to strengthen the training of teaching staff and implement the principles of internal training and external recruitment, mutual appointment between schools and enterprises, and the combination of full-time and part-time teachers, to cultivate "dual-qualified" teachers that meet the educational needs.

First, colleges and universities need to strengthen cooperation and communication with local enterprises following the industry-education integration policy proposed by the government, to achieve resource sharing and complementary advantages. Among them, in the teaching of computer majors in colleges and universities, the development of teachers' application ability can be taken as the theme of teacher training, and combined with government projects, teachers are encouraged to participate in enterprise practice, effectively enriching teachers' work experience [14]. Through planned, purposeful and batch activities carried out by colleges and universities, teachers can effectively participate in enterprise activities, understand the production, management and service practices of computer technology, deepen their understanding of corporate culture, and clarify the needs of relevant positions. Thus, in the subsequent teaching of professional courses, the development needs of the industry can be effectively integrated to help students understand changes in the computer market. Facing the interactions such as enterprises' questions and teachers' answers, teachers can effectively achieve role transformation.

Second, enterprise mentors going to the computer classroom teaching can achieve joint education by schools and enterprises. Colleges and universities can use diversified methods to invite enterprise executives, alumni, etc. to play the role of part-time teachers, and carry out teaching practice activities through lectures, forums and other forms to help students grasp industrial development policies, have an intuitive understanding of industrial development trends, and facilitate students to carry out targeted learning.

In short, the cooperation carried out by colleges and universities and enterprises can achieve the mutual infiltration of human resources, effectively enhance the educational effect, form a good structure of the talent team, and promote a win-win situation for schools, enterprises and students [15]. With the help of the computer teaching mode, teachers can form good professional and practical abilities, accelerate the construction of

the “dual-qualified” teacher team, effectively adjust professional teaching activities, create a real working environment for students, and effectively enhance their employment competitiveness. At the same time, enterprises can obtain the reserve talent team from colleges and universities, continuously enhance the innovation vitality, and thus make more contributions to the good development of the economy.

4. Conclusion

To sum up, starting from the background of the new engineering discipline to improve the teaching quality of the computer major, colleges and universities need to attach importance to the infiltration of the new economy. The goal of the construction of the new engineering discipline is to build a reserve talent team and promote economic and technological development. In the development of the new economy, to a certain extent, it shows the social demand for new engineering talents. Therefore, in the process of computer teaching reform, colleges and universities need to grasp the market development situation, understand the situation of students, and adjust the education activities in time according to the actual situation of the colleges and universities. The deepening of the concept of the new engineering discipline has brought opportunities and challenges to the teaching activities of colleges and universities. Only by deeply grasping the connotation of the new engineering discipline and the characteristics of applied talents can an education system that conforms to the development of colleges and universities be built, effectively improve the education effect, and cultivate a group of talents that meet the needs of the times.

Disclosure statement

The author declares no conflict of interest.

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