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# A Study on the Matching of Teaching Content of Computer Application Technology Courses with Industry Needs

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***Abstract***

*With the rapid development of information technology, computer application technology has become an important force to promote social progress and industrial upgrading. However, there is often a disconnect between the teaching content of computer application technology courses in colleges and universities and the needs of the industry, which makes it difficult for graduates to meet the actual needs of enterprises. The purpose of this paper is to discuss the docking problem between the teaching content of computer application technology courses and the industry demand, and put forward corresponding improvement strategies by analyzing the current industry development trend, enterprise demand and the current situation of college curriculum, with a view to improving the teaching quality of computer application technology courses and enhancing the employment competitiveness of students.*

***Keywords***

*computer application technology, course content, industry demand, docking research, teaching*

## 1. Introduction

In the tide of globalization and informatization, computer application technology has become a key force in promoting social and economic development and innovation, widely penetrating into all walks of life and profoundly changing people's way of life and work. As the cradle of knowledge dissemination and talent cultivation, the teaching quality of computer application technology courses in colleges and universities is crucial to students' employment competitiveness and social innovation ability. However, at present, the teaching content of this course in colleges and universities is slow to be updated, and there is an obvious disconnect with the needs of the rapidly developing industry, which leads to graduates' difficulty in adapting to the actual needs of enterprises and limited career development. Therefore, in-depth study of computer application technology course teaching content

and industry demand docking problem is particularly important. This is not only the key to improve the quality of teaching in colleges and universities and enhance the employability of students, but also a necessary way to promote the deep integration of higher education and industry and enhance the innovation ability of society. In this paper, we will systematically analyze the current situation of computer application technology curriculum in colleges and universities, combined with industry demand, and put forward docking strategies to provide useful references for teaching reform, and help cultivate more high-quality computer application technology talents in line with market demand.

## 2. Computer Application Technology Industry Development Trend

### *2.1 Technical Innovation Continues to Accelerate*

In recent years, the field of computer application technology is like a never-ending feast of science and technology, technological innovation such as tidal wave like surging, new technology is like the emergence of endless. Look at that quantum computing technology, is taking a steady pace towards maturity, the future is expected to shine in specific areas, to open a new chapter of commercial applications. Artificial intelligence and machine learning technology has long penetrated into every corner of all walks of life, from the warmth and convenience of the smart home to the futuristic sense of self-driving cars, from the precision and efficiency of medical diagnosis to the deep insights of financial analysis, AI technology is changing our way of life in a way never seen before, making the future within reach. Of course, there are also cloud computing and big data technology, which builds an efficient and flexible data storage and processing platform for enterprises, as if inserting digital wings for enterprises, helping them accelerate transformation and soar in the digital sky.

### *2.2 Increasingly Rich Application Scenarios*

The continuous progress of technology, so that the application of computer application technology has become increasingly colorful application scenarios. Internet of Things technology, like a magical wizard, realizes the intelligent world of things connected and human-computer interaction. Smart home, smart city, smart transportation and other fields, is ushering in explosive growth, so that our lives become smarter and more convenient. Virtual reality and augmented reality technology, on the other hand, are bringing unprecedented immersive experiences to education, entertainment, healthcare and other fields. Students can swim in the sea of knowledge in the virtual world, entertainment enthusiasts can enjoy immersive fun in augmented reality, and medical workers can perform accurate surgical simulations in virtual reality. There is also blockchain technology, which builds a secure and transparent line of defense for finance, logistics, copyright protection and other fields, so that the security and trustworthiness of data has a solid guarantee.

### *2.3 Data Security and Privacy Protection Are Increasingly Important*

With the rapid development of computer technology, the issue of data security and privacy protection has also become increasingly prominent, and has become an important topic that we cannot ignore. In the era of big data and cloud computing, data leaks and privacy violations occur frequently, bringing

immeasurable losses to individuals and enterprises. Therefore, strengthening the research and development and application of data security technology to ensure the safety of personal information and enterprise data is like building a strong shield of protection for us. Only by guarding this security, we can make computer application technology better serve mankind, and let the power of science and technology gallop on the track of security, bringing more convenience and surprise to our life.

## 3. Industry Demand Analysis

### *3.1 Talent Demand Surge, the Strong Drive of Emerging Technology Areas*

With the rapid development and wide application of information technology, the demand of enterprises for computer application technology talents shows a continuous growth. Especially in emerging fields such as big data, cloud computing, Internet of Things, artificial intelligence, etc., these technologies, as a key force to promote industrial upgrading and social progress, have put forward an urgent demand for talents with relevant professional knowledge and skills. These fields not only require talents to have a deep theoretical foundation and an in-depth understanding of the principles and mechanisms of the technologies, but also require them to have rich practical experience and be able to skillfully apply the technologies to solve practical problems. This kind of composite, practice-oriented talent demand for the education and teaching of computer application technology majors in colleges and universities has put forward new challenges and opportunities.

### *3.2 Diversification of Ability Requirements, Comprehensive Quality of the Overall Promotion*

In addition to professional knowledge and skills, the ability of enterprises for computer application technology talents increasingly show a diversified trend. Good communication skills, teamwork ability, problem solving ability and innovation, etc., have become an important standard for enterprises to measure the quality of talent. These abilities not only help the talent in the team to play a greater role in promoting the smooth progress of the project, but also to promote the common growth of individuals and teams to enhance the overall competitiveness of enterprises. In addition, with the continuous progress of technology and the continuous expansion of application scenarios, enterprises also require talents to have the ability of continuous learning and self-improvement, in order to adapt to the fast-changing market demand and technology development trend. This requirement for comprehensive improvement of comprehensive quality points out the direction for colleges and universities to focus on comprehensive development and strengthen ability cultivation in the process of talent cultivation.

### *3.3 Emphasis on Practical Experience and Project Experience, the Core Consideration of Practical Ability*

In the recruitment process, enterprises attach great importance to the practical experience and project experience of computer application technology talents. They hope that the recruited talents can not only quickly integrate into the team and contribute to the actual projects of the enterprise, but also play a key role in the project and promote the innovation and development of the project. Therefore, when cultivating talents in computer application technology, universities must focus on strengthening the

practical teaching link, and provide students with rich practical opportunities and project experience through laboratory construction, school-enterprise cooperation, project practice and other ways. This not only helps to improve students' practical ability and project experience, but also enhances their career competitiveness and employment adaptability, laying a solid foundation for future career development. At the same time, colleges and universities should also maintain close cooperation and communication with enterprises to jointly build a practical teaching system that meets the needs of the industry and realizes the effective docking of talent training and market demand.

## 4. The Current Situation of Computer Application Technology Curriculum in Colleges and Universities

### *4.1 Course Content Lagging Behind, Difficult to Match the Rapid Pace of Development of the Industry*

At present, the computer application technology course content in colleges and universities generally shows lagging behind the development of the industry. With the rapid changes in information technology, emerging technologies and applications are emerging, such as quantum computing, artificial intelligence, blockchain and other cutting-edge technologies are gradually becoming an important force for social progress. However, the computer application technology courses in many colleges and universities fail to incorporate these emerging technologies into the teaching system in a timely manner, resulting in a significant gap between the course content and the current state of industry development. This lag not only limits students' understanding and mastery of the latest technology, but also makes it difficult for students to quickly adapt to the actual needs of enterprises after graduation, which in turn affects their career development and employment competitiveness. Therefore, colleges and universities urgently need to re-examine and adjust the content of the curriculum to ensure that it can keep pace with the development of the industry and provide students with knowledge systems that keep pace with the times.

### *4.2 Weak Practical Teaching, the Bottleneck of Practical Ability Cultivation*

As an important way to cultivate students' practical ability and project experience, the practical teaching link is particularly weak in the current computer application technology courses in many colleges and universities. On the one hand, some colleges and universities are unable to provide students with enough practical opportunities due to old experimental equipment and limited experimental conditions; on the other hand, even with certain experimental conditions, it is often difficult for students to gain real project experience due to the lack of in-depth cooperation with enterprises and the lack of effective project practice mechanism. This lack of practical teaching directly leads to the difficulty for students to quickly integrate into the team after graduation and contribute to the real projects of enterprises. Therefore, colleges and universities should attach great importance to the construction and reform of the practical teaching link, and comprehensively improve students' practical ability and project experience by strengthening laboratory construction, deepening university-enterprise cooperation, and optimizing the practical teaching mode.

*4.3 Curriculum Rigidity, Lack of Flexibility and Innovative Shackles*

At present, the computer application technology curriculum of many colleges and universities presents the disadvantages of rigidity, lack of flexibility and innovation. On the one hand, some colleges and universities pay too much attention to the teaching of theoretical knowledge and neglect the cultivation of students' practical ability and innovation ability; on the other hand, the curriculum lacks cooperation and communication with enterprises, resulting in an obvious disconnect between the curriculum content and the industry demand. This rigid curriculum is not only difficult to meet students' diversified learning needs and interests, but also unable to adapt to the rapid changes in the development of the industry. Therefore, colleges and universities should actively explore the road of reform and innovation of curriculum, through the introduction of interdisciplinary courses, set up elective courses, carry out innovative experiments, etc., to provide students with more flexible and diversified learning paths and choice space. At the same time, strengthen cooperation and communication with enterprises, and jointly develop curriculum standards and teaching plans that meet the needs of the industry, so as to realize the effective docking of the curriculum content with the needs of the industry.

## 5. Docking Strategy of Computer Application Technology Course Teaching Content and Industry Demand

*5.1 Course Content Update: Keep Pace with the Industry, Leading the Technology Frontier*

Colleges and universities should uphold the concept of forward-looking education, pay close attention to the latest developments in the computer application technology industry and development trends, to ensure that the course content can reflect the innovation and progress of the industry's cutting-edge technology in a timely manner. Specifically, colleges and universities need to regularly review and update the course content, incorporate quantum computing, artificial intelligence, blockchain and other cutting-edge technologies into the curriculum system, and make students understand the principles, applications and future development trends of these technologies through special lectures, seminars and other forms. This not only meets the needs of enterprises for talents with knowledge of cutting-edge technologies, but also stimulates students' spirit of exploration and sense of innovation, laying a solid foundation for cultivating internationally competitive talents in computer application technology.

*5.2 Reinforcement of Practical Teaching: Building a Practical Platform and Refining Practical Ability*

Practical teaching is the key link to enhance students' practical ability and project experience. Colleges and universities should increase investment in laboratory construction, introduce advanced experimental equipment and technology platforms to create a good practice environment for students. At the same time, they actively explore the mode of school-enterprise cooperation, establish long-term and stable cooperative relationships with enterprises, and jointly carry out joint training programs, internship and training base construction, etc., so that students can participate in project practice in the real enterprise environment and apply what they have learned in real work. In addition, through the organization of disciplinary competitions, innovation and entrepreneurship projects and other activities,

we can further stimulate students' enthusiasm for practice and innovation potential, and comprehensively improve their comprehensive quality and employment competitiveness.

*5.3 Flexible and Innovative Curriculum: Meet Diverse Needs and Stimulate Learning Potentials*

In the face of the increasingly diversified learning needs and interests of students, colleges and universities should enhance the flexibility and innovation of the curriculum, and build a diversified curriculum system and learning path. By setting up elective courses, interdisciplinary courses, innovative experiments, etc., they provide students with a wider choice of space to meet the personalized learning needs of different students. At the same time, advanced teaching methods such as case teaching and project-oriented teaching are adopted to guide students to actively participate and explore, and to cultivate their critical thinking, problem-solving ability and teamwork ability. In addition, colleges and universities should encourage teachers to carry out teaching reform and research, explore new teaching models and evaluation mechanisms, and provide strong support for curriculum innovation.

*5.4 Deepening School-enterprise Cooperation: Promoting the Integration of Industry and Education and Realizing win-win Development*

Strengthening cooperation and communication with enterprises is an important way to realize the docking of curriculum content with industry needs. Colleges and universities should take the initiative to establish close contact with enterprises to understand the actual needs and employment standards of enterprises, so as to provide a scientific basis for the setting and adjustment of course content. By inviting enterprise experts to participate in curriculum design and teaching evaluation, they can jointly formulate curriculum standards and teaching plans that meet the needs of the industry, and ensure that the course content is closely connected with the market demand. At the same time, colleges and universities can also cooperate with enterprises to carry out scientific research projects, technical consulting and other services, to realize resource sharing, complement each other's strengths, and jointly promote the innovative development of the field of computer application technology. In addition, the establishment of long-term mechanisms for school-enterprise cooperation, such as the regular organization of school-enterprise cooperation forums, exchanges and other activities, to build bridges of communication between the two sides, and to promote the integration of industry and education, school-enterprise cooperation to a deeper level.

## 6. Case Study

*6.1 Reform Practice of Computer Application Technology Course in a University*

A university has carried out a series of reform practices to address the problem of the disconnection between the content of the computer application technology course and the needs of the industry. They firstly updated the course content and increased the introduction and application of cutting-edge technologies such as artificial intelligence and big data; secondly, they strengthened the practical teaching link and established internship bases and joint laboratories in cooperation with enterprises;

and finally, they enhanced the flexibility and innovativeness of the courses and set up elective courses and interdisciplinary courses. After several years of practical exploration, the teaching quality of computer application technology courses in this university has been significantly improved, and the employment competitiveness of students has been significantly enhanced.

*6.2 A Case of Recruitment of Computer Application Technology Talents in an Enterprise*

When recruiting computer application technology talents, an enterprise found that many applicants have solid theoretical knowledge but insufficient practical experience. In view of this problem, the enterprise decided to carry out cooperation with colleges and universities to jointly cultivate talents who meet the actual needs of the enterprise. They signed a joint training agreement with the university to jointly develop the curriculum plan and teaching plan; at the same time, provide internship opportunities and project experience, so that students learn and grow in practice. After several years of cooperative practice, the enterprise has successfully recruited a group of computer application technology talents with solid theoretical knowledge and rich practical experience, which provides strong support for the innovative development of the enterprise.

## 7. Conclusion and Prospect

This paper discusses the docking problem between the teaching content of computer application technology courses and industry demand, and proposes corresponding improvement strategies by analyzing the current industry development trend, enterprise demand and the current situation of college curriculum. The results of the study show that colleges and universities should update the course content, strengthen the practical teaching links, enhance the flexibility and innovativeness of the curriculum, and strengthen the cooperation and communication with enterprises to promote the docking between the course content and the industry demand. In the future, with the continuous development of information technology and the changing needs of the industry, colleges and universities should continue to pay attention to the development trend of the industry and the changes in the needs of enterprises, and constantly adjust and optimize the course content and teaching plan, so as to contribute to the cultivation of more high-quality talents in computer application technology in line with the needs of the society.

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