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Research on the cultivation mode of composite talents in computer majors in local undergraduate colleges

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Abstract

With the continuous promotion of the national strategy of "Internet plus" and the continuous upgrading of industry, the new generation of information technology is deeply integrated into all walks of life, becoming a new engine of economic growth. As an important component of higher education, local undergraduate colleges shoulder the mission of cultivating compound talents that meet the needs of local economy and society. This article is based on the certification of engineering education majors, combined with the needs of local regional eco-nomic development, to explore the talent cultivation mode of professional and industrial integration, in order to provide theoretical support and practical refer-ence for talent cultivation in local undergraduate colleges.

Keywords

Local undergraduate colleges; Computer science major; Versatile talent

1. Introduction

The report of the 20th National Congress of the Communist Party of China clearly pointed out that education, science and technology, and talent are important foundations and strategic supports for the comprehensive construction of a socialist modernized country. With the promotion of the national strategy of "Internet plus" and industrial upgrading, the new generation of information technology is deeply integrated into all fields, becoming a new engine of economic growth. In the face of a new round of technological revolution, technological progress, and changes in the industrial landscape, the talent training model needs to be reformed and innovated. Its goal is to cultivate compound talents with innovative ability, practical ability, cross-border ability, and the ability to adapt to changes and solve problems. In the future, the high-quality development of the industry not only requires more computer professionals, but also urgently needs high-level composite talents with

solid professional theories and technical foundations, as well as familiarity with related industries and businesses. Talents with a "computer major+industry background" will be particularly in high demand. In order to better meet the needs of high-quality industrial development, computer related majors must promote innovative reforms in the talent cultivation mode of "professional+industry" deep integration, which has become an inevitable trend of development.

2. Current situation of cultivating composite talents in computer majors in local undergraduate colleges

2.1. There is a shortage of applied computer talents in the industry

The widespread application of new generation information technology has led to a surge in demand for high-quality talents who possess relevant technologies and can effectively integrate them into industry development. However, under the traditional engineering education model, graduates generally lack industry awareness and cross-border integration ability, especially in the areas of industry application and complex engineering problem solving, where talent is particularly scarce. With the acceleration of digitalization, various industries have become increasingly reliant on computer applications. Only composite talents who possess both professional skills and familiarity with industry operations can stand out in the wave of digitalization.

2.2. The integration between the curriculum system and the industry is insufficient, and practical teaching lacks comprehensive training

Practical teaching is the key to cultivating applied talents, but the current practical courses in undergraduate computer majors have low industry integration, scattered resources, and insufficient challenges, making it difficult to effectively enhance students' ability to solve complex engineering problems. The certification of engineering education emphasizes this ability, and its core comes from the actual production environment. Therefore, it is necessary to deeply explore industry application scenarios, optimize practical teaching content, and improve the pertinence of talent cultivation.

2.3. Industry background, weak teaching staff

The cultivation of high-level industrial talents cannot be separated from "dual qualified" teachers with engineering backgrounds. However, due to the salary advantage in the computer industry, talents with engineering literacy are more inclined to enter the industry, resulting in a shortage of dual qualified teachers in universities. In addition, doctoral education in computer science in universities focuses more on theoretical research and lacks practical experience in the industry, further exacerbating the shortage of high-quality faculty. At the same time, some colleges and universities' teacher assessment systems focus more on scientific

research output and ignore industry demand. In addition, with rapid updates in computer technology, if existing teachers lack continuous training, it can easily lead to a disconnect between teaching and industry. Therefore, it is necessary to strengthen the training of teachers with industrial backgrounds to ensure that teaching content keeps pace with industry development.

3. Optimization path for the cultivation mode of composite talents in computer majors in local undergraduate colleges

3.1. Co construction between schools and enterprises, innovative training mode

Based on the construction of computer science disciplines, promote the deep integration of professional teaching and industry enterprises, and explore the "professional+industry" talent training model. Collaboration between schools and enterprises to develop talent cultivation plans, introduce industry standards, adjust course content, build shared teaching resources and faculty teams, and improve the quality of practical teaching. In response to job demands in software engineering, artificial intelligence, big data, and other fields, enterprise engineering cases will be integrated into the curriculum to optimize practical activities and enhance the industry adaptability of talent cultivation.

3.2. Optimize the curriculum system and strengthen practical teaching

Based on market demand, establish a course system of "general education+professional core+advanced practical training", introduce enterprise cases, and form an integrated model of "course competition certificate post". Through a four layer progressive training system of "cognitive perception simulation experiment project practice innovation and entrepreneurship", the course practice content is updated annually, an online and offline resource library is built, and students are encouraged to obtain industry certifications to enhance their professional competitiveness.

3.3. Combining industry demand and implementing layered transformation of practical teaching

Collaborate with multiple industry enterprises to reconstruct the practical teaching process and construct a four tiered progressive model covering industry cognition, basic training, comprehensive innovation, and competition practice. Integrating industry awareness education into general education courses, professional introductions, and other courses based on industry cultural background to cultivate students' professional ethics. Select industry case studies to optimize experimental courses and enhance their applicability and challenge. Build an industry applied innovation project library, introduce real business scenarios of enterprises into curriculum design, academic year design, and enterprise practice, and enhance

students' engineering practice abilities.

3.4. Jointly build training bases and establish innovation and entrepreneurship platforms

Promote school enterprise cooperation, establish "professional+industry" training bases, and create an applied talent training platform. Build a "computing+industry" innovation and entrepreneurship space, introduce the latest technologies from enterprises, promote teacher participation in school enterprise cooperation, and enhance students' subject competition and practical innovation abilities. Provide diverse internship opportunities to expose students to cutting-edge technologies in the industry, enhance their employment competitiveness, strengthen school enterprise cooperation, share scientific research resources, and promote parallel talent cultivation and technological innovation.

3.5. Building a 'dual teacher' teaching staf

Strengthen the training of "dual qualified" teachers, promote their participation in corporate training and project development, and enhance their practical abilities. The school enterprise joint construction of teaching staff team strengthens teachers' industry experience through collaborative research, industry lectures, curriculum co construction, and other methods. Establish incentive mechanisms to encourage teachers to delve into the industry, carry out industry university research cooperation, and enhance the alignment between professional teaching and industry needs.

4. Conclusion

The construction of a comprehensive talent training model for local undergraduate universities under the background of new engineering requires multiple efforts and reforms.With the continuous advancement of technology and the diversification of industrial demands, the talent training system for computer application technology majors needs to be further optimized.In the "Internet plus" era, computer professionals play a key role in the process of informatization and intelligence in various industries by virtue of their technological advantages. Local undergraduate colleges should aim to cultivate high-level composite talents, establish a "professional+industry" integration model, deepen the integration of industry and education, and jointly build a "computer+" talent training system with industry leading enterprises. While improving students' ability to solve complex engineering problems, they should fully utilize industrial resources, enhance practical experience and employment competitiveness, achieve precise docking between talent training and industry demand, meet the industry's demand for composite talents, enhance graduates' practical ability and employment competitiveness, and provide high-level applied talents for the industry.

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