

ChatGPT Exploration on the cultivation of innovative and entrepreneurial talents in computer science under the background of artificial intelligence

Dingchao Zheng

Zhejiang Dongfang Polytechnic, Wenzhou325200, China

ABSTRACT

The emergence of ChatGPT is profoundly changing the application scenario and development direction of artificial intelligence technology, and bringing new development opportunities for all walks of life. In this context, the training mode of computer professionals in higher vocational colleges is in urgent need of innovation and upgrading to meet the demand of the industry for innovative and entrepreneurial technical talents. Higher vocational colleges should accurately grasp the development trend of artificial intelligence technology, combine the actual level of students, and scientifically design the talent training program. This paper will focus on the construction of teaching system, the construction of practice platform, the integration of industry and education, and the improvement of the guarantee mechanism, explore the appropriate training path of innovative and entrepreneurial talents, and provide reference for improving the training quality of computer professionals in higher vocational colleges.

KEYWORDS

ChatGPT; higher vocational colleges; computer major; innovation and entrepreneurship; talent training

ChatGPT is a large-scale language model developed by OpenAI, and its powerful natural language processing and knowledge integration capabilities open up a new direction for the application of artificial intelligence. In the field of education, ChatGPT can assist teaching resources, provide personalized learning support, and enhance the interaction between teachers and students. Innovation and entrepreneurship education is an important part of talent training in higher vocational colleges, which aims to cultivate students innovative thinking, entrepreneurial consciousness and practical ability. The innovation of integrating ChatGPT technology into talent training mode is helpful to improve the quality of education and teaching. Therefore, it is of great practical significance to explore the reform and innovation of higher vocational colleges based on ChatGPT.

1 Improve the construction of the teaching system and optimize the implementation plan of the training

Under the wave of artificial intelligence caused by ChatGPT, the construction of the teaching system of computer major in higher vocational colleges needs to keep pace with The Times and be based on the actual level of students. The reconstruction of professional curriculum system should

adhere to the principle of "hierarchical and progressive, prominent application", and reasonably embed AI technical knowledge modules into the existing curriculum system. The Python programming foundation, AI application overview and other contents are integrated into the professional basic courses to help students establish the basic cognition of artificial intelligence. The professional core courses focus on practical technologies such as Web development and data processing, and appropriately introduce application contents such as ChatGPT API call and intelligent interaction design to cultivate students technical application ability^[1]. Innovation and entrepreneurship courses should be oriented to market demand, and courses such as network entrepreneurship practice and AI product design should be offered to strengthen students innovative awareness and entrepreneurial ability. The teaching implementation adopts the mixed online and offline teaching mode, and the smart classroom platform is used to carry out flipped teaching to improve classroom participation.

In practical application, Web front-end development course can be taken as a demonstration. Through the "2 + 2 + 2" teaching mode, namely, 2 class hours of online learning, 2 class hours of practical operation, students can master development skills step by step. Before the course begins, students can watch the micro class video on the intelligent classroom platform and complete the online exercises to understand the key points of basic knowledge in advance. In class, teachers can take the development of campus second-hand trading platform as an example to demonstrate the technical steps such as HTML structure layout, CSS style design and JavaScript interaction implementation, so as to help students understand the practical application more intuitively. Then, in the practice link, teachers can also guide students to complete the development of user registration, commodity display and order processing modules, and gradually enhance their practical ability. In terms of course assessment, a multiple evaluation system can be designed, setting the usual score to 60%, among which online learning, classroom participation and project completion account for 20% each, while the final assessment accounts for 40%. Students are required to complete the project design of the specified module within the specified time to comprehensively investigate the learning effect. In addition, a "tutorial system" mechanism can be established to invite senior students to serve as teaching assistants and provide after-school tutoring and q & A for students with weak foundation to help all students effectively participate in the course and improve their skills.

2 We will build a practice platform for mass entrepreneurship and innovation, and strengthen the capacity training system

Under the wave of artificial intelligence caused by ChatGPT, the construction of the practice platform for computer majors in higher vocational colleges should be based on the actual level of students and focus on the cultivation of basic abilities. The platform construction should adopt the idea of hierarchical and progressive progress, and build the ability training system of "basic skills + project practice + entrepreneurial experience". At the basic level, we will focus on building basic practice environments such as programming training room and Web development studio, equipped with necessary development equipment and testing tools, so that students can master core programming skills in practice. The project practice link can introduce the small and medium-sized enterprise development tasks, so that students can start from the basic work such as web page production and mobile terminal development, and gradually improve their practical ability. Entrepreneurial practice can be project-based to encourage students to make innovative attempts around application scenarios close to life such as campus digitalization and small program development. In the design of the training system, we should pay attention to the step by step from

easy to difficult, so that the difficulty and innovation requirements of the project should be matched with the students cognitive level. At the same time, a mentor support mechanism will be established, where professional teachers will provide technical guidance, and enterprise mentors will share practical experience to help students overcome learning obstacles and build learning confidence.

In practice, we can start with the construction of Web full-stack development training room, configure 30 computers for development, and build the basic environment for front and rear end development. The course system is designed along the route of "HTML / CSS basic JavaScript programming Vue Framework application Node.js back-end development", gradually improving students development ability, and equipped with corresponding training projects at each stage. Students will gradually master practical development skills by developing projects close to life, such as campus second-hand trading platform and curriculum resource management system. For students with outstanding performance, the school can arrange them to take over the small development tasks outsourced by enterprises, such as the revision of the enterprise official website or the development of small program functions, so that students can accumulate project experience in practice. The school can also hold innovative works exhibition every semester, set up "Best Application Award", "Technology Innovation Award" and other awards, and provide the follow-up development fund support of 3000-5000 yuan for outstanding projects. At the same time, the school can hire enterprise technology supervisors as innovation mentors, and organize a project experience sharing meeting every two weeks, so that students can better understand the actual development process and technology application of enterprises, and enhance their actual combat ability.

3 We will deepen the mechanism of integrating industry and education, and expand the channels for school-enterprise cooperation

In the context of the rapid development of ChatGPT and other artificial intelligence technologies, the integration of industry and education in higher vocational colleges needs to start from the actual ability of students and find the appropriate entry point for cooperation. The integration of industry and education should be based on the characteristics of higher vocational education, and promote cooperation step by step through the joint construction of schools and enterprises, the development of basic technology courses, and the training of practical talents^[2]. Enterprises can provide basic development environment and simple practical project modules, so that students can gradually master the technical application skills from data processing, page development, function testing and other basic work; by optimizing the course content, cultivate technical talents with good professional quality. In terms of talent training, both the university and the enterprise jointly develop training programs in line with the law of students cognition, and transform the requirements of grassroots technical positions in enterprises into step-by-step teaching content to ensure that the teaching difficulty matches the students acceptance ability. At the same time, the flexible cooperation mechanism can be established to start from simple project tasks, so that students can build confidence in practice and improve their learning enthusiasm. This pragmatic integration of industry and education not only respects the learning characteristics of higher vocational students, but also can meet the needs of enterprises for basic technical talents.

The integration of industry and education can start from the "Web Application Development Training Room" jointly built by schools and enterprises, and provide students with practical operation opportunities by building a basic development environment. Enterprises can arrange technical personnel to come to school 1-2 times a month to give project guidance, and help

students improve their practical ability in the development of basic modules such as web page production, data entry and interface testing. In order to enable students to gradually master the skills, both schools and enterprises can jointly design case banks in line with the cognitive characteristics of higher vocational students, and arrange practical training projects from easy to difficult. After the basic training, students can arrange internships, participate in the official website maintenance, small program development, data processing and other practical projects, and gradually accumulate experience. For outstanding students, enterprises can provide the opportunity to enter the grassroots technical positions. In addition, the training room can maintain the operation by undertaking small technical service projects of enterprises, to ensure the moderate difficulty and moderate quantity of the projects, so as to realize the sustainable development of the integration of industry and education.

4 We will improve the support and guarantee system and improve the incentive and restraint mechanisms

Under the background of the rapid development of ChatGPT and other artificial intelligence technologies, the construction of the support system for the training of innovative and entrepreneurial talents in higher vocational colleges needs to be more pragmatic and effective. The construction should be focused on teacher training, policy support and resource guarantee. The construction of teachers should start with the improvement of basic teaching ability, and help teachers master the application methods of mainstream development tools by organizing practical technical training such as Python and Web development. Select backbone teachers to participate in enterprise practice, understand the status quo of enterprise technology application, and accumulate project development experience. At the level of policy and system, a flexible workload identification mechanism should be established, and practical activities such as guiding students to participate in project development and innovation competitions should be included in the workload assessment of teachers. Special funds will be set up to support teachers participation in technical training and enterprise practice, and appropriate rewards will be given to teachers who perform well in innovation and entrepreneurship education. In terms of resource guarantee, priority should be given to meet the construction needs of basic training environment, and develop necessary hardware and software facilities to provide a stable practice platform for students. Establish a project incubation fund pool, give appropriate support to students innovation and entrepreneurship projects, and stimulate the enthusiasm of students to participate in innovation practice.

In concrete implementation, can set up "young teachers growth plan", each semester 4-6 practical technical training lectures, help teachers master the Web front-end development, small programming, database application technology, at the same time send teachers to cooperative enterprises for 2-4 weeks of practice, directly involved in enterprise project development to enhance the practical experience. In order to encourage teachers to invest in innovation and entrepreneurship education, the project workload identification standard can be established. For example, the workload of guiding innovation and entrepreneurship projects can be converted to 8-12 hours, and guiding students to participate in professional skills competition can be converted to 16-24 hours. In addition, a special fund for teacher development of 50,000 to 100,000 yuan per year is set up to support teachers technical training, enterprise practice and innovation project guidance. In terms of laboratory construction, to meet the basic needs of Web development and mobile application development as the goal, configuration development with computer, testing equipment infrastructure, and set up 30000-50000 yuan of student innovation project funding, through the

review project 2000-5000 yuan start-up capital support, encourage students to actively participate in innovation projects, further enhance their practical ability.

5 Tag

In the context of artificial intelligence reform caused by ChatGPT, the training of innovative and entrepreneurial talents in higher vocational colleges should be based on the educational reality and grasp the context of technological development. Through optimizing the teaching system, building a practice platform, deepening the integration of industry and education, improving the guarantee mechanism of education and other multi-dimensional measures, a scientific and reasonable talent training program will be formed. We should always be student-centered, pay attention to the cultivation of basic abilities, and appropriately integrate them into the application of AI technology, so that innovation and entrepreneurship education can be implemented. In the future, it is necessary to continue to optimize the training mode to provide more high-quality technical talents with professional skills and innovative spirit for the computer industry.

Funding

The Teaching Reform Research Project of Zhejiang Dongfang Polytechnic in 2024 (DF2024JGYB36)

About the Author

Zheng Dingchao (1991-), male, Han, Wenzhou, Zhejiang, associate professor, Postgraduate qualifications, research direction in vocational education, computer technology

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