Countermeasure Study on the Construction of Curriculum System of Artificial Intelligence Professional Group

Wenhua Zhang

Shandong Xiehe University, Jinan, Shandong, China

zhangwenhua@sdxiehe.edu.cn

Abstract: Artificial intelligence has become a national strategy with broad market prospects. At present, there is a serious imbalance between the supply and demand of AI talents in China. As the core of professional group construction, the construction of curriculum system is an important carrier for the realization of professional talent training objectives. This paper analyzes the existing problems in the curriculum system of artificial intelligence specialty group, puts forward 5 tips: establishment of Industrial College, optimize and integrate curriculum resources, highlights the characteristics of practical teaching, practice and training base jointly built by schools and enterprises, improve the management and evaluation mechanism. It helps to achieve the goal of training talents in artificial intelligence professional group.

Keywords: Modern industrial college, Artificial intelligence specialty group, Curriculum system construction

1   Introduction

With the rapid growth of artificial intelligence related industries and the vigorous rise of the "four new economies", the quantity and quality of compound applied talents have become the key bottleneck restricting the rapid development of new infrastructure related fields[1]. At the 2023 World Artificial Intelligence Conference Artificial Intelligence talent Summit Forum, the Secretary of the Party Committee of Fudan University pointed out that "the total talent gap in the field of artificial intelligence in China is 5 million." There is a serious imbalance between the supply and demand of AI talents, and the requirement of posts for talents is more emphasis on practical ability and innovative ability, which leads to a more urgent demand for AI talents[2-4]. Therefore, increasing personnel training has become a top priority. The construction of curriculum system, the core of specialty group construction, is an important carrier to achieve the goal of professional talent training.

2 Prominent Problems in the Existing Curriculum System of Professional Groups

2.1 Inaccurate Positioning of Teaching

At present, the requirements of artificial intelligence posts for talents are more emphasis on practical ability and innovative ability, so the teaching focus of artificial intelligence professional group is to cultivate students' professional ability to think and solve practical problems by using artificial intelligence related knowledge, and to cultivate the comprehensive quality of skilled artificial intelligence talents[5]. At present, in the curriculum system of artificial intelligence specialty group in many application-oriented colleges and universities, the proportion of basic theoretical knowledge is too large, and the courses set up often can't keep up with the trend of the times, and it is difficult to meet the needs of the actual market. In this way, the knowledge that students learn is limited to simple learning, but lacks the necessary hands-on and innovation. As a result, the learning effect of students is not ideal and they can't adapt to the real society.

2.2 Monotonous Teaching Resources and Methods

At present, in application-oriented colleges and universities, the resources used by teachers in the teaching process are often limited to the materials attached to textbooks[6-8]. However, on the one hand, these data are relatively small, on the other hand, they are not closely related to reality. Some teachers can integrate the curriculum resources into the online teaching platform, but they often simply list the materials, which is not logical and systematic. In addition, teachers are often confined to traditional teaching methods in the teaching process, teaching knowledge in class and consolidating knowledge after class. Teachers' teaching methods are monotonous, which leads to students' low learning enthusiasm and low interest in learning.

2.3 Lack of Characteristics in Practice Teaching

At present, in the teaching process of artificial intelligence specialty group in many application-oriented colleges and universities, although practical training courses are generally offered and the proportion of class hours is constantly increasing, there are still some problems. First of all, the design of training courses is lagging behind and updated slowly. Practice and training are generally carried out in the campus laboratory. It is difficult to teach students the cutting-edge skills and technologies in the artificial intelligence industry, which can't meet the needs of the real market. Secondly, the practical training courses offered are basically based on theoretical learning, which are highly dependent on theoretical courses, lack of practical characteristics, and are obviously different from the practical requirements of reality[9-10]. Thirdly, the training teaching time is generally one to two weeks, which is relatively short, and the training content is too fragmented, lacking effective systematicness and reality. Therefore, in this mode, students lack of orderliness and systematicness in mastering professional

knowledge, and lack of effective understanding of knowledge. As a result, the enthusiasm of students to participate in teaching is not high, and the learning effect is not ideal. It is difficult for students to feel the actual working environment of AI enterprises, and the practical ability required by real jobs can't be fully exercised, which can't achieve the training goal of skilled talents.

2.4   Lack of off Campus Practical Training Teaching Bases

At present, the practice teaching environment of artificial intelligence professional group is mainly the laboratory inside the school and the practice training base outside the school. In general, for the laboratory inside the school, due to the lack of funds, the hardware and software investment is insufficient, the update is slow, and it is difficult to adapt to the rapid development of the artificial intelligence industry market, so the professional practice teaching is relatively weak. In terms of off-campus practice and training bases, the cooperation and exchanges between universities and enterprises are less, so the bases are less and the construction is not ideal.

2.5   Imperfect Management and Evaluation Mechanism

To ensure the smooth progress of the course and achieve the desired teaching effect, management and evaluation include curriculum management, teacher management, student management, etc. At present, in the teaching management of some application-oriented colleges and universities, there are some phenomena such as inadequate management and imperfect system. For example, in the process of students' off-campus practice, schools and employers have not established a sound tracking mechanism for the management of students during their practice, which makes the management of students in the process of practice in a state of absence, and ultimately leads to the teaching practice base can't give full play to the role of teaching.

3   Suggestions and Countermeasures

3.1   Establishment of Industrial College

School-enterprise cooperation is to implement the innovation-driven development strategy in an all-round way, actively connect the superior industries, key enterprises and leading enterprises of artificial intelligence, establish industrial colleges, help the effective connection between school talents and enterprise needs, form a pattern of mutual promotion and common development of disciplines, specialties and industries, and achieve a win-win situation between schools and enterprises. Focusing on the IT industry chain, technology chain, talent chain and innovation chain with artificial intelligence as the core, we will build a high-quality IT talent training plateau to serve regional development. At the same time, the establishment of industrial colleges can make application-oriented colleges and universities understand the actual needs of enterprises

for the quality of talents, and become an important basis for the formulation of personnel training programs. It can also integrate practical courses with real job work, and enable students to transform professional knowledge into business and technical ability in enterprise practice through off-campus training, post practice and other teaching links.

3.2   Optimize and Integrate Curriculum Resources

With the aim of training the post vocational skills and post adaptability of the industrial chain connected by the artificial intelligence professional group, we should strengthen the construction of first-class courses. First, relying on the online teaching platform, establish all kinds of resource banks. In view of students' employment needs, vocational qualification examination needs, and further education needs, we should establish a resource bank with characteristics. Second, carry out online and offline blended teaching and project-based teaching. Teachers should further reform classroom teaching, change students' learning habits and behavior patterns, and promote students' autonomous, ubiquitous and personalized learning. Thirdly, school teachers and enterprise teachers cooperate to build curriculum resources. While learning theory, students can get in touch with the actual engineering cases of enterprises and be in line with the actual needs.

3.3   Highlights the Characteristics of Practical Teaching

First of all, further increase the proportion of practical teaching hours. Secondly, according to the needs of the industrial chain, training courses are designed and constantly updated according to the actual needs. On the one hand, teachers use holidays to strengthen professional learning and practice, on the other hand, enterprise teachers are deeply involved in teaching. Thirdly, the training practice is dispersed to the whole semester to form a project and enhance the systematicness. Students can effectively understand the course knowledge and widely participate in practical projects, so that their practical ability and ability to solve complex projects can be fully exercised.

3.4   Practice and Training Base Jointly Built by Schools and Enterprises

Integrate the existing practical teaching resources of the school, and integrate the scattered experimental training resources into the training base of the professional group. Universities and enterprises work together to build a new on-campus training base for resource sharing. Joint school-enterprise cooperation units to build off-campus practice and training bases for professional groups to create a real professional environment for students.

With the development of school-enterprise cooperation as the main line, we should create an open platform for educating people inside and outside the school. That is, under the overall planning of the Industrial College, a professional sharing studio will be set up in the school, and students will complete basic discipline competitions and patent applications. School-enterprise joint construction of practice and training base, landing

specialty blending complex engineering projects, teachers and students to complete the project declaration and project research and development; Schools and enterprises jointly build industry-university-research service centers, focusing on the transformation of scientific research achievements and realizing product incubation. Through the three platforms of "studio, training practice base, production, teaching and research service center", collaborative education is realized.

3.5   Improve the Management and Evaluation Mechanism

Establish a more perfect management and evaluation mechanism with the help of the platform. For example, with the help of alumni state platform, in the process of students' off-campus internship, schools and employers track and manage students' internship. Establish an academic tutorial system. Counselors and full-time teachers have their own strengths. Counselors focus on helping students solve problems in life, while full-time teachers focus on helping students solve problems in learning. So that students can develop more comprehensively. Establish an effective curriculum evaluation mechanism, so that students, peers, leaders and supervisors can evaluate teachers' teaching together, so as to effectively urge teachers to constantly update teaching content and teaching methods, so as to make the classroom more efficient.

4   Conclusion

In view of the new demand for talents in artificial intelligence industry in the new era and new situation, this paper analyzes the outstanding problems existing in the curriculum system of artificial intelligence professional group, puts forward countermeasures. Through the research on the construction of curriculum system of artificial intelligence specialty group, it can play a certain reference role in the construction of curriculum system and the improvement of training mode of other specialty groups.

Acknowledgements

References

1. Liu X., Wu Z., Ye C., et al.(2023). Research on the Curriculum System Construction of Artificial Intelligence Undergraduate Specialty "Basic, Specialized, Interdisciplinary and Integrated" . Journal of Liaoning University: Natural Science Edition, 2023, 50 (1): 87-92.
2. Ma L., Zeng S., Hou Q., et al.(2019). Construction of Artificial Intelligence Curriculum System for Undergraduates' Scientific Research Ability Training. Education and Teaching Forum, 2019 (51): 2.

3. Zhao S., Yu Y.(2021). Curriculum System Construction of Artificial Intelligence Technology Service Specialty under the Background of Integration of Industry and Education. Computer Knowledge and Technology: Academic Edition, 2021 (27): 232-233,256.
4. Li H.(2020). Research on the Construction of Core Curriculum Group of Characteristic Accounting Specialty in Private Colleges and Universities under the Background of Artificial Intelligence —— Based on the Practical Exploration of Accounting Specialty in C College . Contemporary Accounting, 2020 (15): 2.
5. Tang L.(2021). Construction of hierarchical curriculum system of intelligent manufacturing specialty group under the background of artificial intelligence. Career Time and Space, 2021, 005 (003): 91-94.
6. Zhao X.(2022). Exploration and Practice of Ideological and Political Course of Artificial Intelligence Specialty Group in Higher Vocational Colleges. Journal of Zhejiang Industry and Trade Vocational and Technical College, 2022, 22 (4): 1-6.
7. Qin F. (2022). Ideological and Political Research on Information Technology Courses Shared at the Bottom of "Artificial Intelligence +" Professional Groups in Higher Vocational Colleges. Chinese Science and Technology Journal Database (Abstract Edition) Education, 2022 (1): 5.
8. Meng B.(2022). Exploration and practice of electronic information specialty group construction in higher vocational colleges under the background of artificial intelligence. Popular Science and Technology, 2022 (3): 149-152.
9. Song L., Wang L.(2022). Research on the Construction of Curriculum System of Modern Finance Specialty Group in Higher Vocational Colleges. Modern Commerce and Industry, 2022, 43 (16): 2.
10. Luo J., Liu L.(2020). Research on the Construction of Curriculum System of "Platform + Module" in Higher Vocational Characteristic Specialty Group under the Background of Integration of Industry and Education . Computers and Telecommunications, 2020 (4): 3.