



Development of Intelligent Science and Technology Discipline and the Construction of Core Curriculum Group

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Abstract. With the increasing demand for high-tech talents from the country and society, more and more universities have gradually taken measures to improve the quality of teaching. At present, many universities have gradually completed the construction of core curriculum groups in different disciplines and achieved initial results. Therefore, based on the major of intelligent science and technology, this paper explores the development of the discipline and the establishment of the core curriculum group, and proposes a series of construction strategies.

Keywords: intelligent science and technology · core curriculum group · construction strategy

1 Introduction

“Intelligence and informatization” has become the trend and trend of global scientific and technological development. The development and application of intelligent technology has gradually become the main innovation point of China’s IT industry. Therefore, to keep up with the global technological development trend, most universities in China have opened majors in intelligent science and technology. The main teaching purpose is to enable students to fully grasp the basic theoretical knowledge, skills, and operating methods of intelligent science and technology. With the gradual deepening of teaching in this major, the core curriculum group has emerged in order to improve the quality of teaching.

2 Concepts Related to Core Curriculum Groups

The curriculum group is a new curriculum construction mode that is relative to single-course teaching. Its main teaching purpose is to improve the cognitive structure and knowledge system of the same facility object. By discovering the logical connections between different courses and combining their common points in knowledge, methods, and problems, they are summarized, planned, and ultimately form a series of scientific and rational courses.

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A curriculum group consists of at least 3 courses (inclusive) [1]. It is required that there must be a certain correlation between the content and course system of each course. By integrating and reorganizing the curriculum, it can effectively reduce the repetition, omission, and errors between the courses.

The construction of a professional group is a systematic reform project, representing the development focus and direction of China's higher education institutions. Therefore, relevant teachers are required to change their traditional professional construction concepts, form professional groups based on market demand focus and talent training direction with diversified and open thinking, clarify the professional relationships within the group, and reconstruct the group's resources around the course as the core to achieve diversified talent training, optimize the management and operation mode of course teaching objectives [2].

3 The Development and Construction of Intelligent Science and Technology Disciplines

Since 2002, research and teaching activities related to intelligent science and technology have gradually increased in famous universities and laboratories at home and abroad. In foreign countries, President Vest (Massachusetts Institute of Technology) has organized and established multiple labs related to intelligent science within the school, such as the Computer Science and Artificial Intelligence Laboratory (CSAIL), and hired researchers with rich experimental capabilities to carry out teaching and research activities; Stanford University has also launched teaching and research activities in related fields, and selected students to participate in experimental activities within the school; the Computer Science School of Carnegie Mellon University established the world's top intelligent science laboratory, specializing in machine learning and intelligent systems research. In China, Peking University, as the leader of famous schools, successfully passed national approval under the discipline of computer science and technology, and was the first to establish the major of intelligent science and technology, which was approved as a national characteristic major. Following the continuous development of intelligent technology in China, Xi'an University of Electronic Science and Technology followed suit and opened the major of intelligent science and technology. As of 2022, more than 50 higher education institutions in China have opened majors in intelligent science and technology. The establishment of these disciplines has played a huge role in promoting the strong development of intelligent disciplines [3].

4 Necessity of Constructing Core Curriculum Groups

4.1 Effective Extension Based on the Major of Intelligent Science and Technology Courses

The establishment of the intelligent technology application curriculum group mainly undertakes the teaching task of the application technology courses of the major of intelligent science and technology. The main teaching contents include natural language processing, biometric recognition, business intelligence, knowledge engineering, intelligent optimization and its applications, and computer game programming and other professional courses.

4.2 Adapting to the Trend of Modern Information Science Development

From the perspective of the development direction of today's society, the construction of the intelligent technology application curriculum group can help university students better adapt to the high-speed development of information science, break the limitations of single-course learning, and broaden students' professional perspectives by organically combining the knowledge points of various courses. The establishment of the intelligent science and technology curriculum group is conducive to combining the latest intelligent theories with cutting-edge application technologies, and various characteristic professional courses have been added, such as natural language processing, biometric recognition, virtual reality and intelligent games.

4.3 Comprehensive Improvement of Students' Professional Level

The construction of the core curriculum group breaks the singularity of traditional curriculum teaching, not only conforms to the trend of information technology development in today's society, but also meets the professional learning needs of contemporary university students. This allows university students to focus more on professional course learning, thereby achieving better learning results and improving their professional level [4].

5 Construction Strategy Analysis

5.1 Innovative Teaching Methods

The development of the major of intelligent science and technology cannot be separated from the strong promotion of practical courses. Therefore, through the establishment of the core curriculum group, teachers should adopt diversified teaching methods. In addition to basic theoretical teaching, teachers can organize students to participate in more related field lectures or regularly organize class discussions. In addition, active experimental teaching is essential. Figure 2 shows the structure diagram of the core curriculum group for intelligent game development.

5.2 Optimizing the Assessment Form

After the establishment of the core curriculum group, certain innovations need to be made based on the traditional curriculum assessment mode. This article proposes to use large assignments as the form of course assessment, including large assignment scores, experimental scores, and daily scores. The score distribution is shown in Fig. 1, and the specific operation is as follows:

From Fig. 1, it can be seen that the final project accounts for 60% of the total score, with the assessment focused on students' subject knowledge and practical skills, including a research paper, laboratory work, and classroom presentations, as shown in Fig. 2. The research paper should include specific problem descriptions, model or system establishment, analysis process, and conclusions.

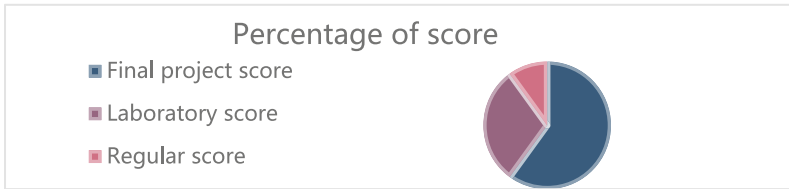


Fig. 1. Percentage of score

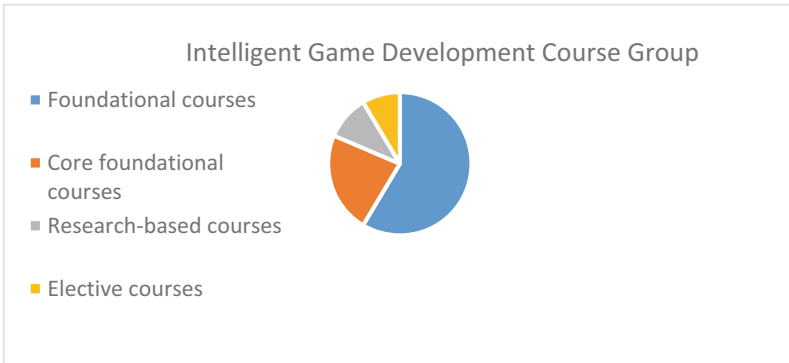


Fig. 2. Intelligent Game Development Course Group

5.3 Experiment Scores

Experiment scores mainly assess whether students are proficient in operating the established models or systems. Teachers can require students to write experimental reports or papers based on the actual teaching situation.

(1) Offering specialized research-oriented courses

Currently, organizing cutting-edge lectures has become a necessary course in many research-oriented universities. If it is an external teacher who is invited to give a lecture, the time and location of the lecture need to be arranged in a way that does not affect the students' learning of other courses [5].

(2) Displaying characteristic interdisciplinary teaching forms

Intelligent Science and Technology is characterized by its cutting-edge and interdisciplinary features. For example, a teacher from the School of Biology and a teacher from the School of Computer Science can jointly teach the course "Brain and Cognitive Science," the Business School can organize a course on Business Intelligence, and multiple labs can be jointly organized for the numerous experiments involved in this major. This way, not only can the practicality of this major be highlighted, but also the relevance can be emphasized based on the differences between different courses, thus maximizing the effectiveness of the discipline.

6 Conclusion

The establishment of a curriculum group is a mainstream trend in the development of higher education in China. With the establishment of curriculum groups in various universities in China, their teaching significance has had a profound impact. This article proposes innovative teaching methods, optimized assessment forms, the organic combination of teaching and academic competitions, the enrichment of course content through lectures, the strengthening of professional practice courses, the offering of specialized research-oriented courses, and the display of characteristic interdisciplinary teaching forms as core strategies for the establishment of a curriculum group, based on the development of Intelligent Science and Technology.

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