



Exploration and Practice of Content Reconstruction of “Mobile Communication Technology” Course in the Context of the Dual-Creation Education

Bin Zhou^{1(✉)}, JinJun Cheng², and CongHua Lan¹

¹ Department of Electronics and Information Engineering, Lanzhou Institute of Technology, Lanzhou 730050, Gansu, China
610073363@qq.com

² Lanzhou Furuide Technology Co. LTD., Lanzhou 730050, Gansu, China

Abstract. Classroom teaching is the main front for colleges and universities to carry out dual-creation education. Applied undergraduate colleges urgently need to accelerate the deep integration of the dual-creation education and the teaching of specialized curriculum To develop professional courses rooted the concept and content of dual-creation. The concept of dual-creation is infiltrated into every specialized curriculum. To fully stimulate the potency of each student and enrich the education resources of various professional courses. The teaching of professional knowledge is integrated with the training of innovation and entrepreneurship ability. To crack the “two skins” of innovation and entrepreneurship education and professional education, and to realize the revolution in professional education classrooms, it is an effective measure to deepen the reform of innovation and entrepreneurship education.

Keywords: Mobile Communication Technology · Refactored course content · Dual-creation education

1 Introduction

In 2015, The State Council made it clear that the reform of entrepreneurship and innovation education in colleges and universities would be comprehensively deepened, “Opinions on Deepening the Reform of Innovation and Entrepreneurship Education in Colleges and Universities” clearly proposes to promote the organic integration of professional education and dual-creation education, to reconstruct and develop the dual-creation education resources of professional courses and to comprehensively enhance students’ innovative spirit, entrepreneurial awareness and dual-creation ability. In 2018, the State Council issued “The Opinions on Promoting high-quality Development of Innovation and Entrepreneurship and upgrading mass Entrepreneurship and Mass Entrepreneurship”, It have set higher requirements for mass entrepreneurship and innovation, aiming to further implement the innovation-driven development strategy and advance supply-side structural reform. “Notice of the General Office of the Ministry of Education on The

Construction of Demonstration Colleges and Universities for Deepening innovation and Entrepreneurship Education Reform in 2019” further requires that the work focus on the construction of characteristic demonstration courses of “specialization and innovation integration”. These policies have created a favorable environment for promoting the integration of entrepreneurship and innovation education and professional education.

In order to enhance communication engineering students’ training quality and level of scientific research innovation and research on the basis of “enterprise leading, school oriented, teachers and students participation, school implementation” the university personnel training mode, to make the plan carried out between the school and the enterprise, and to build a fully functional ICT technology practice teaching and scientific research platform. At present, the university has built ICT technology practice teaching environment, including 4G LTE mobile communication laboratory and intelligent learning environment and other industry practice platforms, to lay a platform foundation for comprehensively improving the quality of talent “entrepreneurship and innovation” ability training and serving regional economic construction. In addition, our university has officially joined the National University Innovation and Entrepreneurship Education Alliance, “Information and Communication Engineering” has become a provincial key discipline, ICT Collaborative Education Experimental Teaching Center has been rated as “Provincial Experimental Teaching Demonstration Center”, communication Engineering has been rated as “Gansu Province Innovation and Entrepreneurship Education And Teaching Reform Pilot Major”. It has provincial experimental platforms such as “Resources and Environment Informatization Engineering Laboratory of Gansu Province” and “Environmental Informatization Gansu International Science and Technology Cooperation Base”, A● Force Innovation Space of Lanzhou Institute of Technology, and Floating point e-commerce Innovation and entrepreneurship Base of Gansu Province. All these have laid a solid foundation for the development and implementation of the project.

2 The Idea of the Reconstructed Course Content

Taking the “Mobile Communication Technology” course as an example, based on the students’ professional, employment and the need of long-term development, to reconstruct the professional course content system of the “two innovation three line” (professional skill line, capacity line of dual-creation, the line of the ideas and methods, teaching and learning methods’ line [1, 2]), to break through the weak links of personnel training, to improve the talent training quality.

The curriculum is the implementation unit and carrier of the talent Cultivation, and it is the key to improving the quality of talent training. The cultivation of dual- creation ability is rooted in the teaching of professional courses, which is a powerful measure to integrate dual- innovation education into the whole process of talent training, and an important way to integrate double innovation education and professional education. Figure 1 is to take the “mobile communication technology” course as the object, to reconstruct the course content according to the characteristics of student development and the course itself, the three main lines covered in Fig. 1 are:

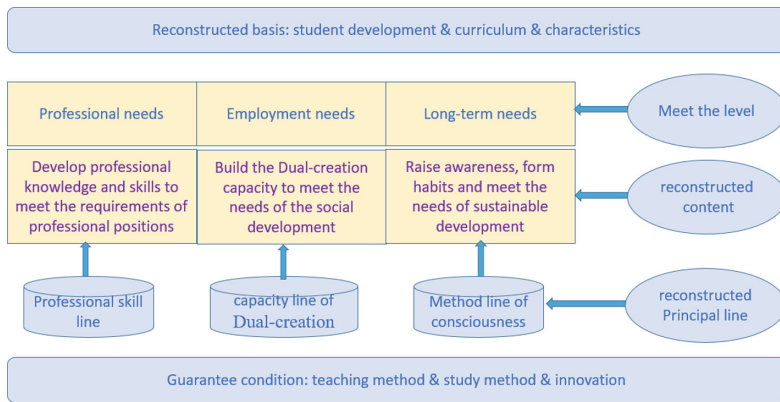


Fig. 1. Reconstructed content system of professional courses

- (1) Cultivate students’ skills to adapt to the needs of the position and meet professional development.
- (2) Cultivate students’ ability to adapt to the needs of society and competition, and meet the needs of employment.
- (3) Cultivate students’ awareness and mastery of the methods necessary to achieve sustainable development, so as to meet the needs of long-term development.

The three main lines integrate and promote each other to form a new curriculum content system with symbiotic effects.

3 Implementation Plan

This topic takes students as the center, reforms the traditional teaching content and modules [3], organically integrates the transfer of professional knowledge with the training of double creation ability, carries out the teaching concept of “special innovation integration” curriculum reconstruction, and constructs the course content system of “three lines and two innovations”, the concept and content of dual-creation are rooted in the course teaching module [4], forming the teaching process corresponding to the position work process, the concept and method run through the whole process of the course, and pay attention to the cultivation of students’ sustainable development ability.

3.1 Build a Course Content System of “Three Lines and Two Innovations”

The traditional teaching content and mode are subverted, the working process of the enterprise is connected, the professional skill line is reconstructed and innovation ability line is developed according to the requirements of professional skills, and the modules corresponding to the concept and method line are constructed based on the overall development of students, as shown in Fig. 2.

Starting from the three needs shown in Fig. 1, the course content is optimized into the module corresponding to the professional skill line in Fig. 2 (course content rooted

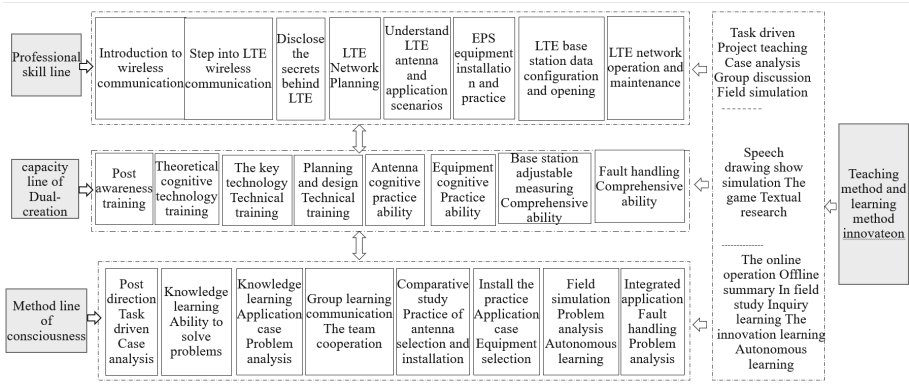


Fig. 2. Constructing the course content system of “three lines and two innovations”

in the concept of dual-creation). Training project corresponding to the ability of the dual-creation ability is developed, the work process and the teaching process’s comprehensive docking is realized. to pay attention to the heavy responsibility of the course “teaching people to fish”, to embed the concept and method into the whole process of the course, and it devote itself to the cultivation of students’ sustainable development ability, not only to respect the students’ learning rules, but also to cultivate students’ independent learning. Active problem-solving awareness and lifelong learning habits of continuous innovation and continuous optimization [5, 6].

3.2 Developed the Training Program of Dual-Creation Ability

According to the specific knowledge and ability requirements of each module corresponding to the professional skill line in Fig. 2, the corresponding dual-creation ability training program is developed, which not only meets the job skill requirements, but also corresponds to and serves the professional skills training. Aiming at eight professional skills modules in Fig. 2, the dual-creation ability training program was developed, including the cultivation of job cognition awareness and theoretical understanding technology. For example, there is a knowledge module in the “Mobile Communication Technology” course that is “to understand LTE antennas and application scenarios”, and its core knowledge points are to understand the meaning of important antenna parameters and master the installation specifications; The core skill is to master the correct installation method of the antenna; The design principle of the dual-creation ability training program is centered on the cultivation of job skills and the awareness of standardized construction. According to this idea and method, the course content is sorted out and the project is developed to achieve the corresponding double creation ability training goal [7].

3.3 Innovative the Methods of the Teachings and Learning

In order to ensure the achievement of the curriculum reconstruction goal of “three lines and two innovations”, it is necessary to innovate the teaching method and learning

method, which can be used as a task-driven, case-inspired, group learning, role play, situation simulation and other modes shown in Fig. 2, with the help of debate, display and other forms, to stimulate students' enthusiasm and initiative in learning, students in the process of completing the task to increase knowledge, master skills, develop habits, promote the synergy between teaching and learning, improve classroom efficiency.

3.4 Established the Training Model of “Platform Support, Practice Leadership, and Competition Traction”

In the process of implementing the program, such as the courses: “communication engineering project implementation”, “database principle and application”, and “web front-end development” were set up, which broadened the knowledge of students and laid a good foundation for subsequent students to participate in all kinds of competitions, such the IUUV Cup, TI Cup, College Student Innovation and Entrepreneurship Competition, and so on. Due to the rapid development of communication engineering-related technologies, so the students need to have a better sense of innovation and innovation ability to obtain better results in related competitions. In the course of course teaching, according to the current development of communication engineering technology, new technologies are constantly introduced to cultivate students' ability in various aspects of literature review, technology learning and scene application, etc., and at the same time, it also plays a complementary role in teaching.

By participating in the IUUV Cup competition, students can well test the teaching effect and the fun generated by the competition process can further stimulate students' interest in learning. In many competitions, the vast majority of students will participate in more than one competition, based on the experience of the first competition, further study, research, and consciously devote themselves to the process of innovative learning.

College students innovation and entrepreneurship competition and college students “challenge cup” are the kind of competition that must be considered to be realized, but also appropriate and in-depth research, and at the same time need to write reports, papers, etc., the comprehensive ability of students is relatively high, through this type of competition, can further improve the quality of students and comprehensive practical ability [8].

This project relies on platforms such as ICT industry-education integration innovation base, school-enterprise collaboration, to build a practice-led, science and innovation traction, encourage students to participate in various competitions, stimulate their sense of innovation and interest in innovation, and strengthen students' professional practice, dual-creation ability and job competitiveness.

3.5 Faculty Team Constructing

This topic teaching model need higher requirements for teachers, teachers not only teach the textbook knowledge but also need to incorporate innovative ideas, to have in-depth understanding of the teaching process and goal, and according to the course structure to choose a suitable line, under the condition of consistent with professional goals for moving forward; When teachers guide students to carry out various competitions, they also need teachers to timely understand the latest knowledge and technology required.

Therefore, in order to better guide the student to carry on the innovation practice, but also can effectively improve teachers' ability of business, achieved the effect of teaching is learning, teaching mode advocated in this topic also supervise and urge teachers to study and practice, deepen "training - application integration" model of development, teachers will rapidly grow into the excellent campus engineer.

4 Solved Problem

- (1) Solve the dilemma of "two skins" of dual-education and professional education, and to lay the foundation for promoting employment and entrepreneurship. Develop course content modules that are needed for docking positions and rooted in the concept of dual-creation, and to infiltrate the concept of dual-creation into every learning module to fully stimulate the potential ability of each student.
- (2) Solve the problem of employment and entrepreneurship and promote the all-round development of students. At present, the rapid development of communication technology, the demand for high-skilled and high-quality talents in communication engineering is very large, but there is an embarrassing problem of difficulty in employment of communication students, mainly because the students' own ability is not strong, lack of career planning, knowledge structure and social needs cannot be accurately matched, etc., and the teaching of professional courses rooted in the cultivation of double creativity can fundamentally change this situation.
- (3) Subvert the traditional classroom teaching model. In order to achieve the research goals, it is necessary to change the traditional classroom teaching style of filling and cramming, the student-led classroom will be built, that encourages communication and sharing, arouses the enthusiasm for classroom participation and learning fun, and improves classroom participation and classroom teaching effectiveness.

5 Conclusion

The curriculum is the implementation unit and carrier of personnel training and the key to improve the quality of personnel training. It is a powerful measure to integrate entrepreneurship and innovation education into the whole process of talent training, and an important way to integrate entrepreneurship and innovation education and professional education. Therefore, it is of certain epochal significance to explore the way of cultivating professional courses and innovative and entrepreneurial spirit, and to transport more high-quality skilled talents for the country.

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