

Research on the Integration Path of Innovation and Political Education in Hydraulic Transmission Course from a Shared Perspective

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Abstract: The course "Hydraulic and Pneumatic transmission" is based on hydraulic transmission knowledge, takes the training of innovative and entrepreneurial talents as the theme, adheres to the equal attention of professional education, innovation and entrepreneurship education and ideological and political education, integrates the resources of double and creative education from the three aspects of course implementers, course content and course practice carrier, optimizes the supply of course content through the "three small ways", and innovates the "one main body, two starting points". The "three integration, four positions" curriculum construction mode aims to explore the effective combination of innovation and entrepreneurship concept and curriculum ideology and politics in the curriculum teaching reform, so that students will integrate innovation consciousness into professional skills training, cultivate comprehensive talents with excellent innovation and entrepreneurship ability and good ideological and moral quality, and let students' professional skills, innovation and entrepreneurship ability and ideological cultivation go in the same direction.

Keywords: Resource Sharing; Integration of Innovation and Political Education; Curriculum Reform; Project-driven; Practice and Innovation.

1. Introduction

In the context of the era of innovation and entrepreneurship, Hydraulic and Pneumatic Transmission takes curriculum knowledge as the carrier to carry out the education of creativity and innovation integration, and cultivate talents in line with the core values of socialism and with the ability of innovation and entrepreneurship [1-2]. The construction of this course aims at the prominent problems of weak engineering ability and low level of "mass innovation" among graduates of mechanical majors such as mechanical design and manufacturing and its automation and mechanical and electronic engineering. Based on the school's orientation as an application-oriented undergraduate, the course attaches equal importance to professional education, mass innovation education and ideological and political education, and starts from the perspective of resource integration and sharing. Explore the effective combination of innovation and entrepreneurship concept and curriculum ideology and politics in curriculum teaching reform [3].

2. Present Situation of Curriculum Construction

"Hydraulic and Pneumatic Transmission" is a professional basic course for mechanical majors. It is a discipline that uses pressurized fluid to achieve transfer motion and control, and plays an important role in connecting basic courses and professional courses. In the traditional teaching system, the "monophonic" teaching of teachers will lead to the passive acceptance of knowledge by students, resulting in insufficient learning initiative and the lack of independent thinking and the ability to solve engineering problems. In terms of the comprehensive application of knowledge, the improvement of practical application ability in traditional teaching is mainly carried out through curriculum experiments, but the

experiments are mainly cognitive experiments, which do not have divergence and cannot better examine students' ability to use knowledge to design loops and analyze problems, nor can they teach students according to their students' characteristics to stimulate innovation consciousness. Improving the capacity of mass innovation and innovation is even less effective [4-5].

In view of the problems exposed in the course of teaching, the course team put forward new ideas for construction. In the specific implementation process, the project relies on the practice base of college students, takes the project as the orientation, adheres to the emphasis on professional education, innovation and entrepreneurship education and ideological and political education, and explores the integration of "specialized innovation and integration" and "innovative integration" according to the knowledge modules and application fields arranged by the course outline through the integration of case influence, example demonstration and value guidance. The competition practice and social practice should be integrated to enhance students' hands-on ability, stimulate innovation awareness, and cultivate innovation and entrepreneurship [6].

3. Curriculum Construction Ideas of Creative Integration from the Perspective of Sharing

(1) Strengthen the integration of ideas and creativity, target the course construction direction

Innovation and entrepreneurship education focuses on the initiation of innovation consciousness, while ideological and political education focuses on the transmission of correct values[7-8]. Through the integration of creativity and innovation, this course aims to cultivate young people with innovative practical ability who can practice the core values of socialism, accelerate the curriculum reform, and make the

effect of ideological and political education double in the value of entrepreneurship and innovation education; The effect of double creation education is sublimated by the development of ideological and political education. Therefore, innovation and entrepreneurship education and ideological and political education should be based on the same direction, rely on each other and promote each other, cultivate high-quality comprehensive talents with excellent innovation and entrepreneurship ability and good ideological and moral quality, and enrich the spiritual connotation of the curriculum.

(2) Share the resources of double innovation to stimulate the learning drive

Teachers actively lead student teams to carry out teaching research on innovation and entrepreneurship education and explore new teaching models: Based on hydraulic transmission knowledge, equipped with "Mechanical Innovation Design Competition", "Challenge Cup" and other college students' innovation and entrepreneurship competitions, explore the "hierarchical progressive, project diversification" innovative practical teaching mode of complementary integration of basic knowledge and practice expansion, and build a targeted, open, practical and comprehensive curriculum system. From the three aspects of curriculum implementer, curriculum content and curriculum practice carrier, the elements of double creation education and ideological education are integrated to realize resource sharing.

(3) Equipped with double innovation competition, innovative application of technology-based learning system

The curriculum construction is in line with the school's educational orientation of cultivating application-oriented undergraduate talents, with the promotion of double innovation ability as the main theme, adhering to the professional education, innovation and entrepreneurship education and ideological and political guidance, fully tapping the elements of ideological and political education, and showing the value pursuit and cohesion of knowledge itself to students from the aspects of family feelings, professional quality and moral education at multiple levels and angles, the body of knowledge is shown in Figure 1.

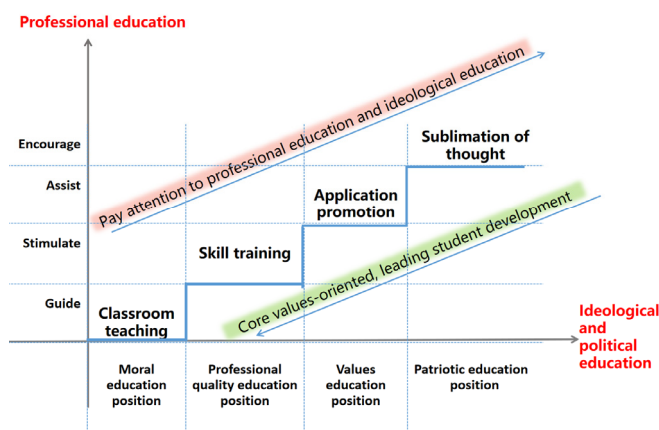


Fig 1. Applied technology-based innovative learning system

In the innovation practice stage, teachers should have superb information integration and practical operation ability, guide students to strengthen practical innovation according to the three levels of "learning knowledge in class, strengthening expansion after class, and emphasizing exploration in practice", carry out various innovation and entrepreneurship competitions and platforms, pay attention to "knowledge +

innovation" and "ideological and political guidance + innovative practice", and implement the strength point. The innovation consciousness maintained by the knowledge system and the value pursuit of the course are unified to shape the outlook on life, world outlook and values of college students, and help students to carry out innovation and entrepreneurship guided by the needs of the country and society, and innovate and form an applied technology-oriented learning system.

(4) Update the curriculum system and create advanced classes

The important way for students to link knowledge with practice is the construction of curriculum, which makes the curriculum system connect with ideological and political education, innovation and entrepreneurship education, and helps to better realize the integration of the two. In the course construction, based on the subject background, the project task drive is implemented in stages. The first stage is the enlightenment stage. In the inspiration stage, innovation and entrepreneurship content are integrated, focusing on the penetration of the basic theoretical education concept of "knowledge + innovation". Based on the teaching of basic knowledge of hydraulic transmission, students are asked to study and analyze the application and innovative development of hydraulic technology, and innovative thinking is transmitted to students through the course content to help students establish innovative consciousness. The second stage is the promotion stage. In the promotion stage, it is necessary to create an embedded integrated education curriculum system of "ideological and political leadership + innovative practice", pay attention to the combination of innovation with professional and social needs, and encourage students to land their creativity and enhance their innovation ability through practice.

4. Create "One Main Body, Two Grips, Three Integration, Four Positions" Course Construction Model

(1) Innovative "hierarchical progressive, project diversification" practical teaching model

The requirements of innovation and entrepreneurship education in content system, teaching methods and assessment are different from those of traditional teaching. In educational practice, curriculum is always in the core position, and classroom is always the main battlefield of teaching reform. As the main implementors of "creative integration" education, teachers need to identify the combination point, foothold and strength of creative integration from the aspects of curriculum content and curriculum practice carrier, so that the available resources can provide help and support for the cultivation of innovative talents. At the same time, teachers need to change the role of teaching and demonstration in practice and training in traditional teaching, combine the characteristics of different students and the existing knowledge base, and build a practical teaching model of "hierarchical progressive and diversified projects" driven by innovative projects [9]. According to the actual basis of students, follow the law of thinking development of students according to the level of innovation ability cultivation plan. For students with weak basic knowledge, they can be assigned directional discussion topics. For example, based on existing engineering equipment, students can be directed to discuss and analyze the composition, function and type of control

loop used in the hydraulic transmission system, so as to change students' passive acceptance into active exploration. For students with innovative ideas or strong practical ability, look at the integration of double innovation resources and practice platforms inside and outside the school, encourage them to declare and complete practical innovation projects, and effectively improve the comprehensive application of knowledge through innovative practice.

(2) Improve teaching methods and explore ways to integrate "three small schools"

Relying on knowledge, finding the right opportunity, and making precise efforts, this is the most critical point in the supply of creative content. In the course construction, the

teaching concept of "let ideological and political elements become the catalyst of professional education, and use ideological and political elements to supplement professional education" is proposed, and the "three small" approaches of "telling a small story, initiating a small debate, and triggering a small thought" are explored. After the idea is presented, a small debate can be initiated in the classroom to discuss the parts that can be improved and innovative, and in the process of discussion, a preliminary proposal can be conceived; Consider the feasibility of the proposed innovative plan. The implementation process of the "three small" approach is shown in Figure 2.

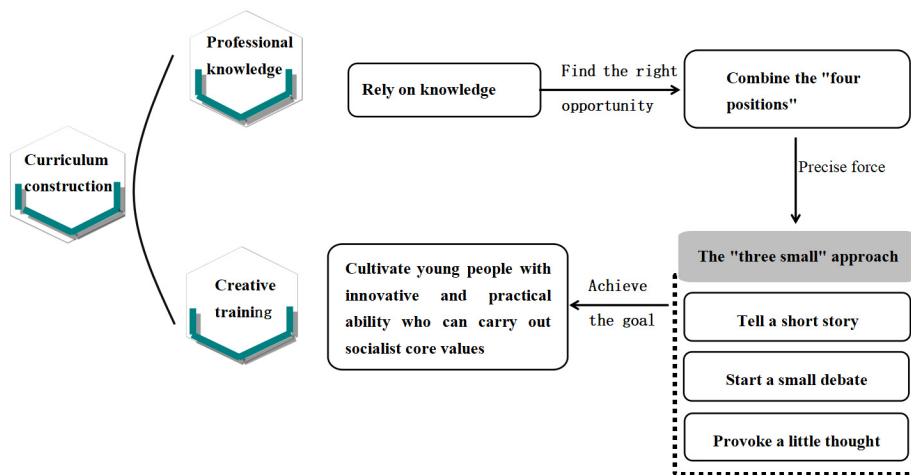


Fig 2. "Three small" innovative integration approach

(3) Put forward "one main body, two grasp, three integration, four positions" curriculum construction mode

Combined with the actual situation of students, the curriculum group proposed the curriculum construction mode of "one subject, two grips, three integration, four positions" (Figure 3), namely: students as a subject; We pay equal attention to the integration of curriculum content, teaching methods and curriculum assessment, and create four positions

of ideological and creative education, namely ideological and political education positions, classroom thinking positions, competition innovation positions, and social practice positions. Through the innovation of curriculum construction mode, we strive to realize the deep integration of creative education and curriculum professional education, help students improve their innovative practical ability, guide students to establish correct socialist values, and strive to realize the combination of "Art" and "Morality".

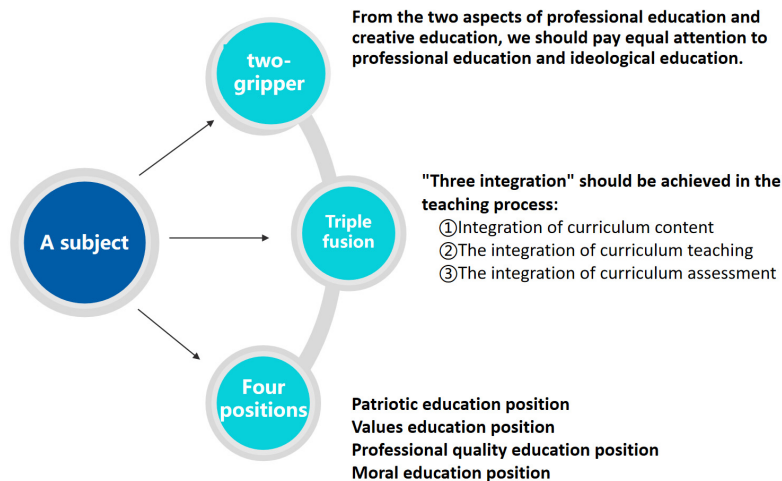


Fig 3. "One theme, two grips, three integration, four positions" course construction mode

(4) Update the assessment concept and implement the assessment perspective

In terms of the construction of high-level classrooms for

thinking and educating people, we adhere to the concept of "ideological and political leadership in knowledge transfer, innovation and improvement of knowledge application",

revise the curriculum syllabus, and update the assessment and evaluation indicators. In the assessment of students' ability, the effect of creative education module assessment, specifically: ① based on the comprehensive design work as the innovation awareness assessment module. Driven by the comprehensive design assignment, the students' initiative to acquire knowledge in the process of completion and their innovative ability to solve problems are assessed. ② Practical ability assessment module based on innovative competition. Combined with the specialty of students majoring in machinery, equipped with the double innovation competition, the implementation of professional skills at the same time, the assessment of students' teamwork ability and breakthrough innovation spirit; ③ Character assessment module with students as the main body. In the process of assessment, students are allowed to play the dual role of evaluator and examinee, and through group discussion, reporting, questioning and other ways, students are encouraged to establish a fair and impartial objective attitude and cultivate an upright character, so as to realize the whole process of education.

5. Characteristic Innovation

(1) Teaching model innovation

By sharing innovation and entrepreneurship resources, this course captures students' learning interest with practical problems in life, and then organically integrates the knowledge of hydraulic and pneumatic transmission courses with the training of innovation and entrepreneurship ability to build a three-dimensional course teaching model of "one subject, two hands, three integration and four positions", and builds a practical education carrier to train college students' innovation and entrepreneurship teams. It deeply integrates professional curriculum education, innovation and entrepreneurship practice application, big innovation project design, innovation and entrepreneurship competition and practice, and emphasizes students' active exploration of knowledge and active discovery of the meaning of knowledge. Change the situation that students confuse basic concepts and cannot understand the use of knowledge.

(2) Innovation of educational methods

The key of entrepreneurship and innovation education lies in practice. This project refines the innovative practice part and puts forward the innovative practice teaching model of "hierarchical progressive and diversified projects". Through project design, project analysis and implementation, project evaluation, project report, evaluation and other links, students are allowed to study and analyze the application and innovative development of hydraulic and pneumatic transmission technology, combined with college students' innovation and entrepreneurship competition platform, to stimulate students' sense of responsibility and cultivate innovative thinking ability.

(3) Learning community innovation

To build a learning community that is "project-driven, teacher-led and student-oriented", emphasizing cooperation, communication, discussion and learning among students, and following the idea of project-oriented in-depth analysis, bold questioning, proposal, implementation, and solution of new problems, so that students can form innovative practical learning groups, so that students can think in problems and explore with problems. Realize the transformation of innovative education from the benefit of a few students to the

benefit of all students, improve practical ability, so that students' professional ability and diversified development needs can be met, and innovative and realistic professional quality.

6. Summary

In deepening the course reform of hydraulic and pneumatic transmission, the goal is to cultivate outstanding young people with innovative practical ability who can practice the core values of socialism, integrate and share creative resources, improve teaching methods, and demonstrate the advanced and innovative nature of the course driven by practical projects. Through in-depth exploration of the elements of thinking and educating people in the curriculum and innovative practice competitions, teachers can effectively mobilize students' learning enthusiasm, promote the internalization of knowledge, improve innovative design ability and improve application ability. At the same time, professional quality, moral quality and family and country feelings can be imperceptibly entered students' hearts during teaching. Innovative education and ideological and political education complement each other. It is of great practical significance to cultivate the new generation needed by the country.

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