

Research on Material Construction of Integrated Curriculum in Technical Colleges under New Situation

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Abstract

The teaching mode of "Internet + Technician education" is developing rapidly, the ideological and political teaching of the course is deepening, and the reform of labor education is advancing. There are new requirements for the construction of learning materials about integrated curriculum in technical colleges. By building an online teaching platform and optimizing Internet resources, the interaction and diversity of learning materials are increased. According to the employment situation of different majors, select the ideological and political elements corresponding to the job requirements, and integrate them into the professional curriculum content in an appropriate form to achieve the effect of collaborative education. Carefully design the teaching methods in the practice manual and graduation design guidance, infiltrate the content of labor education, and promote the all-round development of skilled talents.

Keywords

New situation; Technical College; Integrated curriculum; Learning material construction.

1. Introduction

Learning materials refer to materials used to directly help students to learn, including teaching materials, worksheets, operation instructions, reference books and enterprise technical data. The construction of academic materials is an important content of integrated curriculum development. Since the implementation of the technical regulations of national integrated curriculum development in 2012, the construction of integrated curriculum resources in technical colleges has been developing rapidly, and the construction of academic materials, as an important part of it, has been increasingly improved. In recent years, with the rapid development of the new generation of information technology, online education has become a new teaching method. In December 2016, General Secretary Xi Jinping pointed out that, all courses should keep a good canal and plant a good responsibility, so that all courses and ideological and political theory courses are in the same direction, forming a synergistic effect. On April 29, 2020, the Ministry of Human Resources and Social Security proposed in the "Opinions on Strengthening labor Education in Technical Colleges and Universities" that the reform of integrated curriculum teaching should be vigorously promoted, the construction of labor education textbooks should be strengthened, and labor education content should be integrated into practical training teaching. Therefore, the new situation of curriculum construction has become increasingly clear, mainly reflected in the rapid development of "Internet + technical education" [1], curriculum ideology and politics will become a new research focus [2], labor education is imperative in integrated curriculum teaching [3]. Under the new situation, how to carry out the construction of integrated curriculum materials in technical colleges has become a new subject to be urgently solved.

2. The New Requirement of Material Construction under the New Situation

Mobile Internet provides technical support for the efficient use of academic materials. Ideological and political elements can be organically integrated into the contents of professional academic materials to enrich and silently carry out ideological and political education. The cultivation of labor value and spirit needs to be realized through the reform of educational methods of academic materials. The new situation puts forward new requirements for the reform of integrated curriculum materials in technical colleges, which are mainly as follows.

2.1. The Use of Materials Should Be Suitable for Mobile Internet

Traditional paper textbooks, exercise books, worksheets and other learning materials have some disadvantages, such as delayed content updating, static and single display form, boring and easy to fatigue, etc. Under the new situation, learners are more accustomed to learning digital resources through mobile Internet terminals such as mobile phones, pads and computers in daily life and production. Therefore, on the basis of the integrated teaching, it is necessary to assist in the development of cloud teaching materials, micro lessons, small test programs, and screen mobile Internet resources, use cloud classes, Tencent classes and other teaching platforms to build new learning materials adapted to mobile Internet teaching, attract learners' attention and help students learn independently.

2.2. The Organizational Content of Students Should Include Ideological and Political Elements

In the early stage of the integrated curriculum material construction of technical colleges, its content is mainly organized to improve the comprehensive vocational ability of learners. Under the new situation, the state proposes that all kinds of courses and ideological and political theory courses are in the same direction, forming synergistic effect. The first goal of course teaching is the cultivation of correct outlook on life and values. Therefore, combined with the mechanic characteristics and various colleges student to study the professional course teaching goal, from the socialist core values, Marxist methodology, Spirit of the Craftsman in a big country, the respect such as the Chinese virtue fully excavate ideological elements, and organic blend in all aspects of the content of the learning materials and activities of each link, to learners draw implicit education from professional course the purpose of nutrition.

2.3. The Teaching Method of Learning Material Should Permeate Labor Education

In recent years, the application of science and technology in production and life is more and more extensive, the phenomenon of robots replacing human labor is more and more common, people's labor mode, labor concept and labor attitude changes greatly. According to the research, although the proportion of students in technical colleges participating in labor education is larger than that in key universities and ordinary universities, there are still phenomena such as weakening of students' labor skills, labor attitudes and labor concepts, single form of labor education, and insufficient attraction of labor pedagogy materials [4]. On the other hand, the teaching of labor value, labor spirit, labor literacy or ability can be carried out in any discipline teaching. The key to discipline penetration lies in the adoption of discipline teaching methods, which does not necessarily correspond to the subject content [5]. Therefore, it is necessary to combine the labor education goal in the integrated course teaching, infiltrate the cultivation of labor values and labor spirit in the teaching method of students, so as to promote the overall improvement of students' comprehensive professional quality.

3. Design and Implementation of Material Construction under New Situation

3.1. Design and Implement the Use of Materials

3.1.1. Build Online Teaching Platform to Increase the Interaction of Learning Materials

Traditional paper learning materials have weak interaction, which is embodied in the absence of learning guides and tips, few learning activities, lack of relevant guidance materials, websites and feedback channels, and close typesetting with no blank pages [6]. However, students in technical colleges generally show weak theoretical basis, strong hands-on ability and interest in interactive activities. Therefore, technical college students are easy to lose interest in learning and even give up learning because they are boring, unable to understand and difficult to learn when using learning materials. And the construction of online teaching platform, increase the interactive learning, can maximize the use of learning materials to stimulate the desire to learn and promote the learning of the individual and personalized function.

The cloud class teaching platform with the functions of course management, activity setting and teaching evaluation is selected to build integrated curriculum materials, and the effect is outstanding. Embedding the content of learning materials into the cloud class platform in the form of voting questionnaire, brainstorming, exploration and discussion, on-site testing, homework tasks, etc., can greatly improve the interaction of classroom teaching and achieve teacher-led and student-dominated teaching effect. The following table is the teaching process design of the theoretical class of "Application of industrial Robots" in the integrated course Of Industrial Robot Technology. This course mainly uses the cloud class teaching platform and adopts the mode of combining online and offline. Before class, provide news and information materials to remind students to study the subject; In class, we carried out the activities of raising hands to answer questions, giving examples of robot application scenarios to activate the classroom atmosphere; After class, limited time test questions are released, so that students can concentrate on completing the test. The platform publishes the score list in real time, and transforms the boring exercises into interesting tests to help students consolidate their learning achievements.

Table 1. Material usage design of cloud class platform for "Industrial Robot Application" task

Teaching link	Learning materials	Teaching content	Teaching effect
Before class	News link	Japan's largest airline	Prompt learning topic
In class	Raise hand	Examples of robot applications	Active classroom atmosphere
After class	Timed test	Master 10 typical application	Consolidate learning outcomes

3.1.2. Selection of Internet Resources to Enhance the Diversity of Students

At present, it is very common for technical college students to use network in their life and study. The traditional learning model which takes books as the main teaching resources can no longer meet the needs of teaching in the information age. The survey also shows that most students are more interested in learning because of the wide range of available online resources [7]. The main characteristics of technical college students are strong curiosity, outstanding practical ability, but weak self-control and self-discipline. Therefore, in the process of learning materials construction, it is necessary to select high-quality network resources, enrich the content of traditional learning materials, increase the diversity of learning materials, mobilize students' learning enthusiasm and guide students to study independently.

Specifically, in terms of teaching materials, cloud teaching materials can be selected to provide learners with rich, extensible, sophisticated and socialized new learning experience. Has the

page in the work, can be ready to provide news, information and story in web page address, help students better clear task requirements, in the classroom lesson provides a short video, micro lesson QR code in the page, to help students clear working process, to improve speaking skills, after the class page provided in the "Miaodongbaike" and other video links, to cultivate students' autonomous learning, hard thinking and extension knowledge. The following table shows the design of mobile Internet resources in materials during the teaching task of "Making automatic Luminous Lamp" in the integrated course "Application of Sensor Technology". First of all, in terms of reference materials, the cloud teaching materials newly launched by the Cloud Course Alliance of Guangdong Technical Colleges are selected and corresponding contents are released in the cloud class to increase students' learning experience. Then provide "photosensitive resistance measurement in the cloud class in the working page auxiliary materials. MP4 "micro lesson video, and set" can drag progress at will ", help students in the operation combined with personal learning situation, fast positioning, repeated learning difficult points. Thirdly, in terms of auxiliary materials for training manuals, national standards in Baidu Library are provided to help students standardize operation standards.

Table 2. Design of mobile Internet resources in teaching materials for the task of "Connection of Common Wires"

Learning materials	Internet Resources	Form	Effect
Reference materials	Cloud materials	E-books	Increase experience
Page supplement	Micro lesson video	MP4 video	Promote learning
Training materials	The national standard	The PDF document	Cue method

3.2. Design and Implement the Organizational Learning Materials

3.2.1. The Theme Setting of Ideological and Political Elements Should Correspond with Professional Employment Positions

Since 2009, the Ministry of Human Resources and Social Security has carried out integrated curriculum reform in 32 majors, including automobile maintenance. These majors are mainly set up around the requirements of China's new industrialization for skilled personnel. From the perspective of the employment of these professional graduates, there are mainly three types: realistic, research and social. The themes of Ideological and political elements are very rich, including economic, political, cultural and social ecology, reform, development and stability, running the party, the country and the army, ideology, morality and law, etc. Different types of majors have different requirements for employment positions, and they also focus on ideological and political themes. Therefore, the subjects of ideological and political elements in academic materials should correspond with the types of professional employment positions, so that ideological and political education and integrated course teaching can go in the same direction, so as to achieve the goal of cultivating excellent talents.

Realistic professional mainly car maintenance, NUMERICAL control processing, electrical automation equipment installation and maintenance, etc., its characteristics is the need to use tools to engage in the operation type of work, requiring staff flexible hands and feet, movement coordination, strong hands-on ability. Therefore, ideological and political themes such as socialist core values, scientific spirit and great power craftsmen should be highlighted. Research-oriented majors mainly include chemical technology, environmental protection and detection, industrial design, etc., which are characterized by requiring staff to use their brains, think frequently, and have strong logical analysis and reasoning ability. Therefore, we should focus on Marxist viewpoint and scientific thinking method and other ideological and political themes. Social majors mainly include urban rail transit transportation and management, e-

commerce, modern logistics and so on. Their characteristics require workers to attach importance to social obligations and social morality, care about social problems, be good at talking and like to make friends. Therefore, we should choose Chinese excellent traditional culture, the thought of socialism with Chinese characteristics in the new era and other related ideological and political themes.

3.2.2. The Display Form of Ideological and Political Elements in Academic Materials Should Be Integrated with the Integrated Curriculum Content

The content of the course is the specific facts, views, principles and problems in the subject and the way to deal with them, which is the embodiment of the course objective. The content of the integrated curriculum is to sort out the knowledge objectives, skills objectives and quality objectives in the curriculum objectives, mainly describing "what to learn". Its organization mostly follows the logical order spiral organization that is, according to the discipline itself system and internal connection to arrange each project in the material. Each project is interspersed with tasks and activities that conform to the characteristics of students' understanding to promote students' understanding of the content and mastery of skills. On the other hand, ideological and political elements can be presented in various forms, such as telling classic stories, commenting on current events and setting up examples around you. Therefore, only when the display form of ideological and political elements in the learning materials is integrated with the integrated course content, can the logical organization of the learning materials content be achieved and the purpose of easy to accept when learning and using can be achieved.

Taking the presentation form of ideological and political elements in the course Of Electrical Skills Training as an example, appropriate presentation forms of ideological and political elements are designed for the specific content of each project, such as case sharing, experience summary, creative discussion and feeling, discussion and exploration, etc., so as to achieve a silent teaching effect.

3.3. Design and Implementation of Teaching Methods for Students

Teaching method refers to a set of teacher-student interaction activities under the guidance of teaching principles, which are carried out in order to achieve teaching objectives, realize teaching contents and use teaching means. In order to solve the problems that students in technical colleges do not want to work, do not know how to work, do not cherish the achievements of work, etc.

3.3.1. Teaching Methods Should Help Students Establish Correct Labor Values

Correct labor values can help students to correctly understand themselves, build good interpersonal relationships and promote their own growth. Under the new situation, appropriate teaching methods should be designed to help students establish correct labor values. Specifically, it mainly includes strengthening the understanding of labor as glory and shame of not working, establishing the labor concept that labor creates wealth and happiness, and forming the labor habit of respecting, loving and honest labor. According to the internship situation of technical college graduates, strengthen school-enterprise cooperation, develop internship manual, adopt new apprenticeship teaching method, let students deepen their understanding of labor glory from the daily work of masters; To carry out enterprise performance assessment of students' work, establish the concept that labor creates wealth; At the same time, through the design of log, weekend summary and monthly report and other forms, let the students form the habit of loving labor.

3.3.2. The Teaching Method Should Cultivate the Working Spirit of Students with the Sense of the Times

In the new era, artificial intelligence and other technologies replace people on more and more occasions, and the cultivation of labor spirit is more important. The labor spirit that technical education should cultivate is mainly manifested as bear hardships and stand hard work, keep improving and bring forth the new. Design reasonable teaching methods in learning materials to shape students' labor spirit.

Take the graduation design guide of electrical automation equipment installation and maintenance as an example, guide students to pursue excellence by sharing the excellent graduation design template of previous years. In the completion of the opening report, the design of divergent thinking map to guide students to continue innovation. When students encounter difficulties in debugging programs and are ready to give up, they are encouraged to persevere, overcome difficulties and cultivate their quality of bearing hardships and standing hard work.

4. Conclusion

The construction of academic materials is an important part of the integrated curriculum reform of technical colleges. Under the new situation, only the connotation construction of innovative academic materials can continuously promote the effectiveness of integrated curriculum reform. In the mobile Internet environment, cloud teaching materials and Internet resources suitable for online teaching platforms should be built to make learning materials more interactive and attractive. Combining with the new requirements of ideological and political education and labor education, the theme and display form of ideological and political elements are selected, and the teaching content of integrated professional courses are integrated, which can effectively achieve the goal of ideological and political education. To design the teaching method of learning materials carefully, to shape students' correct labor values and labor spirit, to train more all-round development of skills for the society.

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