



e-ISSN: 2319-8753 | p-ISSN: 2347-6710

IJRSET

International Journal of Innovative Research in
SCIENCE | ENGINEERING | TECHNOLOGY



INTERNATIONAL JOURNAL OF INNOVATIVE RESEARCH

IN SCIENCE | ENGINEERING | TECHNOLOGY

Volume 12, Issue 10, October 2023

ISSN INTERNATIONAL
STANDARD
SERIAL
NUMBER
INDIA

Impact Factor: 8.423

9940 572 462

6381 907 438

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Research on Synergistic Mode of Engineering Practice and Ethics Education for Full-time Professional Degree Graduate Students

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ABSTRACT: Aiming at the issue that the effect of ethical education during engineering practice is not obvious and the process of education is detached from engineering practice, we propose to establish "two synergistic" ethical education modes during engineering practice by combining ethical education with the professional curriculum. The study shows that: the combination of ethical education with the professional curriculum contributes to the enhancement of students' ethical education during engineering practice; the establishment of the "two synergistic" ethical education mode is helpful to enhance the students' ethical learning effect; the application of the "three-party synergistic" teaching method is beneficial to the strengthening of students' understanding of ethical education; and the "three-party synergistic" teaching mode is beneficial to the enhancement of students' understanding of ethical education. The establishment of a "two synergies" model of ethical education helps to improve the effect of students' ethical learning.

KEYWORDS: Full-time Professional Degree Graduate Students; Engineering Practice; Ethical Education; Two Synergies; Three-Party Synergy.

I. INTRODUCTION

Professional degree postgraduate education is an important part of China's higher education and an important way to realize the goal of training high-level talents. Graduate students of professional degrees generally adopt the cultivation mode combining course study, engineering practice, and scientific research, and the places of study include schools, enterprises, research institutes, etc.; they usually implement the dual tutor system cultivation mode, which is under the framework of cooperation between schools and enterprises, and is guided by both on-campus tutors and off-campus tutors; and they adopt the project-driven cultivation mode, which pays more attention to combining theoretical research and practical application. At present, the enrollment scale of China's professional degree graduate students is expanding, but the quality of cultivation is uneven, and the problems in the cultivation process are gradually highlighted^[1]. How to combine professional knowledge and ideological education in the process of practice is an urgent problem to be solved in the current training of the majority of full-time professional degree graduate students^[2-4].

At present, there is no unified conclusion about the mode of civic and political education of professional degree graduate students. Some scholars believe that the mode of Civic and Political education for professional degree students should be based on the "dual tutor" system and adopt the two-way interactive teaching method between teachers and students^[3,5]. Li Zhonghua^[6] believes that "three-way synergistic" teaching can strengthen students' knowledge of ideological and political education. Wang^[5], from the perspective of evaluating the practical effect of ideological and political education in colleges and universities, believes that ideological and political education should be carried out by combining the "tripartite synergistic" teaching method and the "two-way interactive" evaluation mode. In addition, some scholars suggest that the ideological and political courses should be the main content of teaching, and the professional courses should be combined to carry out civic and political education^[3].

Summarizing the above views, the current research results have not yet proposed a model for the civic and political education of graduate students with professional degrees, nor have they established a corresponding management system.

II. SYNERGISTIC MODEL OF ENGINEERING PRACTICE AND CIVIC AND POLITICAL EDUCATION FOR FULL-TIME PROFESSIONAL DEGREE GRADUATE STUDENTS

Engineering practice refers to the engineering practice activities carried out by students in colleges and universities during their participation in social practice activities or pre-graduation internships. It is especially

important for the cultivation of high-level applied specialists, and engineering practice plays a unique role in cultivating students' ability to analyze and solve problems by applying what they have learned.

However, at present, the combination of full-time professional degree postgraduates' education and professional courses is insufficient, and the ideological and political education of colleges and universities is detached from the actual engineering practice, so it is necessary to start from the "two synergistic" mode of ideological and political education and the "three-party synergistic" teaching method to explore the ideological and political education during the engineering practice of full-time professional degree postgraduates. Therefore, it is necessary to explore the new mode of ideological and political education for full-time graduate students during engineering practice by starting from the "two synergistic" mode of ideological and political education and the "three synergistic" teaching method.

2.1 Course-based Civic and Political Education Model

Professional courses are an important part of the cultivation of graduate students and the main channel of ideological and political education in colleges and universities. By building the ideological and political education mode of professional courses, the main channel role of professional course ideological and political education in cultivating graduate students can be fully realized.

During engineering practice, the teaching mode of ideological and political education is realized through the organic combination of ideological and political content in professional courses and the learning process of professional courses. The use of Civic and political knowledge and the combination of professional knowledge in the teaching process of professional courses can give full play to the leading role of teachers, and can also give full play to the initiative of students in learning theoretical knowledge. Cultivating students' innovative consciousness and engineering literacy in the process of engineering practice is an indispensable link in the cultivation process of graduate students.

2.2 Design of Civic and Political Education Mode Based on "Two Synergies"

The design of full-time professional degree graduate students' civic and political education mode based on "two synergies" combines civic and political education with professional courses, which fundamentally solves the lack of civic and political education of professional teachers and teachers of professional courses, and makes the process of civic and political education during engineering practice more comprehensive and systematic.

In this model of civic and political education, ideology and politics are integrated into the teaching content of professional courses. Teachers of professional courses should take Marxism as the guiding ideology to guide students to establish a correct worldview, outlook on life and values; while teachers of professional courses should also explain the knowledge taught in the classroom, and infiltrate the Marxist ideology into the process of engineering practice in the process of practice.

"Tripartite synergy" teaching method: teachers of specialized courses and staff of Civic and Political Education form a Civic and Political Teaching Team; "Tutor synergy" refers to a team of specialized teachers and tutors to guide the process of engineering practice; "Student synergy" refers to a team of students to guide the process of engineering practice; "student synergy" refers to a team of students to guide the process of engineering practice. "Tutor collaboration" refers to the team formed by professional teachers and instructors to guide the process of engineering practice; "student collaboration" refers to the team formed by students to help solve the various problems arising from the construction of the project.

To ensure the quality of teaching, the "tripartite synergy" model should go through three stages.

1. Teachers in the classroom to teach the course content and ideological and political education to students.
2. Students form teams to help solve problems and carry out engineering practice.
3. The second stage is the basis for the establishment of the organization and management system of engineering practice.

2.3 Tripartite Synergy in Practice Teaching

Based on the "two synergistic" model of Civic and Political Education, the synergy between professional teachers and students in the process of practice should be further strengthened, so that Civic and Political Education can be carried out in all aspects of engineering practice.

Professional teachers should be tutors with engineering experience, integrating engineering ethics and morality into daily teaching and research practice, and guiding students by their words and deeds; they should be counselors with rich engineering practice experience, integrating Civic-Political education into daily management. Professional teachers should not only teach the knowledge of the course and cultivate the skills of students but also strengthen the ideological and political education and humanistic qualities, to enhance the infectious force of the

ideological and political education. Students will integrate the elements of Civics and Politics into their own lives and daily management through the course learning in school.

III. CONCLUSIONS AND RECOMMENDATIONS

At present, China's professional degree graduate education is developing rapidly, and there has been a great development in the mode of graduate training, the development and implementation of training programs, but there are many problems, such as the single mode of ideological and political education during the period of engineering practice, etc. In this paper, from the ideological and political level, we combine ideological and political education with professional courses to form "two synergies".

This paper starts from the ideological and political level, combines the ideological and political education during engineering practice with professional courses to form "two synergies", and improves the students' learning effect of ideology and politics through the establishment of the teaching mode of "three-way synergy".

From the ideological and political level, the "two synergistic" teaching mode combines the ideological and political courses and the professional courses in different aspects to realize the full coverage of ideological and political education: introducing the ideological and political content in the process of the professional courses, emphasizing the ideological and political content in the practice sessions, and summarizing and reflecting at the end of the work. At the same time, the implementation of the "three-way synergy" teaching design improves the effect of students' learning of ideology and politics: a "three-way synergy" education model is established to form the synergy of the tutor team, the employer, and the students themselves. Finally, it is to strengthen the cognitive enhancement of Civic and Political education during professional practice, which is an important content of Civic and Political education in the postgraduate stage.

Through the above measures, we can form a full coverage of the civic-political education during postgraduate engineering practice: firstly, to carry out civic-political education for postgraduates at the knowledge level; secondly, to establish a "tripartite synergy" teaching mode to strengthen postgraduates' understanding of the political theory; at the same time, through the implementation of the "tripartite synergy" teaching design to enhance teachers' knowledge of political theory; and at the same time, through the implementation of the "tripartite synergy" teaching design to strengthen teachers' knowledge of political theory. At the same time, through the implementation of a "tripartite synergy" teaching design, we can enhance the understanding of the teachers' team on the course's ideology and politics, and the students' sense of identification with the engineering practice.

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Funding: This research was supported by the Research Program on Teaching Reform of Degree and Postgraduate Students in Hunan Province (Research on the Quality Improvement Mechanism of Ideological and Political Education for Full-time Professional Degree Graduate Students. Grant No. 2021JGYB211).



Impact Factor: 8.423



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