

Exploration of the Practice and Educational Value of Ideological and Political Education in Higher Vocational Mathematics Curriculum Against the Background of the New Era

Nan Zhou¹

¹ Undergraduate Education College, Shenzhen Polytechnic University, Shenzhen, Guangdong 518055, China

¹ Corresponding author. Email: zhounan@szpu.edu.cn

ABSTRACT

In the context of the new era, ideological and political education in courses has become an important mode of education in universities. This article aims to explore the practical and educational value of ideological and political education in current vocational mathematics courses. The article analyzes the problems and challenges in vocational mathematics teaching, elaborates on the necessity and importance of integrating ideological and political education into vocational mathematics, and based on practical cases, studies how to integrate ideological and political education into vocational mathematics courses, and summarizes the educational value of vocational mathematics ideological and political education. This article finds that the practice of ideological and political education in vocational mathematics courses in the new era can not only enhance students' comprehensive quality, but also help cultivate their sense of responsibility and mission. Therefore, vocational schools need to pay sufficient attention to the practice of ideological and political education in vocational mathematics courses, and make positive contributions to the comprehensive development of students.

Keywords: Higher vocational mathematics, Ideological and political education, Teaching practice, Educational value, Comprehensive quality.

1. INTRODUCTION

Higher vocational education is an important part of China's education system, with key responsibilities such as cultivating practical talents and serving regional economic and social development. Mathematics is a fundamental course in vocational colleges, and ideological and political education in mathematics plays a crucial role in cultivating students' comprehensive qualities and humanistic spirit. However, in the context of the new era, ideological and political education in higher vocational mathematics courses faces many challenges and difficulties, such as outdated traditional teaching models, single textbook content, and weak ideological and political awareness among students. Therefore, the exploration of the practical and educational value of ideological and political education in vocational mathematics courses is of profound significance.

Studying the background and significance of ideological and political education in vocational mathematics courses can provide important theoretical guidance and practical experience for vocational colleges, and promote the in-depth development of ideological and political education in vocational mathematics. Through in-depth exploration of the role of ideological and political education in vocational mathematics courses in cultivating values, it can provide effective ways to cultivate students' patriotism, personality traits, and philosophical perspectives. Deeply studying the ideological and political teaching practice of vocational mathematics courses can provide an effective path to improve their mathematical aesthetics, rational spirit, and thinking ability, and enhance the educational level of vocational education. By exploring the practice and educational value of ideological and political education in higher vocational mathematics courses,

we can clarify the current situation, positioning, and future development direction of ideological and political education in higher vocational mathematics, and provide useful inspiration and reference for higher vocational colleges.

The ideological and political education in vocational mathematics courses is not only about simply imparting knowledge to students, but more importantly, it is about inspiring their humanistic literacy, social responsibility, and innovation ability. This study aims to explore the purpose and significance of ideological and political education practice in vocational mathematics courses. By studying the current situation of vocational mathematics education, we can understand the shortcomings of students in cultivating mathematical thinking abilities, as well as their lack of awareness and sense of responsibility towards society. Therefore, the integration of ideological and political education into the curriculum can guide students to understand the value and significance behind mathematical knowledge, stimulate their interest in learning, and stimulate their sense of responsibility and self-directed learning awareness. In the context of the new era, ideological and political education in vocational mathematics courses focuses more on cultivating students' innovative ability and comprehensive quality. In the process of mathematics learning, students can deeply understand the social demand for talents. Studying the purpose and significance of ideological and political education in vocational mathematics courses can bring more development paths for educational reform and innovation, promote the improvement of vocational education quality, and cultivate more outstanding talents that are in line with the development of the times.

2. IDEOLOGICAL AND POLITICAL EDUCATION IN HIGHER VOCATIONAL MATHEMATICS CURRICULUM

2.1 Analysis of the Current Situation of Higher Vocational Mathematics Education

In recent years, higher vocational mathematics education in China has shown some new characteristics and trends. With the increasing demand for vocational education in society, vocational mathematics education is also increasingly valued. Mathematics courses are listed as compulsory subjects in most vocational colleges,

and teaching focuses on cultivating students' mathematical thinking ability and problem-solving ability. The curriculum and teaching mode of vocational mathematics education are also constantly innovating. The traditional mathematics teaching model conflicts with the demand for talents in society, so many schools have begun to introduce teaching methods such as practical teaching and project-based teaching to enhance students' comprehensive abilities. The mathematics curriculum in higher education also emphasizes the integration with the actual needs of various industries. Set up different mathematics courses for different majors to cope with future job demands.

At present, vocational mathematics education is in the stage of transformation and upgrading, which is a key step in improving students' comprehensive quality and employment ability. However, it is also important to note that there are still some challenges, such as a lack of teaching resources, insufficient teaching staff, and a disconnect between course content and industry demand. Therefore, in the future, vocational mathematics education needs to strengthen teaching reform and innovation, and provide better support for the comprehensive development of students and social needs.

2.2 Analysis of the Concept of Ideological and Political Education in Curriculum

Curriculum ideological and political education refers to the integration of ideological and political education elements into vocational mathematics courses, guiding students to establish correct worldviews, life views, and values through the teaching process and content of mathematics courses, and cultivating students' patriotism, social responsibility, and patriotism. Curriculum ideological and political education not only focuses on the learning of students' mathematical knowledge and skills, but also emphasizes guiding them to form a good outlook on life and values.

In the current new era, the importance of ideological and political education in vocational mathematics courses is increasingly prominent. With the rapid development and changes in society, young people are facing various impacts and guidance of ideological concepts. Introducing ideological and political elements into vocational mathematics can enable them to reasonably grasp their positioning and direction, and shape a good outlook on life and the world. Curriculum ideological and political education can promote

their comprehensive development, stimulate their sense of responsibility and innovation, and make them comprehensive talents with a sense of responsibility for the times and patriotism.

As a comprehensive concept, ideological and political education in vocational mathematics courses aims to guide students to shape a good outlook on life and values through mathematics teaching, making them modern pillars with a sense of social responsibility and innovative spirit. In future educational practice, it is necessary to continuously explore and improve the methods of ideological and political education in the curriculum, enhance the comprehensive quality of students, and inherit the socialist core values.

2.3 Educational Philosophy in the Context of the New Era

The new era is an era of informatization and globalization, and educational concepts are constantly being updated and transformed. In this context, the essence of education is to enhance students' comprehensive literacy, rather than just imparting knowledge. The ideological and political education in vocational mathematics courses should focus on cultivating students' innovative spirit, practical ability, and sense of social responsibility, integrating ideological and political elements into mathematics teaching, and guiding students to establish correct worldviews, outlooks on life, and values.

The update of educational concepts is also reflected in teaching methods, and traditional teaching methods have many drawbacks in the education model. In the context of the new era, teachers need to pay attention to the subjectivity and exploratory nature of students, and awaken their enthusiasm for knowledge exploration and creative development. The teaching content also needs to be more closely related to their life and social practice, enhancing their problem-solving ability and innovative spirit.

In addition, contemporary educational views also emphasize the promotion of personalized teaching, taking into account the individual differences of each student and emphasizing the cultivation and development of individual qualities. Teachers should pay attention to the growth process of each student and inspire them to determine the correct life goals and pursuits.

The educational philosophy in the context of the new era requires ideological and political education

in vocational mathematics courses to keep up with the times, constantly update educational concepts and teaching methods, and strive to improve students' comprehensive quality and skill level, inspire them to shape a good worldview, outlook on life, and values, and lay a solid foundation for their future development.

3. INTEGRATION OF HIGHER VOCATIONAL MATHEMATICS TEXTBOOK DESIGN AND IDEOLOGICAL AND POLITICAL EDUCATION

3.1 Integrating Traditional Ideological and Political Courses with Mathematics Teaching

Traditional ideological and political courses have always been regarded as an important component of higher education, which emphasizes the cultivation of ideological qualities and a strong sense of patriotism by imparting excellent Chinese culture, classics, and moral ethics. In vocational mathematics teaching, the imparting of mathematical knowledge and the training of mathematical thinking have always been the focus. How to integrate traditional ideological and political courses with mathematics teaching will be a challenge.

Traditional ideological and political courses and mathematics teaching can be integrated through the cross design of course content. In mathematics teaching, some ideological and humanistic knowledge can be introduced, such as mathematical history, mathematical ethics, etc., to guide students to think and understand mathematics. Traditional ideological and political courses can also teach students through specific mathematical cases, enabling them to cultivate patriotism and moral qualities while learning mathematical theories.

By integrating traditional ideological and political teaching methods such as discussion, debate, and case analysis, teachers can also stimulate students' interest in learning and thinking abilities. Mathematics teaching can also draw on the strong interactivity and emphasis on student participation of traditional ideological and political education to improve teaching effectiveness.

Reform the curriculum and teaching mode to promote the integration of multiple disciplines in vocational colleges. For example, in mathematics practical courses, traditional ideological and

political content can be introduced to students, making them feel the combination of ideological education and mathematics teaching.

The integration of traditional ideological and political courses with mathematics teaching can not only enrich teaching content, improve students' comprehensive quality, but also promote their comprehensive development. This integration requires innovative thinking from teachers and support from schools in order to achieve the best results.

3.2 School Characteristics and Curriculum Reform and Innovation

As an important battlefield for cultivating technical and skilled talents, vocational colleges must pay attention to the school's educational characteristics and curriculum reform and innovation. Firstly, the school's educational characteristics are an important foundation for the development of vocational colleges, including campus culture, teaching characteristics, and teaching staff. Schools should carry out distinctive construction based on their own positioning and goals, and form a unique style of education. Secondly, curriculum reform and innovation are key links in vocational mathematics education, which must keep up with the times, meet industry needs, and focus on practical applications. By offering specialized and practical mathematics courses, we can better meet the learning needs of students, improve teaching quality and effectiveness.

In order to effectively combine the characteristics of education with innovative curriculum and teaching, vocational colleges need to establish a complete set of scientific management mechanisms and teaching systems. Strengthen the construction of the teaching staff, cultivate a professional and dedicated teaching team, which should have rich practical experience and outstanding teaching level. Through mathematics ideological and political education, students can be led to achieve positive growth and development. Emphasis is placed on practical teaching, through school enterprise cooperation, internships and practical training, to enable students to experience the value of ideological and political education in the curriculum through practice, and to enhance their practical abilities and innovative thinking.

The characteristics of school education and curriculum reform and innovation are the guarantee

for the high-quality development of vocational mathematics education. Through reform and innovation, the curriculum system is improved, and comprehensive technical talents that meet social needs are cultivated.

3.3 Reform and Integration of Mathematics Teaching Content and Mode

In the context of the new era, the content and teaching mode of vocational mathematics education also need to be reformed and integrated. The content of mathematics teaching should be closer to practical applications, emphasizing the practicality and practicality of mathematical knowledge, so that students can better apply their knowledge to solve practical problems. Moreover, innovative mathematical concepts and calculation methods should be cited to keep up with the times and update the course content, arousing the fun and enthusiasm of students in learning.

The teaching mode should also keep up with the times and adopt diversified teaching methods, such as project-based teaching, problem oriented teaching, and cooperative learning, to improve students' ability to apply the knowledge they have learned to solve practical problems encountered in life. Teachers should pay attention to guiding them to engage in inquiry based learning, especially critical thinking and innovative spirit in their teaching.

The integration of mathematics teaching content and ideological and political education is also a major trend. By integrating ideological and political education into mathematics teaching, students can be inspired to cultivate a good outlook on life, values, and social responsibility. Mathematics teaching is not only about imparting knowledge, but also about cultivating students' moral character and sense of responsibility, so that they can become the pillars of society.

Reforming and innovating the educational content and teaching methods of mathematics in higher vocational education has become a key issue in the current education system reform. Through continuous exploration and practice, it meets the learning needs of vocational college students in the new era, making them talents with innovative spirit and social responsibility.

4. A STUDY ON THE IDEOLOGICAL AND POLITICAL EDUCATION MODEL OF HIGHER VOCATIONAL MATHEMATICS CURRICULUM

4.1 The Embodiment of Patriotism in Mathematics Teaching

In vocational mathematics courses, cultivating patriotism is a particularly meaningful aspect. Mathematics teaching can awaken students' recognition of the national spirit and national spirit through rich teaching content and cases. For example, in the classroom teaching of mathematics in vocational colleges, teachers can guide students to analyze practical problems by establishing mathematical models, demonstrate the development and progress of the motherland, and promote the inheritance of the country's excellent historical culture and socialist core values.

Integrating patriotism into mathematics teaching can inspire students to have a sense of social responsibility and historical mission. By guiding students to understand the development needs and social issues of the country, we encourage them to pay attention to the future development of the nation and its people. This educational approach can not only promote the improvement of students' academic performance, but also cultivate their patriotism and sense of social responsibility, making them responsible young people of the new era.

The teaching model that integrates patriotism into vocational mathematics courses is very meaningful. Cultivating students' patriotism and sense of national responsibility, enhancing their comprehensive quality and social responsibility, is of great significance for their growth. It also helps to stimulate their learning interest and intrinsic motivation, making students more proactive in joining the ranks of learning mathematics.

4.2 Cultivation of Personality Quality and Training of Mathematical Thinking

In vocational mathematics courses, cultivating individual qualities and training mathematical thinking are indispensable and important contents. The cultivation of individual qualities focuses on cultivating students' independent thinking ability, stimulating their innovative potential, and enabling them to independently solve problems through

mathematical learning, forming their own opinions and perspectives. The purpose of mathematical thinking training is to cultivate students' logical reasoning ability, computational ability, and abstract thinking ability. Through mathematical thinking training, they can not only enhance their ability to solve practical problems, but also cultivate their logical reasoning ability and mathematical thinking style.

The integration of personality cultivation and mathematical thinking training in vocational mathematics courses can not only promote the personal development of students, but also improve their mathematical learning level. By combining classroom teaching with practical teaching, they can continuously enhance their problem-solving abilities and cultivate their mature thinking patterns in practical operations. This not only has a positive promoting effect on the future career development of students, but also enables them to have competitiveness and adaptability in their lifelong development.

In the practice of vocational mathematics courses, attention should be paid to the combination of cultivating individual qualities and training mathematical thinking. Through innovative teaching methods and content settings, students' comprehensive qualities can be improved. This not only meets the requirements of vocational education in the new era, but also enhances their confidence and learning motivation in mathematics learning.

4.3 Guiding Philosophical Perspectives in Mathematics Teaching

In vocational mathematics courses, the guidance of philosophical perspectives is very important. By guiding students to explore the philosophical thinking behind mathematics, it can inspire them to understand and apply mathematical knowledge. Philosophical perspective guidance can help students establish a correct mathematical worldview and methodology, enabling them to understand that mathematics is not just a tool, but also demonstrates a philosophical way of thinking. The guidance of philosophical perspectives can help students understand the abstraction and universality of mathematics, and enable them to understand the connotation and significance of mathematics from a philosophical perspective. The guidance of philosophical perspectives can enhance the cultivation of their innovative and critical thinking abilities, enabling students to solve

practical problems and enhance the depth and breadth of mathematical thinking.

It is worth noting that guiding philosophical viewpoints does not require students to delve into philosophical theories, but rather to be able to understand and contemplate mathematical problems from a speculative perspective. In the teaching process, teachers inspire students to think about the philosophical connotations of mathematical problems and stimulate their thirst for knowledge and exploration by introducing case studies of philosophical viewpoints and philosophical speculative discussions. Through this teaching method, it is possible to cultivate their independent thinking and judgment abilities towards philosophical thinking.

5. EXPLORATION OF THE PRACTICE AND VALUE OF IDEOLOGICAL AND POLITICAL EDUCATION IN HIGHER VOCATIONAL MATHEMATICS CURRICULUM

5.1 The Cultivation of Mathematical Aesthetics and Mathematical Rational Spirit

In the teaching of ideological and political education in higher vocational mathematics, guiding students in mathematical aesthetics and rational spirit has profound significance. Mathematical aesthetics refers to the aesthetic and joyful feeling that students have towards mathematical knowledge and methods. This not only enhances their interest and love for mathematics, but also enhances their learning motivation and effectiveness. By providing beautiful, concise, and clear mathematical examples and problems, students are stimulated to have aesthetic emotions, guided to actively explore and discover mathematical truths, and thus develop their ability to apply learned knowledge to solve practical problems.

The spirit of mathematical rationality refers to the logical, rigorous, and reasoning abilities that students possess in their mathematical learning and thinking. Cultivating students' mathematical rationality spirit can help them clarify the logical relationship of problems, rigorously reason, and thus improve the accuracy and effectiveness of problem-solving. By guiding students in mathematical proof, reasoning, and problem-

solving, cultivate their thinking and logical thinking abilities, and enhance their ability to apply knowledge to solve problems.

In the teaching of ideological and political education in mathematics courses, emphasis should be placed on cultivating students' mathematical aesthetics and rational spirit. By designing rich and colorful mathematical cases and problems, students should be guided to actively think and explore, igniting their enthusiasm and preference for mathematics. Enhance their innovation and problem-solving abilities, thereby enhancing their unique qualities and thinking potential, and laying a solid foundation for their future career and social responsibility.

5.2 The Application of Implicit Education Methods in Curriculum Design

The implicit education method refers to a teaching method that subtly cultivates students' ideological, moral, and moral values during the teaching process. The application of implicit education methods is crucial in vocational mathematics courses. By designing thought-provoking and emotional mathematical problems, we inspire them to think about the philosophy and values contained in mathematics during the problem-solving process, and cultivate their moral character and humanistic literacy. In the teaching process, teachers can guide them to think about the impact of mathematical knowledge on personal qualities through class meetings, group discussions, and other methods, and stimulate their thinking and exploration of their own growth. Teachers can also use examples to help students understand the importance of social responsibility and teamwork in mathematical problems, and stimulate their sense of responsibility and team spirit.

In course design, it is necessary to consider the differentiated needs and emotional demands of students, so that the mathematics classroom is not only a place for knowledge transmission, but also a melting pot for moral cultivation. By using implicit education methods, vocational mathematics courses can adapt to the development needs of students and further enhance the effectiveness of ideological and political education in the curriculum. The implicit education method is not only a teaching method, but also an educational philosophy. It is expected to be more widely applied in higher vocational mathematics courses in the future.

5.3 *The Educational Value of Ideological and Political Education in Higher Vocational Mathematics Curriculum*

As an indispensable part of higher education, vocational mathematics courses are not only aimed at improving students' mathematical abilities, but also through ideological and political education in mathematics courses, to inspire them with correct outlooks on life, values, and the world. In this process, the educational value of ideological and political education in vocational mathematics courses has become increasingly prominent.

Vocational mathematics education should focus on cultivating students' innovative thinking and problem-solving abilities, so that they can not only learn skills in mathematics learning, but also analyze and solve problems in practice, enhancing their hands-on ability and the spirit of daring to take risks.

Vocational mathematics courses should also focus on students' sense of teamwork and social responsibility, enabling them to learn how to respect others, unite and cooperate, and cultivate their sense of collectivism and social responsibility in learning. Through this educational model, they can become useful talents for society.

The educational value of ideological and political education in vocational mathematics courses is also reflected in shaping students' correct outlook on life and values. Through ideological and political education in mathematics teaching, establish correct goals, clarify one's own life value pursuit, and enable students to maintain firm beliefs and continuously move forward in the face of difficulties and challenges.

The educational value of ideological and political education in vocational mathematics courses is reflected in multiple aspects, not only in cultivating students' mathematical abilities, but also in inspiring their ideological qualities and social responsibility. This is also the important significance of ideological and political education in vocational mathematics courses in the new era.

6. CONCLUSION

This study aims to explore the practical and educational value of ideological and political education in vocational mathematics courses. Through analyzing the current research status at home and abroad, it is found that vocational mathematics education is necessary and urgent. In

this process, we understand that ideological and political education in the curriculum plays a crucial role in cultivating students' ideological and moral character and comprehensive quality.

Through the analysis of the overview of ideological and political education in higher vocational mathematics courses, the current situation of higher vocational mathematics education and the concept of ideological and political education in courses are detailed, while also enhancing the understanding of educational concepts in the context of the new era. The integration part of vocational mathematics textbook design and ideological and political education explores the integration of traditional ideological and political education with mathematics education, the characteristics of school operation and curriculum reform and innovation, as well as the reform and integration of mathematics teaching content and mode.

In the research section on the ideological and political education model of vocational mathematics courses, this paper discusses how to present patriotism in vocational mathematics teaching, cultivate individual qualities and mathematical thinking training, and guide philosophical perspectives in mathematics teaching. In the part of ideological and political practice and value exploration in vocational mathematics courses, we focus on the cultivation of mathematical aesthetics and rational spirit, the application of implicit education methods in curriculum design, and the embodiment of the educational value of ideological and political education in vocational mathematics courses.

Through this study, we recognize the importance of ideological and political education in vocational mathematics courses in the new era, as well as the problems and improvement suggestions that exist in the practical process. We hope that this study can provide some reference for the further development of ideological and political education in vocational mathematics courses.

ACKNOWLEDGMENTS

Fund Project: Shenzhen Polytechnic University Campus Education and Teaching Research Project "Exploration of Ideological and Political Elements in Higher Vocational Mathematics Curriculum and Teaching Practice Research" (No. 7023310137); The 2023 Guangdong Province Higher Vocational Education Teaching Reform Research and Practice

Project "Exploration of Ideological and Political Elements in Higher Vocational Mathematics Curriculum and Teaching Practice Research".

REFERENCES

- [1] Wang Yaping Exploring the Path of Implementing Ideological and Political Education in Higher Vocational Mathematics Curriculum from the Perspective of "Five Education" Integration [J]. Science and Education Wenhui, 2022, (20): 87-89.(in Chinese)
- [2] Sun Wenxin. Practical Application of Water Culture Education in Higher Vocational Mathematics Teaching from the Perspective of Course Ideology and Politics [J]. Vocational Journal, 2023, (24): 10-12.(in Chinese)
- [3] Gao Jin, Lin Yuan, Li Xiaotang Exploration and Practice of Ideological and Political Education in Higher Vocational Mathematics Curriculum from the Perspective of "40%" Education [J]. Journal of Shenzhen Information Vocational and Technical College, 2023,21 (05): 66-70.(in Chinese)
- [4] Chen Chuchu. A Brief Discussion on the Path of Higher Vocational Mathematics Teaching from the Perspective of Curriculum Ideology and Politics [A]. Proceedings of the 8th Innovation Education Academic Conference, Education Research Institute of Shanxi University of China - Ideological and Political Education [C]. Nantong Open University 2023:31-32.(in Chinese)
- [5] Ji Yong. Exploration of Teaching Reform Practice of Integrating Ideological and Political Education into Higher Vocational Mathematics Curriculum [J]. Mathematics Learning and Research, 2023, (20): 143-145.(in Chinese)
- [6] Jiang Xue. Exploration of Reform Strategies for Higher Vocational Mathematics Teaching under the Background of Curriculum Ideology and Politics [J]. Mathematics Learning and Research, 2023, (15): 56-58.(in Chinese)
- [7] Zhao Yonghui, Hua Huichao. Exploring the Path of Ideological and Political Construction in Higher Vocational Mathematics Curriculum [J]. The Road to Success, 2023, (14): 21-24.(in Chinese)
- [8] Wang Jieqiong. Principles and entry points for integrating ideological and political education into vocational mathematics courses [J]. Shaanxi Education (Higher Education), 2023, (05): 94-96.(in Chinese)
- [9] Wei Shidi. Exploration of Higher Vocational Mathematics Education and Teaching Based on the Background of Ideological and Political Education [J]. Scientific Consulting (Educational Research), 2023, (04): 116-118.(in Chinese)
- [10] Liu Jing. Research on the Integration of Ideological and Political Education in Higher Vocational Mathematics Teaching [J]. China Education Technology Equipment, 2023, (06): 71-74.(in Chinese)
- [11] Yu Fei. Exploration and Practice of Ideological and Political Education in Higher Vocational Mathematics Curriculum [J]. Data, 2023, (03): 43-44.(in Chinese)
- [12] Wang Xiaoxia. Exploration and practice of integrating ideological and political education into vocational mathematics teaching [J]. Ningxia Education, 2022, (12): 18-20.(in Chinese)
- [13] Liu Ailing. Practice and Exploration of Course Ideology in Higher Vocational Mathematics Teaching [J]. Industry and Technology Forum, 2022, 21 (20): 156-157.(in Chinese)