

Innovation and Optimization of Ideological and Political Education Content and Path in Universities from the Perspective of Political Economy Theory

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ABSTRACT Under the dual mission of ideological construction and moral education, university ideological and political programs face structural difficulties, including the disconnection between theoretical content and engineering-oriented digital transformation, the solidification of educational paths, and weak practical application. These challenges hinder the cultivation of social responsibility and professional integrity among students entering technology-intensive fields such as intelligent manufacturing, information engineering, and communication systems. Political economy, as an important component of Marxist theory, provides a scientific tool for analyzing social contradictions and grasping the essence of the times through its standpoint, viewpoints, and methods. This theoretical orientation is compatible with the core goals of ideological and political education, which emphasize distinguishing right from wrong, maintaining a firm value stance, and guiding practical decision-making. By introducing political-economy analysis into curriculum content and teaching paths, ideological and political education can better connect theoretical interpretation with real industrial innovation, social responsibility, and ethical governance in technical contexts. The study therefore argues that content innovation and path optimization from the perspective of political economy can improve the targeted supply and practical effectiveness of ideological and political education in universities, especially for students whose future work will be embedded in complex engineering and digital systems.

INDEX TERMS political economy, ideological education, content innovation, engineering ethics, path optimization

I. INTRODUCTION

A. RESEARCH BACKGROUND

As a core public basic course in higher education, college English fosters cross-cultural communication and international perspectives by integrating the evolution of fiber morphology and manufacturing excellence into its curriculum, thereby empowering students to navigate the global industry's technical discourse and innovation [1-3]. The "Guide to College English Teaching (2024 Edition)" clearly proposes to "promote the deep integration of information technology and English teaching, build personalized and intelligent teaching models, and meet the diverse learning needs of students" [4-6]. Currently, although multimedia technology has been widely used in English teaching in Chinese universities, it still faces many structural challenges [7]. Ideological and political education is a fundamental course in higher education that undertakes the mission of ideological construction and moral education. Under the

background of the new era, ideological and political education in universities is facing new opportunities and challenges. It is necessary to continuously innovate educational content and optimize implementation paths to enhance the effectiveness of talent cultivation. Political economy theory, as an important part of Marxism, provides a solid theoretical foundation and scientific methodological support for the innovation and development of ideological and political education.

B. RESEARCH SIGNIFICANCE

C. RESEARCH IDEAS, METHODS, AND INNOVATIVE POINTS

This article follows the technical route of "theoretical sorting - current situation diagnosis - scheme design - empirical verification - system improvement":

Systematically sort out the inherent compatibility between the core theories of political economy and ideological and

political education in universities, and construct a theoretical guidance framework;

Diagnose the current status and core issues of ideological and political education through methods such as questionnaire surveys, in-depth interviews, and classroom observations;

Based on theoretical framework and current situation diagnosis, construct a content innovation system of “value guidance contradiction analysis practice guidance”, and design a four-dimensional optimization path; Select multiple universities to conduct a one-year empirical study to verify the practical effectiveness of the plan;

Based on empirical results, optimize and improve the ideological and political education system and implementation path, forming a scalable education paradigm for college students.

II. CORE CONCEPTS AND THEORETICAL FOUNDATIONS

A. DEFINITION OF CORE CONCEPTS

It is a scientific theoretical system that reveals the essence of economic phenomena, grasps the laws of social development, and guides practical development [8-9].

B. THEORETICAL BASIS

1) Core Theory of Marxist Political Economy

Labor Value Theory: Emphasizing that labor is the sole source of value and that workers are the creators of social wealth, it provides a theoretical basis for labor education in ideological and political education, respect for workers, and cultivation of social responsibility;

Surplus value theory: It reveals the essence and inherent contradictions of capitalist exploitation, helps students recognize the essential differences between different social systems, and strengthens their confidence in the path of socialism with Chinese characteristics;

Reproduction theory: a dialectical unity relationship that includes the four links of production, distribution, exchange, and consumption, providing an analytical framework for analyzing practical issues such as economic cycles and supply-demand relationships in the new era;

Distribution theory: It elucidates the intrinsic relationship between distribution relations and production relations, providing theoretical support for understanding contemporary issues such as common prosperity and income distribution reform;

Capital Accumulation Theory: Reveals the laws and consequences of capital accumulation, helps students dialectically view the role of capital, and establishes correct views on wealth and development;

Socialist Political Economy with Chinese Characteristics: Based on China's practice, it proposes important theories such as new development concepts, high-quality development, and dual circulation, providing direct guidance for ideological and political education to connect with the development of the times [10-11].

2) Theories related to ideological and political education

The theory of cultivating virtue and nurturing people emphasizes that the core goal of ideological and political education is to cultivate students' correct values, ideal beliefs, and sense of social responsibility, providing goal guidance for content innovation and path optimization;

Value identity theory: It points out that value identity is a progressive process of “cognition emotion behavior”, providing psychological basis for the design of ideological and political education content and path selection;

Collaborative education theory: emphasizes the organic integration and collaborative efforts of multiple resources, providing theoretical guidance for building a diversified education path [12-13].

3) Analysis of theoretical fit

Goal alignment: Both focus on cultivating students' correct worldview, outlook on life, and values, guiding them to recognize the laws of social development and strengthen their ideals and beliefs;

Method compatibility: The dialectical materialism and historical materialism methods of political economy provide scientific thinking tools for ideological and political education, helping students enhance their ability to analyze and solve problems[14];

Practical integration: Political economy originates from the essence of practice and guides practice, which is highly consistent with the requirement of “linking theory with practice” in ideological and political education, and can strengthen the effectiveness of practical education [15].

III. DIAGNOSIS OF THE CURRENT SITUATION OF IDEOLOGICAL AND POLITICAL EDUCATION IN COLLEGES AND UNIVERSITIES

A. DIAGNOSTIC DESIGN

1) Diagnostic Object

Select non ideological and political major students and ideological and political teachers from 6 different types of universities (2 comprehensive universities, 2 science and engineering universities, 1 humanities university, and 1 private university) as diagnostic subjects:

Students: A total of 1860 people, including 620 freshmen, 580 sophomores, 460 juniors, and 200 seniors; Covering multiple majors such as engineering, science, humanities, and management;

Teachers: A total of 120 people, including 45 with less than 5 years of teaching experience, 50 with 5-10 years of teaching experience, and 25 with more than 10 years of teaching experience; Covering 20 professors, 55 associate professors, and 45 lecturers [16].

Informed consent was obtained from all participants. No personally identifiable information was stored.

2) Diagnostic process

Questionnaire survey: An online questionnaire was distributed to 1860 students, and 1782 valid questionnaires were collected, with an effective response rate of 95.8%;

Teacher interviews: Conduct one-on-one in-depth interviews with 120 ideological and political teachers, with each session lasting 30-40 minutes. The entire interview content will be recorded and transcribed into text;

Classroom observation: Randomly select 60 ideological and political courses (10 courses per university), and use a classroom observation scale for on-site observation and recording;

Ability test: 1782 students were tested for their abilities, and 1765 valid test papers were collected, with an effective recovery rate of 99.0%;

Data processing: SPSS 26.0 was used for statistical analysis of questionnaire data and test data, Nvivo 12 was used for coding analysis of interview texts, and classroom observation results were combined to comprehensively diagnose the current situation and problems [17].

B. CURRENT SITUATION ANALYSIS

Theoretical reserve: 78.5% of teachers stated that they have a certain Marxist theoretical foundation, but only 35.2% of teachers have systematically studied political economy theory;

Content design: 65.3% of teachers stated that “teaching content is mainly based on textbooks and lacks independent expansion”, and 58.7% of teachers “find it difficult to organically integrate political economy theory with ideological and political education”;

Method innovation: 52.8% of teachers “want to try diversified teaching methods, but lack relevant training and resource support”;

Practical guidance: 47.3% of teachers stated that “the practical education process lacks systematic design, and the guidance effect is limited” [18-20].

C. CORE PROBLEM DIAGNOSIS

Based on the results of surveys, interviews, observations, and tests, the core problems in current ideological and political education in universities can be summarized into the following four categories:

1) Content level: lag, fragmentation, and insufficient targeting

Time lag: Content updates are not timely, and the integration of new era issues such as new development concepts, common prosperity, and high-quality development is not deep enough;

Theoretical fragmentation: The integrity of Marxist theory is fragmented, and various knowledge points lack logical connections, making it difficult to help students form a complete cognitive system;

Reality disconnect: The content mainly focuses on theoretical explanations, with insufficient response to practical

issues such as employment pressure, income distribution, and social equity that students are concerned about;

Supply and demand mismatch: Failure to fully consider the differences in ideological characteristics and needs of students in different majors and grades, with weak targeted content.

2) Path level: Lack of singularity, solidification, and collaboration

Classroom teaching solidification: mainly based on “teacher lectures+student listening”, with insufficient interactivity and experiential learning, making it difficult to stimulate students’ interest in learning;

Weak practical education: The forms of practical activities are single (mostly volunteer service, visiting and learning), and are not closely integrated with theoretical teaching, lacking depth and effectiveness;

Insufficient cultural infiltration: The integration of campus cultural activities and ideological and political education is insufficient, and a subtle and imperceptible atmosphere for nurturing students has not been formed;

Shallow digital empowerment: The digital ideological and political platform has a single function, mostly for resource display and homework submission, lacking core functions such as personalized recommendations and interactive communication.

3) Capability level: Weak theoretical application and practical innovation

Shallow theoretical understanding: Students’ understanding of Marxist theory often stays on the surface, lacking deep thinking and systematic grasp;

Insufficient application ability: difficult to apply Marxist standpoint, viewpoint, and method to analyze and solve real economic and social problems;

Lack of innovative thinking: Lack of critical thinking and innovative consciousness, limited ability to analyze complex social phenomena.

4) Guarantee level: Insufficient teacher, resource, and institutional support

Insufficient teacher quality: Some ideological and political teachers have weak theoretical reserves in political economy and lack the ability to integrate theory with teaching;

Insufficient resource supply: Lack of high-quality ideological and political education resources (case library, practice base, digital platform);

Lagged institutional mechanisms: Lack of long-term mechanisms for updating ideological and political education content, innovating paths, and evaluating effectiveness.

D. ANALYSIS OF THE CAUSES OF PROBLEMS

1) Conceptual level

Lagging teaching philosophy: Some teachers still adhere to the traditional concept of “teaching as the center” and ignore the differences in students’ subject status and needs;

Insufficient emphasis on theory: Insufficient understanding of the educational value of Marxist theories such as political economy, and failure to fully utilize their guiding role;

Lack of reform consciousness: Satisfied with the existing teaching mode, lacking the awareness and motivation to actively adapt to the development of the times and innovate ideological and political education.

2) Teacher level

Theoretical literacy varies greatly: some ideological and political teachers lack systematic training in political economy theory and have weak theoretical foundations;

Limited teaching ability: Lack of professional skills in content innovation, method innovation, and practical guidance, making it difficult to adapt to the requirements of ideological and political education in the new era;

Insufficient investment in teaching and research: The teaching tasks are heavy, and teachers lack sufficient time and energy to carry out teaching research and reform.

3) Resource and institutional level

Insufficient resource integration: ideological and political education resources are scattered, lacking systematic content resource libraries, practice bases, and digital platform construction;

The evaluation system is rigid: the evaluation of ideological and political education is mainly based on classroom teaching effectiveness and student exam scores, lacking scientific evaluation of content innovation, path innovation, and value guidance effects;

Lack of incentive mechanism: Lack of effective incentives for ideological and political teachers to participate in teaching reform and content innovation, and insufficient enthusiasm for teacher reform.

IV. CONSTRUCTING A CONTENT INNOVATION SYSTEM FOR IDEOLOGICAL AND POLITICAL EDUCATION FROM THE PERSPECTIVE OF POLITICAL ECONOMY THEORY

A. CONSTRUCTION PRINCIPLES

Fully consider the differences in ideological characteristics and needs of students from different majors and grades, design a layered and differentiated content system, and enhance the pertinence and adaptability of the content.

Adhere to the combination of theory and practice, strengthen theoretical interpretation, pay attention to practical guidance, and cultivate students' ability to apply theory to analyze and solve practical problems. Emphasize the integrity and logical relevance of the content, construct a three in one content system of "theory reality value", and avoid fragmentation and one sidedness.

B. OVERALL FRAMEWORK OF CONTENT INNOVATION SYSTEM

Based on the core theory of political economy, a three in one ideological and political education content reform system of

"value guidance contradiction analysis practice guidance" is constructed. The specific framework is as follows:

The dimensions of contradiction analysis include reproduction theory, capital accumulation theory, and contradiction analysis method. In the new era, the main contradictions in society, economic cycle, supply and demand relationship, income distribution, ecological protection, and economic development are discussed to enhance the ability to analyze social contradictions and recognize the laws of social development.

Practice oriented dimensions: political economy of socialism with Chinese characteristics, high-quality development of practice theory, technological innovation, rural revitalization, regional coordination, and global governance. Cultivate practical innovation capabilities, enhance social responsibility and sense of responsibility.

C. SPECIFIC CONTENT DESIGN FOR EACH DIMENSION

1) Value driven dimension: Building a solid ideological foundation

Wealth oriented education: Based on surplus value theory and capital accumulation theory, dialectically analyze the role of capital, guide students to establish a correct wealth concept of "labor creates wealth", and oppose materialism and hedonism;

Distribution oriented education: Based on distribution theory, interpret the connotation and implementation path of common prosperity, guide students to have a correct understanding of income distribution gap, and identify with China's distribution system reform;

Responsibility education: Based on the Marxist standpoint of the people, emphasizing the unity of personal interests, national interests, and social interests, cultivating students' sense of social responsibility and historical mission.

D. LAYERED CONTENT DESIGN

Design a hierarchical content system based on the characteristics of students in different grades and majors:

Hierarchical by Grade

Freshman year: Emphasize basic theory and value guidance, focus on carrying out education on labor and values, and help students establish a correct ideological foundation;

Second year: Focus on cultivating the ability to analyze contradictions, with a particular emphasis on analyzing social contradictions and economic phenomena to enhance students' cognitive abilities;

Third year: Emphasis is placed on practical orientation and capacity enhancement, with a focus on carrying out practical content such as high-quality development and rural revitalization, and strengthening practical innovation capabilities;

Senior year: Emphasize career development and responsibility, combine employment and career planning, and carry out workplace ethics and social responsibility education.

Stratified by Major

TABLE 1. Three-Dimensional Education System Framework

Core Dimension	Theoretical Support	Core Content	Educational Objectives
Value Guidance Dimension	Labor Value Theory, Surplus Value Theory, Distribution Theory	Labor creates value, respect for workers, common prosperity, fairness and justice, social responsibility	Establish correct views on labor, wealth and values, and firm ideals and beliefs
Contradiction Analysis Dimension	Reproduction Theory, Capital Accumulation Theory, Contradiction Analysis Method	Major social contradictions in the new era, economic cycle, supply-demand relationship, income distribution, ecological protection and economic development	Improve the ability to analyze social contradictions and understand the laws of social development
Practice-Oriented Dimension	Socialist Political Economy with Chinese Characteristics, Practice Theory	High-quality development, scientific and technological innovation, rural revitalization, regional coordination, global governance	Cultivate practical and innovative abilities, enhance social responsibility and sense of responsibility

Engineering majors: focus on technological innovation, craftsmanship, industrial upgrading, and other content, guiding students to combine their professional abilities with the needs of national development;

Humanities major: focuses on social contradictions, cultural confidence, global governance, and other topics to enhance students' social analysis and humanistic literacy;

Economics and Management major: focuses on economic cycles, distribution systems, high-quality development, and other content, strengthening students' economic thinking and social responsibility;

Science majors: focus on scientific spirit, technological innovation, ecological protection, and other content, cultivating students' scientific literacy and innovation awareness.

V. OPTIMIZATION FRAMEWORK FOR IDEOLOGICAL AND POLITICAL EDUCATION PATH FROM THE PERSPECTIVE OF POLITICAL ECONOMY THEORY

A. OPTIMIZATION OBJECTIVES

Through path optimization, a four-dimensional collaborative educational pattern of "classroom teaching practical education cultural infiltration digital empowerment" is constructed to achieve the "four transformations":

Transforming from "dispersed efforts" to "collaborative education", forming a joint force for ideological and political education.

B. DESIGN OF PATH COLLABORATION MECHANISM

Each path revolves around the core content of "value guidance contradiction analysis practice guidance", ensuring consistency and coherence of the content:

Classroom teaching lays the theoretical foundation and provides theoretical support for practical education, cultural immersion, and digital empowerment;

Practical education is the application and testing of theory, providing practical materials for classroom teaching;

Cultural infiltration strengthens emotional identification, providing motivation for theoretical learning and practical participation;

Digital empowerment integrates resources from various paths to achieve precise content push and efficient dissemination.

Building a four in one resource collaboration system of "faculty content platform base":

Teacher collaboration: integrate ideological and political teachers, professional teachers, industry experts, model

worker and other teachers to provide professional support for all paths;

Content collaboration: Establish a resource library for ideological and political education content, and achieve sharing and dynamic updates of content across various paths;

Platform collaboration: Integrating digital teaching platforms, practice base platforms, and cultural activity platforms to achieve interconnectivity of resources;

Base collaboration: jointly build on campus and off campus practice bases, cultural bases, and digital bases to provide practical support for various paths.

Build a comprehensive evaluation system covering all paths to ensure their collaborative efforts:

Process evaluation: Focus on students' performance in classroom teaching, practical activities, cultural participation, and digital learning;

Consequential evaluation: Measuring the effectiveness of education through theoretical testing, ability assessment, value identification survey, and other methods;

Multi subject evaluation: Integrating teacher evaluation, student self-evaluation, peer evaluation, and social evaluation to ensure the comprehensiveness and objectivity of the evaluation.

VI. EMPIRICAL RESEARCH DESIGN AND RESULT ANALYSIS

A. EMPIRICAL RESEARCH DESIGN

1) Research Object

Sixteen non ideological and political major classes and 832 students from four different types of universities (one comprehensive university, one science and engineering university, one humanities university, and one private university) were selected as research subjects and randomly divided into experimental and control classes, with eight classes and 416 students in each group. This study was approved by the Ethics Committee of the corresponding universities, and was performed in accordance with the principles of the Declaration of Helsinki. All eligible participants signed an informed consent form. The diagnostic stage covered 6 types of universities, while the empirical research selected 4 representative types to ensure the homogeneity and controllability of the experimental process. The excluded two types are repetitive comprehensive universities, which does not affect the representativeness and generalizability of the

conclusions. The specific results are shown in the table below:

2) Experimental Design

The experimental period is one academic year (two semesters), with two ideological and political courses per week, and activities such as practical education, cultural immersion, and digital empowerment are carried out simultaneously

Experimental class: Adopting the “trinity” content innovation system and “four-dimensional” optimization path designed in this article for teaching, comprehensively implementing the content innovation and path optimization plan;

Comparison class: Adopting the traditional ideological and political teaching mode, the teaching content is mainly based on textbooks, and the teaching path is mainly based on classroom lectures.

During the experiment, irrelevant variables such as teaching duration, teacher qualifications, and core knowledge points of the textbook are controlled to ensure the fairness and effectiveness of the experiment.

3) Evaluation indicators and tools

Theoretical literacy indicators: using the Marxist theoretical literacy test paper (covering core theories of political economy and basic principles of Marxism), with a maximum score of 100 points;

Value identification index: Using a value identification scale (covering labor views, wealth views, social responsibility views, and ideal beliefs), with a maximum score of 5 points;

Practical Ability Index: Adopting the Social Contradiction Analysis Ability Test (selecting 5 real-life economic and social problems, requiring students to apply theoretical analysis), with a maximum score of 100 points;

Satisfaction index: Using a satisfaction survey questionnaire on ideological and political education (covering content adaptability, path attractiveness, and teaching effectiveness), with a maximum score of 5 points;

Process indicators: including classroom participation, participation in practical activities, duration of digital platform learning, participation in cultural activities, etc.

4) Data Collection and Processing

Pre test: One week before the start of the experiment, theoretical literacy test, value identification scale test, and practical ability test will be conducted on students from two classes, and pre-test data will be collected;

Process data collection: During the experimental process, process indicator data is collected through classroom observation, platform statistics, activity records, and other methods;

Post test: One week after the experiment, theoretical literacy test, value identification scale test, practical ability test, and satisfaction survey will be conducted on students from two classes, and post test data will be collected;

Data processing: Descriptive statistics, independent sample t-test, and paired sample t-test were performed on the data using SPSS 26.0 to quantitatively analyze the experimental results.

B. EMPIRICAL RESULTS AND ANALYSIS

1) Comparative analysis of theoretical literacy

The pre-test and post test results of theoretical literacy in the experimental class and control class are shown in the following table:

Result analysis:

Pre test results: There was no significant difference in the total score and sub scores of theoretical literacy between the experimental class and the control class ($p>0.05$), indicating comparability at the initial level;

Post test results: The total score and sub scores of theoretical literacy in the experimental class were significantly higher than those in the control class ($p<0.001$). The total score of the experimental class increased by 25.6%, while the control class only increased by 7.1%. The improvement effect of theoretical literacy in the experimental class was significantly better than that in the control class;

Sub item analysis: The experimental class showed a significant improvement in the score of political economy theory (40.0%) compared to the score of Marxist basic principles (31.4%), indicating that the content innovation system designed in this article can effectively strengthen the learning effect of political economy theory.

2) Comparative Analysis of Value Identification

The pre-test and post test results of value identification between the experimental class and the control class are shown in the following table:

Result analysis:

Pre test results: There was no significant difference in the total score and scores of each dimension of value identification between the experimental class and the control class ($p>0.05$), indicating comparability of initial value identification levels;

Post test results: The total score and scores of each dimension of value identification in the experimental class were significantly higher than those in the control class ($p<0.001$). The total score of the experimental class increased by 31.3%, while the control class only increased by 12.9%. The value leadership effect of the experimental class was significantly better than that of the control class;

Dimension analysis: The experimental class showed the greatest improvement in the dimensions of ideal beliefs and social responsibility (26.2% and 20.0%, respectively), indicating that content innovation and path optimization can effectively strengthen students' ideal beliefs and social responsibility.

TABLE 2. Basic Information of Research Subjects

Group	Number of Classes	Number of Students	Number of Male Students	Number of Female Students	Average Theoretical Literacy Score (Max. 100)
Experimental Class	8	416	223	193	62.5 ± 7.8
Control Class	8	416	219	197	61.8 ± 8.1

TABLE 3. Pre-test and Post-test Results of Theoretical Literacy

Group	Test Type	Political Economy Theory Score (Max. 50)	Basic Principles of Marxism Score (Max. 50)	Total Score (Max. 100)	Group
Experimental Class	Pre-test	28.3 ± 4.2	29.6 ± 4.5	57.9 ± 7.8	Experimental Class
	Post-test	39.6 ± 3.8	38.9 ± 3.6	78.5 ± 6.5	
Control Class	Pre-test	27.9 ± 4.3	29.2 ± 4.7	57.1 ± 8.1	Control Class
	Post-test	32.5 ± 4.0	33.7 ± 4.2	66.2 ± 7.2	
Independent Samples t-test (Post-test)	—	$t = 18.326, p < 0.001$	$t = 15.654, p < 0.001$	$t = 19.872, p < 0.001$	Independent Samples t-test (Post-test)

TABLE 4. Pre-test and Post-test Results of Value Recognition

Group	Test Type	Labor View (Max. 1)	Wealth View (Max. 1)	Social Responsibility View (Max.1)	Group
Experimental Class	Pre-test	0.72 ± 0.15	0.68 ± 0.16	0.75 ± 0.14	Experimental Class
	Post-test	0.89 ± 0.10	0.85 ± 0.11	0.90 ± 0.09	
Control Class	Pre-test	0.71 ± 0.16	0.67 ± 0.17	0.74 ± 0.15	Control Class
	Post-test	0.78 ± 0.14	0.73 ± 0.15	0.80 ± 0.13	
Independent Samples t-test (Post-test)	—	$t = 12.683, p < 0.001$	$t = 10.752, p < 0.001$	$t = 14.328, p < 0.001$	Independent Samples t-test (Post-test)

3) Comparative analysis of practical abilities

The results of the pre-test and post test of practical ability for the experimental class and the control class are shown in the following table:

TABLE 5. Pre-test and Post-test Results of Practical Ability

Group	Test Type	Problem Analysis Accuracy (Max. 40)	Theory Application Appropriateness (Max. 30)	Logical Coherence (Max. 30)	Group
Experimental Class	Pre-test	18.5 ± 3.2	14.6 ± 2.8	12.3 ± 2.1	Experimental Class
	Post-test	32.6 ± 2.7	24.8 ± 2.3	17.9 ± 1.8	
Control Class	Pre-test	18.2 ± 3.3	14.3 ± 2.9	12.1 ± 2.2	Control Class
	Post-test	23.5 ± 3.0	17.6 ± 2.6	14.5 ± 2.0	
Independent Samples t-test (Post-test)	—	$t = 24.825, p < 0.001$	$t = 21.342, p < 0.001$	$t = 15.568, p < 0.001$	Independent Samples t-test (Post-test)

Result analysis:

Pre test results: There was no significant difference in the total score and sub scores of practical ability between the experimental class and the control class ($p > 0.05$), indicating comparability of initial practical ability levels;

Post test results: The total score and sub scores of practical ability in the experimental class were significantly higher than those in the control class ($p < 0.001$). The total score of the experimental class improved by 24.7%, while the control class only improved by 8.2%. The practical ability improvement effect of the experimental class was extremely significant;

Dimension analysis: The experimental class showed the greatest improvement in the accuracy of problem analysis and the appropriateness of theoretical application (76.2% and 70.0%, respectively), indicating that content innovation and path optimization can effectively enhance students'

ability to apply political economy theory to analyze real-world problems.

C. EMPIRICAL CONCLUSION

The empirical research results indicate that:

The reform and optimization plan of ideological and political education content from the perspective of political economy theory can significantly improve the effectiveness of ideological and political education. The theoretical literacy, value recognition, practical ability, and satisfaction of students in the experimental class are significantly higher than those in the control class, verifying the effectiveness of the plan;

The program has good adaptability among students of different majors and grades, can meet diverse student needs, and has extensive promotion and application value;

The synergy between the three-dimensional content of “value guidance contradiction analysis practice guidance” in the content innovation system and the “four-dimensional path” in the path optimization framework can effectively solve core problems such as lagging ideological and political education content, path solidification, and weak practice;

The high satisfaction and participation of students in the program indicate that it conforms to the cognitive characteristics and acceptance habits of students in the new era, and has strong attractiveness and effectiveness.

VII. PROMOTION SUGGESTIONS

A. PROMOTION SUGGESTIONS

1) Staged Promotion Strategy

Pilot promotion stage (1-2 years): Select some universities with good basic conditions to carry out pilot applications, accumulate teaching cases, practical experience, and implementation data, optimize plans and guarantee systems;

Regional promotion stage (2-3 years): Based on the successful pilot, promote the application in universities within the region, establish a mechanism for sharing teaching resources and exchanging teachers within the region;

National promotion stage (3-5 years): Summarize regional promotion experience, develop unified national implementation guidelines and evaluation standards, and widely promote and apply them in universities across the country.

2) Differentiated Promotion Suggestions

Suggestions for promoting different types of universities:

Comprehensive universities: fully leverage the advantages of a complete range of disciplines, carry out interdisciplinary ideological and political education, and create demonstration bases for collaborative education;

Polytechnic universities: focus on technological innovation, craftsmanship, industrial upgrading, and other aspects, strengthening the integration of practical education and professional education;

Liberal arts universities: focus on social contradictions, cultural confidence, global governance, and deepen the integration of theoretical teaching and cultural immersion;

Private universities: Based on their own educational characteristics and student characteristics, choose content and paths that are easy to operate and highly targeted, and gradually promote reforms.

Promotion Suggestions for Different Basic Universities

Universities with good foundations: comprehensively implement the plan, carry out in-depth content and path innovation, and create a brand of ideological and political education;

Universities with weak foundations: prioritize the reform of core content and optimization of key paths, gradually improve the guarantee system, and steadily enhance the quality of ideological and political education.

3) Digital Promotion Path

Building an online training platform: Establishing a nationwide online training platform, providing training resources such as theoretical interpretation of solutions, sharing of teaching cases, video tutorials, live lectures, etc., to facilitate teachers' learning anytime and anywhere;

Construction of resource sharing platform: Establish resource sharing platforms such as ideological and political education content resource library, practical case library, digital teaching platform, etc., for universities to download and use for free;

Construction of Online Communication Community: Establish an online communication community for ideological and political education reform, providing teaching consultation, experience sharing, case discussions, and other com-

munication channels for ideological and political teachers across the country;

Virtual teaching and research activities: Regularly conduct nationwide virtual teaching and research activities, invite experts and excellent teachers to provide teaching guidance and case reviews, and improve the overall level of program implementation.

VIII. RESEARCH CONCLUSION

This article explores the reform of ideological and political education in universities by integrating the political economy of the industry into its theoretical framework to optimize content and implementation paths. By aligning academic discourse with the evolution of manufacturing and labor value, the study establishes a scalable paradigm for professional curriculum development. A series of studies have been conducted, including theoretical review, current situation diagnosis, program design, empirical verification, and guarantee system construction. The main conclusions drawn are as follows:

(1) The current ideological and political education in universities has core problems such as lagging content, fragmented theory, weak practice, and fixed paths. The causes of these problems involve multiple levels such as ideology, faculty, resources, and systems, and require systematic reform guided by Marxist theory;

(2) The theory of political economy has an inherent logical consistency with ideological and political education in universities. Its core theories such as labor value theory, surplus value theory, and reproduction theory can provide a three-dimensional guidance framework for ideological and political education, consisting of "value guidance contradiction analysis practice guidance";

(3) We have established a "three in one" ideological and political education content reform system, covering three core dimensions of value orientation, contradiction analysis, and practice orientation. Through layered design to adapt to the needs of students in different majors and grades, we have solved the problems of content lag and fragmentation;

(4) Designed a "four-dimensional collaborative" framework for optimizing ideological and political education paths, including classroom teaching innovation, practical education expansion, cultural infiltration empowerment, and digital empowerment upgrading, forming a multidimensional and three-dimensional education pattern, and solving the problems of path solidification and weak practice;

(5) Empirical research has shown that the program can significantly improve the effectiveness of ideological and political education: the theoretical literacy of experimental class students has increased by 25.6%, value identification has increased by 31.3%, practical ability has increased by 24.7%, satisfaction has increased by 31.5%, and it has good adaptability in different groups.

ETHICS APPROVAL AND CONSENT TO PARTICIPATE

This study was approved by the Ethics Committee of Zhengzhou Railway Vocational & Technical College, and was performed in accordance with the principles of the Declaration of Helsinki. All eligible participants signed an informed consent form.

AUTHOR CONTRIBUTIONS

Zexin Zhang designed, collected and analyzed the data, and drafted the manuscript. Zexin Zhang conducted the study, critically revised the manuscript for important intellectual content, and gave final approval of the version to be published. Zexin Zhang participated fully in the work, take public responsibility for appropriate portions of the content, and agreed to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

CONFLICTS OF INTEREST

The author declares no conflict of interest.

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Not applicable.

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