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Research and Practice on the Path of Integrating Ideological and Political Education into Professional Course Construction

—— A Case Study of the Course *Interface Design and Implementation*

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Abstract: To implement the fundamental task of "fostering virtue through education" and address issues in ideological and political education (IPE) integration in professional courses—such as "disconnection between professional and IPE content," "narrow interpretation of IPE elements," and "difficulty in practical implementation"—this study takes the course *Interface Design and Implementation* at Guangdong Polytechnic of Science and Technology as the research object. Based on the construction background of the national high-level software technology professional cluster, the study explores and constructs a "1-2-3-3 AI-empowered" IPE construction model for courses. By innovating IPE integration paths, reconstructing teaching content,

optimizing classroom teaching, developing digital resources, and improving the evaluation system, the model realizes the organic unity of value shaping, knowledge impartment, and competence development. Practice shows that this path effectively enhances students' political identity and professional literacy, and strengthens teachers' ability to conduct IPE through professional teaching, providing a reference for IPE construction in similar professional courses.

Keywords: ideological and political education in courses; professional courses; construction path; *Interface Design and Implementation*; AI empowerment

Introduction

Education, as a core pillar of national strategic development, undertakes the historical mission of cultivating high-quality talents who are "both virtuous and competent, with virtue as the priority." In recent years, documents such as the *Guidelines for the Construction of Ideological and Political Education in Higher Education Courses* have been successively issued, clearly requiring the integration of IPE throughout the entire talent cultivation process and promoting the coordinated development of professional courses and IPE courses [1]. As an innovative breakthrough in the educational philosophy of the new era, ideological and political education in courses (IPE in courses) aims to break the traditional pattern of separation between professional knowledge imparting and ideological and political education. It organically integrates value shaping, knowledge impartment, and competence development into the entire teaching process of professional courses, ultimately realizing the return to the essence of "fostering virtue through education."

1. Core Issues in the Construction of Ideological and Political Education in Professional Courses

1.1 "Disconnection" between Professional Education and IPE, Failing to Form a Synergistic Education Force

Professional teaching and IPE have not achieved integrated integration, showing a state of mutual disconnection. They lack an internal logical connection and a coordinated promotion mechanism: IPE is not naturally integrated into the process of imparting professional knowledge and skills, and IPE also fails to be carried out based on the practical and professional characteristics of professional courses. The team of professional course teachers is singular, making it difficult to form a synergistic education force between professional education and IPE [2].

1.2 "Narrow Interpretation" of IPE Elements, Failing to Meet Students' Diverse Development Needs

The exploration of IPE elements is limited to certain dimensions and fails to fully cover the rich connotations required for students' growth. In the past, focus was mostly placed on IPE elements at the national and social requirement level, such as the spirit of the 20th National Congress of the Communist Party of China, core socialist values, and ideals and beliefs. However, key elements at the levels of job requirements and personal development needs were overlooked. In terms of job requirements, insufficient exploration was made of IPE elements closely related to the profession of interface designers, such as craftsmanship spirit, work ethic, professional standards, and professional ethics. This leads to students' inability to develop a rigorous professional attitude and awareness of standards during skill training [3].

1.3 "Difficulty in Practical Implementation" of IPE, Failing to Truly Play an Educational Role

IPE elements have not been systematically integrated into the entire teaching process, and the lack of effective carriers and design results in the failure of educational effects to be truly exerted. In terms of teaching content, the integration of IPE elements in materials such as talent cultivation programs, teaching standards, and lesson plans mostly remains superficial. It is not deeply bound to the core knowledge points of interface design, leading to the problem of "labeling" IPE elements. In terms of teaching methods, there is a lack of student-centered IPE guidance design, failing to guide students to actively perceive the connotation of IPE. Such IPE in courses can hardly move, convince, or shape students [4].

2. Practical Path of Integrating IPE into Professional Courses

——A Case Study of the Course *Interface Design and Implementation*

Interface Design and Implementation is a core course for the UI design position in the national high-level software technology professional cluster, with 72 teaching hours. It features "integration of theory and practice" and "integration of technology and art." Taking the integration of "job requirements, curriculum, competitions, certifications, and innovation" as the starting point, the course cultivates students' five core competencies, including user research and interaction design.

2.1 Align with Job Requirements to Refine Course Teaching Objectives

With real enterprise projects as carriers, the course constructs a three-dimensional educational objective system of "knowledge-competence-IPE": at the knowledge level, students master interface design theories and tools; at the competence level, students develop project practice and innovative design capabilities; at the IPE level, students cultivate patriotism, craftsmanship spirit, copyright awareness, and AI literacy. This lays a foundation for the integration of IPE.

2.2 Innovate the "1-2-3-3 AI-Empowered" IPE Construction Model for Courses

2.2.1 "One Body, Two Wings" to Solve the "Disconnection" Problem

"One Body": Establish a three-teacher teaching and research community consisting of "ideological and political course teachers, corporate engineers, and professional course teachers." It integrates professional skill cultivation and IPE into a unified design. For example, corporate engineers participate in project decomposition, ideological and political course teachers guide the exploration of IPE elements, and professional course teachers are responsible for teaching implementation, realizing the integration of moral and technical education.

"Two Wings": Rely on the provincial demonstration center for IPE teaching research (providing theoretical guidance and effect assessment) and the Ministry of Education's Collaborative Innovation Center for Software Engineering Application Technology (transforming real enterprise projects into teaching carriers). This ensures the unity of the ideological, scientific, and professional nature of the course.

2.2.2 "Three Dimensions" to Enrich the Connotation of IPE Elements and Break the "Narrow Interpretation" Limitation

Systematically explore IPE elements from three dimensions—"national and social requirements, job requirements, and personal development needs"—and construct an IPE system of "strengthening ideals and beliefs, enhancing professional literacy, and improving personal cultivation."

2.2.3 "Three Integrations" to Connect the Entire Teaching Process and Solve the "Implementation Difficulty" Problem

(1) Integration into Teaching Content: Embed IPE elements into talent cultivation programs, course standards, lesson plans, teaching materials, and digital resources. For example, when revising the course standards, it is clearly stipulated that "each module must include 1-2 IPE objectives."

Taking the real enterprise project "Digital and Intelligent Village" APP interface design as the core carrier, the course decomposes the project into 9 work tasks according to the "interface design process." Each task organically integrates IPE elements, forming a corresponding relationship of "task carrier-IPE elements-educational objectives":

Module 1: User Research

Task 1: Analyze user needs for the "Digital and Intelligent Village" APP: The core task is to conduct team-based user research on villagers, write a research report, analyze similar products, and complete a competitive product analysis report.

IPE elements: ① In-depth alignment with the national strategy of rural revitalization to understand the connotation of policies; ② Clarifying the role of "digital and intelligent" technology in promoting rural revitalization and perceiving the value of technology empowerment; ③ Intuitively understanding the rapid development achievements of China's rural areas through research and experiencing the unique advantages and charm of China's development path.

IPE objectives: Guide students to go deep into rural areas, effectively grasp villagers' needs, and help solve

practical difficulties, thereby cultivating their patriotism and sense of social responsibility; Guide students to pay attention to the rural revitalization strategy through the research process, and further establish confidence in the system and development path, enhancing their political identity.

Module 2: Interaction Design

Task 2: Design the interaction prototype of the "Digital and Intelligent Village" APP: The main tasks are to draw a user experience map based on users' usage habits and the APP's functional logic, design an interaction prototype, and conduct usability testing.

IPE elements: The interaction prototype is the primary link in APP development and requires repeated verification and testing. If there are problems with the prototype, the subsequent entire process will be affected. Therefore, it is emphasized that each step of the work must be carried out with a rigorous and down-to-earth attitude.

IPE objectives: The design of the interaction prototype requires starting from scratch and continuously improving. Through strict requirements, cultivate students' work ethic of overcoming difficulties and craftsmanship spirit of pursuing excellence; Help students establish product thinking, awareness of standards, and logical thinking by combining previous user research and this interaction design.

Module 3: Interface Visual Design

Task 3: Determine the interface style of the "Digital and Intelligent Village" APP: The tasks include analyzing villagers' aesthetic preferences through user research and exploring the impact of icon shapes and color matching on the interface style.

IPE elements: Learn the history of Chinese and foreign cultural and artistic development, analyze the cultural connotation of artistic works, and clarify that designs with cultural connotation have longer vitality and stronger communication power.

IPE objectives: Improve students' humanistic literacy and aesthetic ability through learning the connotation of interface styles; Require the integration of traditional cultural elements in the design, and enhance students' cultural identity and cultural confidence by understanding and applying traditional culture; Cultivate students' teamwork ability and professional ideal of pursuing truth through group collaborative learning.

Task 4: Design icons for the "Digital and Intelligent Village" APP: Design creative icons in accordance with the determined style, ensure unified color matching and style, and comply with platform application standards.

IPE elements: Combine a case of plagiarism in a college student's graduation project (the original creator won compensation through legal proceedings) to clarify that plagiarism violates the professional ethics and laws of designers and make students aware of the seriousness of infringement.

IPE objectives: Convey the value of originality through cases, guide students to respect others' work, abide by professional ethics, and act in good faith and in accordance with the law; Enhance students' cultural confidence and innovative ability by carrying out innovative designs incorporating Chinese rural and traditional cultural elements.

Task 5: Design fonts for the 24 Solar Terms guide page of the "Digital and Intelligent Village" APP: The tasks include understanding the character of fonts from the perspectives of structure, strokes, and details, conducting creative font design combined with the cultural connotation of the 24 Solar Terms, using AI tools to find inspiration, and drawing with Illustrator.

IPE elements: Sort out the development history and classification of Chinese characters, and clarify that Chinese calligraphy is not only a form of writing but also an aesthetic expression, which contains the philosophical thoughts, cultural literacy, and spiritual pursuit of the Chinese nation.

IPE objectives: Enable students to recognize the beauty of Chinese characters through font design analysis, understand the development history of Chinese characters, and improve their humanistic heritage; Integrate rural elements into the design to allow students to feel the great changes in rural areas under the support of national policies and enhance their value identity; Guide students to reasonably use AI to assist creativity, learn to distinguish, select, and optimize generated content, and cultivate AI literacy.

Task 6: Design the 24 Solar Terms guide page of the "Digital and Intelligent Village" APP: The tasks include analyzing the types of APP guide pages, mastering the drawing methods of illustration-based guide pages, conducting creative conception combined with the cultural characteristics of the 24 Solar Terms, generating illustration elements using AI, and drawing

with Photoshop.

IPE elements: China's astronomical phenomena culture has a long history. The 24 Solar Terms are formulated based on the rotation direction of the Big Dipper, accurately reflecting natural rhythms and playing an important role in ancient agricultural production.

IPE objectives: Enable students to understand the Chinese people's respect for nature and the wisdom of working people through learning the 24 Solar Terms, feel the profoundness and extensiveness of Chinese culture, and establish cultural confidence.

Module 4: Interface Animation Design

Task 7: Design transition animations and icon animations for the "Digital and Intelligent Village" APP: The tasks are to design transition animations based on the APP's functional characteristics and user preferences, and design animations for the home page icons.

IPE elements: ① Animation design needs to focus on details, simulate the movement patterns of natural objects, and polish each frame to avoid rigid animations; ② Combine the case of *Black Myth: Wukong* being accused of plagiarism to emphasize the preciousness of originality.

IPE objectives: Cultivate students' craftsmanship spirit of pursuing excellence through frame-by-frame refinement; Enable students to adhere to originality, respect others' copyrights, and establish good professional ethics through the analysis of infringement cases and the differences between reference and plagiarism; Improve students' learning ability through teaching methods such as independent learning and cooperative inquiry.

(2) Integration into Teaching Methods: Based on the concept of action-oriented teaching, adopt methods such as flipped classrooms, task-driven learning, and independent inquiry. For example, in the interaction design of the "Digital and Intelligent Village" APP, students' logical thinking and awareness of standards are cultivated through "drawing user experience maps."

In classroom teaching, combined with project characteristics and student situation analysis, and based on the action-oriented teaching concept, a student-centered teaching closed loop of "three stages and six links" is formed. The flipped classroom is innovated: corporate engineers participate in the teaching process in real time and work with full-time teachers to create a classroom atmosphere of positive interaction and communication between teachers and students, maximizing the exploration of students' potential and stimulating their interest in learning. IPE elements are naturally integrated into the three stages of pre-class, in-class, and post-class, and the six links of "pre-class exploration-task inquiry-task planning-task implementation-result evaluation-post-class expansion" are carried out in a hierarchical manner. IPE is implemented implicitly and subtly, ultimately leading students from "understanding and internalizing" to "practicing."

(3) Integration into Teaching Evaluation: Evaluate the integrity of pre-class self-study, in-class learning attitude, and the cultural heritage and originality of post-class works. For example, AI is used to detect plagiarism in design works, and corporate engineers evaluate the compliance of works with professional standards.

Teaching evaluation runs through the entire course teaching process, including pre-class, in-class, and post-class, with an emphasis on process evaluation. Multi-dimensional evaluation covers students' knowledge, professional skills, and IPE literacy. Multi-subject evaluation involves teachers, students, corporate engineers, users, and AI-assisted evaluation. Evaluation methods are diversified, including teaching platform record analysis, classroom observation, intra-group mutual evaluation, inter-group mutual evaluation, and work scoring. A whole-process and three-dimensional evaluation system is constructed.

2.2.4 AI Empowerment: Improve Quality and Efficiency, and Innovate IPE Methods

Relying on the school's intelligent computing center, a "generative platform for ideological and political education content" is developed to automatically convert PPTs into videos, documents into audio, and text into illustrations (e.g., generating guide page materials for the "24 Solar Terms"), reducing the cost of IPE resource production. IPE content is recommended based on students' learning data (e.g., students with weak understanding of rural areas are recommended rural revitalization cases), and AI teaching assistants provide real-time answers to questions, improving the pertinence of learning.

2.3 Develop High-Quality IPE Resources for Courses

2.3.1 Develop High-Quality Online Digital Resources

Focusing on the fundamental task of "fostering virtue through education" and the IPE objectives of the course, the course further deepens the education of professional ideals and ethics. Taking advantage of school-enterprise cooperation and the integration of production and education in vocational education, front-line interface designers from enterprises are invited to continue developing high-quality digital resources for IPE in courses. The resources are constructed in accordance with the "1+1+1+1" model, i.e., "one professional skill point + one work task + one set of 1+X tests + one IPE point." The resources include study guides, courseware, micro-lecture videos, IPE cases, and hot-topic discussions. Online digital resources, digital teaching materials, and AI-based IPE resources are developed to form a systematic and three-dimensional set of high-quality digital resources for IPE in courses.

2.3.2 Synchronously Develop High-Quality Digital Teaching Materials

Supporting the development of new forms of three-dimensional and digital teaching materials, which are combined with traditional teaching materials and online resources. Knowledge points related to interface design are integrated with IPE elements in the form of cases, stories, and discussions. Multimedia resources such as charts, videos, and animations are used to enhance the attractiveness and appeal of IPE content.

Conclusion

Through the construction of the "1-2-3-3 AI-empowered" IPE model, the course *Interface Design and Implementation* solves the "disconnection" problem with "one body and two wings," enriches the connotation of IPE with "three dimensions," connects the entire teaching process with "three integrations," and improves quality and efficiency with AI empowerment. Simultaneously, it reconstructs teaching content, optimizes classroom teaching, and develops resource and evaluation systems, realizing the in-depth integration of IPE and professional education. Practice shows that this path effectively implements the fundamental task of "fostering virtue through education," improves students' comprehensive literacy and teachers' ability to conduct IPE, and provides the following insights for IPE construction in higher vocational digital creative courses and other professional courses: first, real projects should be used as carriers to realize the "materialization" of IPE; second, a multi-subject collaboration mechanism should be constructed to solve the problem of "working alone"; third, technology empowerment should be relied on to improve the efficiency and accuracy of IPE. In the future, it is necessary to further optimize the dynamic update mechanism of IPE content and the cross-school resource sharing platform to expand the scope of demonstration and radiation.

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