Research on the Implementation Path of Ideological and Political Education in the Intelligent Information Search Course

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Abstract: This paper explores the implementation path of ideological and political education in the intelligent information search course for postgraduate students, aiming to achieve the organic unity of knowledge imparting and value guidance. The article first reviews the policy background and development context of ideological and political education, emphasizing the core position of the intelligent information search course in the cultivation of digital literacy and its natural fit with the ideological and political goals. Then, based on the constructivist learning theory and the holistic education concept, it proposes specific measures in the three core dimensions of content design, teaching methods, and evaluation system, such as situation simulation, project-driven, and case discussion, to ensure that students deepen their value thinking in technical practice. Finally, the effect of improving ideological and political literacy is verified through experiments, and the three-stage infiltration method and the hot topic-driven strategy are proposed to deal with the implementation challenges. In the future, the deep integration of AI technology and ideological and political teaching will be explored to construct a teaching scene that combines the virtual and the real, forming an educational closed loop of technical breakthroughs, value internalization, and social services.

1. Introduction

In 2016, the National Conference on Ideological and Political Work in Higher Education proposed that all courses should align with ideological and political theory courses, marking the transition of curriculum-based ideological and political education from conceptual exploration to institutional construction. In 2020, the Ministry of Education issued the Guidelines for Curriculum-based Ideological and Political Development in Higher Education, explicitly advocating the

"comprehensive advancement of curriculum-based ideological and political education to fulfill the fundamental task of cultivating morality and nurturing talents," requiring all universities and disciplines to integrate ideological and political elements into curricula to build a holistic education framework. The document positioned curriculum-based ideological and political education as a "strategic project" for higher education reform, emphasizing the need to integrate ideological elements into professional courses to unify knowledge transmission and value guidance. In 2021, the Central Committee of the Communist Party of China and the State Council issued the Opinions on Strengthening and Improving Ideological and Political Work in the New Era, further incorporating curriculum-based ideological and political education into the "grand ideological and political education system" and promoting synergy between ideological-political courses and specialized courses. The 2022 report of the 20th National Congress of the CPC underscored the goal of "accelerating the development of an education powerhouse," calling for "deepening comprehensive reforms in education and improving mechanisms for moral education," providing high-level policy endorsement for curriculum-based ideological and political education.

As a core component of digital literacy cultivation, the intelligent information search course inherently aligns with ideological and political objectives through its content, such as web crawling mechanisms, recommendation algorithms, text analysis, and online information verification[1]. The Guidelines highlight the importance of "leveraging information technology to embed ideological and political elements into professional practice scenarios," offering direct policy support for integrating data ethics and information social responsibility into the course. The ideological-political transformation of information retrieval courses holds unique significance as a bridge between technology and humanistic values. First, teaching search engine usage and text analysis technologies can guide students to reflect on "whom technology serves," balancing technical rationality with value rationality. Second, comparing global information and ideological differences strengthens cultural confidence and awareness of academic discourse power, harmonizing international perspectives with local stances. Finally, embedding the Cybersecurity Law into information acquisition training fosters a sense of responsibility for "technology for good," linking personal competence with social accountability.

To align with national requirements, the course must shift from a "skill-centric, value-neglecting" model to a "knowledge-ability-literacy" trinity paradigm. This requires redesigning teaching objectives and evaluation tools to resolve the disconnect between professional education and ideological-political education, achieving subtle educational effects. Reform strategies should leverage digital technologies as tools and value cultivation as the core, constructing a teaching model that integrates disciplinary features with ideological-political depth[2].

2. Theoretical Foundations

2.1. Constructivist Learning Theory: Pathways for Ideological-Political Integration

Constructivist learning theory emphasizes learners' active engagement and interaction in knowledge construction, enabling value guidance through active inquiry. In the intelligent information search course, students, as knowledge constructors, engage in hands-on practices to identify and solve problems. Simultaneously, instructors cultivate information ethics awareness by analyzing cases of academic plagiarism and data fraud, helping students recognize ethical boundaries. For instance, topics like "privacy protection technologies in the big data era" can serve as ideological-political focal points, establishing problem-driven inquiry frameworks that internalize ethical principles as value judgments[3].

2.2. Holistic Education Philosophy: Integration Mechanism of Knowledge, Practice, and Ethics

The holistic education philosophy prioritizes the unification of knowledge transmission and value cultivation, manifested in three-dimensional synergy in the course. In the knowledge dimension, instructors integrate social responsibility awareness into technical content—for example, linking PageRank algorithms with the public nature of information dissemination. In the practice dimension, projects like academic source tracing require students to submit ethical self-assessment reports alongside technical tasks, synergizing skill development and value formation. In the ethics and teaching ethos dimension, instructors systematically design ideological-political modules such as "privacy protection laws" and "evolution of academic integrity systems," embedding value-shaping elements into teaching resources and classroom discussions. This creates an upward spiral of professional knowledge, practical competence, and ethical values, forming a cohesive educational loop[4].

3. Core Dimensions of Ideological and Political Education in the Intelligent Information Search Course

3.1. Content Design

Focusing on the unique characteristics of the course and deepening pathways for ideological-political integration, the content framework of ideological and political education in intelligent information search is structured as shown in Table 1.

3.2. Teaching Methods

3.2.1. Scenario Simulation Teaching

By constructing authentic ethical dilemma scenarios, students deepen their value-based thinking through technical practice. For example, around the issue of "copyright ownership of AI-generated news," a role-playing task is designed where students simulate technology development teams, media organizations, legal advisors, and public representatives to explore the ethical boundaries of technical solutions from multiple perspectives. The technical team demonstrates how to trace content sources using digital watermarking and blockchain technology, while legal advisors analyze the rights attribution of AI-generated works under the Copyright Law. Public representatives raise concerns about information credibility from the perspective of public opinion. This process not only hones students' application of natural language processing skills but also guides them to understand the need for balancing legal constraints and social responsibility in technology development. It subtly reinforces the value of "technology for good" and cultivates a collective interest-first mindset in teamwork[5].

3.2.2. Project-Driven Teaching

The "Intelligent Retrieval System Development for Red Culture Resources" project requires students to digitize revolutionary historical documents, build a knowledge graph-based retrieval model for Party history events, and implement an intelligent Q&A function using natural language processing. During data processing, students analyze high-frequency vocabulary in Selected Works of Mao Zedong to understand the theoretical framework of Marxism's Sinicization. In system testing, visualization of retrieval results such as the "Long March Route" directly showcases the century-long struggle of the Communist Party of China. By integrating technical challenges (e.g.,

optimizing OCR accuracy for ancient texts) and spiritual insights (e.g., text mining of the Yan'an Spirit), students enhance their algorithmic coding skills while profoundly grasping the era's mission of empowering cultural heritage through technology, solidifying their ideals of serving the nation through science and technology.

Table 1: Ideological and Political Education for the Intelligent Information Search Course

Case Integration	Authenticity Identification of Network Information	Case 1: Rumor Identification on Social Media during the Epidemic, such as the false information spread of "Shuanghuanglian Inhibits COVID-19". Technical Relevance: Rumor detection algorithm based on text classification and keyword extraction. Ideological and Political Integration: Guide students to understand the responsibility of "Technology for Good", and cultivate critical thinking and scientific spirit.
		Case 2: AI-generated Fake News, such as Deepfake forged videos. Technical Relevance: Natural language generation and multimedia content detection technology. Ideological and Political Integration: Discuss the impact of technology abuse on national security and strengthen the awareness of information ethics.
	Algorithm Fairness	Case: Regional/Gender Bias in Search Engine Results, such as the majority of "CEO" image search results being men. Technical Relevance: Sorting algorithm and user profiling technology. Ideological and Political Integration: Analyze the social roots of algorithm bias and advocate that technology developers should have a sense of fairness and justice.
Theme Expansion	Science and Technology Ethics	Case 1: Data Privacy and User Profiling Technology Technical Relevance: User behavior data analysis and personalized recommendation. Ideological and Political Discussion: Combined with the "Personal Information Protection Law", discuss the boundary of data collection and the principle of "Technology for Altruism".
		Case 2: Moral Choices and Retrieval Logic in Autonomous Driving Technical Relevance: Decision tree algorithm and risk priority sorting. Ideological and Political Discussion: By comparing Chinese and Western cases, emphasize the ethical concept of "Life First".
	Intellectual Property Protection	Case 1: Academic Paper Plagiarism Detection Technology Technical Relevance: Text similarity calculation, such as TF-IDF, BERT. Ideological and Political Discussion: Through technology to support the construction of academic integrity and promote the spirit of scientific research.
		Case 2: Digital Rights Management and Open Sharing Technical Relevance: Encryption technology and blockchain for evidence storage. Ideological and Political Discussion: Balance intellectual property protection and knowledge popularization to serve the innovative country strategy.

3.2.3. Case Study and Discussion

Case studies stimulate critical thinking and value judgment by combining cutting-edge information retrieval technologies. For example, debates on "personalized recommendation algorithms and information cocoons" are organized: one side argues for the rationality of user profiling from a technical efficiency perspective, while the other critiques algorithmic constraints on cognition using the "alienation" theory. Instructors explain collaborative filtering algorithms and strategies for balancing value guidance, prompting students to embed socialist core values into recommendation system design. In analyzing the "Google's Exit from China" case, students compare Sino-U.S. search engine technical approaches and discuss the importance of cyber sovereignty and information security. This multidimensional analysis helps students grasp the

profound implications of "building a community with a shared future in cyberspace" and heightens urgency for core technological autonomy.

3.3. Evaluation System

3.3.1. Assessment Model

A "knowledge-ability-value" trinity assessment model is established. In technical practices, students submit reports analyzing potential social risks, such as proposing improvements aligned with socialist core values to counter information cocoons caused by personalized recommendation algorithms. Team projects include peer evaluations of collaboration, quantifying individual contributions in communication efficiency, responsibility, and collectivism through anonymous scoring, supplemented by instructor observations to ensure objectivity. Course defenses incorporate "ideological-political questioning," focusing on students' ability to explain technical designs from perspectives of national security and cultural confidence, achieving dual enhancement of professional skills and value judgment.

3.3.2. Process-Oriented Evaluation

Process evaluation emphasizes ideological-political literacy cultivation throughout the learning cycle. Classroom performance metrics track critical thinking, such as assessing students' dialectical analysis of conflicts between AI-generated content's convenience and creators' rights. In projects, teams reflect on adherence to privacy principles, such as obtaining informed consent for facial recognition datasets. Final assessments adopt a "technical solution + ideological defense" dual-track system: technical solutions prioritize functional innovation, while defenses focus on social benefits, such as comparing Chinese and Western search engines in combating misinformation to demonstrate how domestic technologies embody the "people-centered" development philosophy.

3.3.3. Dynamic Feedback Mechanism

Anonymous surveys regularly collect student feedback on ideological-political cases, gauging their understanding of technical fairness's role in modernizing national governance. Industry engineers evaluate projects' societal applicability from a practical perspective, aligning theory with real-world needs. A "growth portfolio" tracks students' progress in critical thinking and patriotism, contrasting their initial naive views on "technological neutrality" with post-course insights into "algorithmic value embedding." Data visualization showcases educational outcomes, providing empirical support for pedagogical reforms.

4. Implementation Paths and Strategies

4.1. Top-Level Design Path

Aligning with the Guidelines for Curriculum-based Ideological and Political Development in Higher Education, course syllabi are revised to decompose objectives like "serving the nation through technology," "information ethics," and "cultural confidence" into quantifiable indicators mapped to technical knowledge points. For instance, in the "natural language processing" module, "Chinese word segmentation" is linked to "cultural heritage preservation" through tasks like "intelligent sentence segmentation of ancient texts," helping students recognize technology's role in digitizing traditional culture. The Curriculum-based Ideological and Political Teaching Guide

details integration depth, methods, and evaluation criteria for each chapter, ensuring cohesive ideological-political objectives[6].

4.2. Resource Development

Guided by principles of "localization, contextualization, and modernization," an ideological-political case library is developed. Foundational cases focus on technical ethics, advanced cases align with national strategies, and challenging cases emphasize complex value judgments. Practical tasks adopt a "project-based + modular" approach, integrating "technology for good," "national security," and "cultural heritage." A "Curriculum-based Ideological and Political Resource Cloud Platform" aggregates datasets on red culture, white papers on domestic technologies, and ethical review standards, forming a dynamic "knowledge-ideology-resource" network.

5. Practice and Challenges

A pilot study was conducted with 30 students in the Intelligent Information Search course using the "technology-ideology integration" model. Over one semester, ideological-political content covered themes like "technological innovation and patriotic sentiment," "social harmony and democratic participation," "user integrity and friendly interaction," "information equality and truthful dissemination," and "privacy protection and justice." Data revealed a 57.2% improvement in ideological-political literacy, with 85% of students acknowledging in interviews that "ethical discussions infused technology with humanistic warmth."

To address "forced integration" issues, the "Three-Stage Infiltration Method" was implemented: embedding ethical insights during technical explanations (e.g., introducing "information equity" in PageRank algorithms), setting ethical constraints in experiments (e.g., enforcing robots.txt protocols in web crawling), and emphasizing value-driven goals in projects (e.g., historical accuracy reviews for red culture systems). To boost engagement, "hot-topic-driven" strategies were adopted, such as analyzing "generative AI copyright disputes" or "social media algorithm-induced youth addiction" through practical tasks. Students collected trending video tags, applied LDA topic modeling to assess content biases, and submitted reports diagnosing algorithmic values, addressing governance challenges like "fan culture" and "historical nihilism" through technical means.

6. Conclusion

The ideological-political development of information retrieval courses requires a "knowledge-ability-value" trinity model, integrating technical principles with ethical reflection to cultivate both professional expertise and a sense of technological ethics and national mission. Practice demonstrates that case studies and projects—such as red culture digitization and algorithmic bias correction—effectively guide students to translate technical skills into societal contributions. Embedding values like "technology for good" and "cultural confidence" into search engine optimization and NLP modules bridges the gap between technical rationality and value leadership, achieving synergy between professional and ideological-political education.

Future directions include deeper AI integration: developing intelligent retrieval tools (e.g., red culture Q&A bots powered by large language models) and using sentiment analysis to evaluate value alignment in student reports. Virtual reality scenarios simulating "cyberspace governance" could immerse students in data crawling and filtering to grasp national security strategies. Cross-disciplinary collaboration among universities, industries, and policymakers will establish "technical ethics standards" and "ideological-political resource libraries," forming an educational closed loop

of "technological innovation, value internalization, and societal service" to nurture information professionals with innovation capabilities and patriotic commitment.

Acknowledgements

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