

# Research on the Four-Dimensional Collaboration and Three Loop Feedback Mechanism of Digitally Empowered University Ideological Propaganda Work

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**Abstract:** With the rapid development of digital technology, the opportunities and challenges of propaganda and ideological work in universities are unprecedented. This article constructs a digital propaganda and ideological work system centered on the “Four Dimensions and Five Elements”, and points out that under the collaborative cooperation of the “Three Rings, Two Chains, and Two Feedback” mechanism, the intelligent path of ideological and political work in universities can be optimized. The four-dimensional drive encompasses ideas, culture, education, and practice. The five elements include content, form, channel, subject, and effect, which together construct the basic framework of digital propaganda and ideological work. The three-loop mechanism consists of three parts: content generation and push loop, public opinion monitoring loop, and feedback optimization loop. Dual chain refers to the data analysis chain and the emotional interaction chain. Dual feedback is an online and offline linkage feedback system. This model enhances the pertinence, interactivity, and effectiveness of propaganda and ideological work through precise push, real-time monitoring, and dynamic feedback, promoting the transformation of ideological and political education in universities towards intelligence, precision, and systematization.

**Keywords:** Digital empowerment; Four dimensions and five elements; Three ring; Dual chain; Dual feedback mechanism for university propaganda; Ideological work

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## 1. Introduction

In the current era of rapid development of information and intelligent technology, the opportunities and challenges of propaganda and ideological work in universities are the same. The traditional ideological and political education model, in the wave of informatization, has a single channel of dissemination, poor interactivity, and poor accuracy, which makes it ineffective in meeting the diverse and personalized ideological education needs of contemporary college students. So, how to use digital means to improve the effectiveness of propaganda and ideological work in universities is an urgent problem that ideological and political workers in universities need to solve<sup>[1]</sup>.

With the widespread use of emerging technologies such as big data, artificial intelligence (AI), the Internet of Things (IoT), and virtual reality (VR), ideological and political work is beginning to explore the integration of these technologies with education and propaganda to achieve a modern transformation of ideological and political work. The new trend

of digitization is emerging, and in order to accurately grasp and apply this trend, this article is written accordingly. By leveraging the digital empowerment of the “Four Dimensions and Five Elements” university propaganda and ideological work model, and through the intelligent optimization of the “Three Rings, Double Chains, and Double Feedback” approach, an efficient, accurate, and intelligent propaganda and ideological education system can be constructed. The “Four Dimensions and Five Elements” model is a systematic framework design for the digital transformation of propaganda and ideological work in universities. Discuss from four aspects: ideology, culture, education, and practice; Integrate the five elements of content, form, channel, subject, and effect. Deeply understand these dimensions and elements, and provide clear direction and guiding principles for the construction of digital application scenarios. In addition, the “Three Rings, Dual Chains, and Dual Feedback” mechanism utilizes the three major links of content generation, public opinion monitoring, and feedback optimization, as well as the two chains of data analysis and emotional interaction, with dual feedback to ensure that ideological work is dynamically adjusted and personalized recommendations are made, achieving full chain, online and offline feedback for ideological dissemination and effect optimization.

## **2. The necessity of digitally empowering university propaganda and ideological work**

After the development of “new quality productivity”, digital technology has developed rapidly, which has a great impact on various fields of society<sup>[2]</sup>. The propaganda and ideological work in universities have also faced new challenges and opportunities. Under the traditional mode of ideological and political education, students find it difficult to keep up with the speed and coverage of information dissemination, which weakens the effectiveness of ideological and political education. College students have diverse and complex thoughts, and the traditional “one size fits all” approach to ideological education is difficult to effectively meet the needs of each student. Traditional ideological work often exhibits the phenomenon of “one-way indoctrination”, with a lack of interaction between teachers and students, making it difficult to adjust and optimize ideological work in a timely manner. The traditional ideological and political education model usually requires a long period of time in the production, dissemination, and feedback of ideological and political content. So, digitalization has empowered the propaganda and ideological work of universities, which is an inevitable choice of the times and a key way to improve the efficiency and effectiveness of ideological education work.

## **3. Construction of the “four-dimensional five elements, three ring double chain double feedback” working mode**

### **3.1. The “four dimensions and five elements” mode**

#### **3.1.1. Ideological dimension**

The ideological dimension is the core of propaganda and ideological work in universities<sup>[3]</sup>.

University propaganda and ideological workers can set up ideological and political theory courses, hold special lectures, organize learning seminars, etc., so that they can actively accept artificial intelligence technology, use artificial intelligence algorithms to analyze students’ interests and behavior channels, accurately push ideological and political education content, and break the single mode of traditional propaganda. Systematically and deeply impart to students the basic principles of Marxism and the theoretical system of socialism with Chinese characteristics, promoting their profound understanding of the Party’s line, principles, and policies.

Using various educational methods and tools according to the characteristics of students in different grades and majors. With the help of intelligent recommendation systems, content such as red historical stories and the deeds of revolutionary predecessors can be pushed to students interested in history. To convey cutting-edge technological achievements and the spirit of scientists’ struggle to students interested in technological innovation, in order to enhance the pertinence and effectiveness of propaganda, and to strengthen students’ confidence in the path, theory, system, and culture

of socialism with Chinese characteristics.

When promoting the use of artificial intelligence, it is important to focus on cultivating students' critical thinking and information literacy, so that they can identify false information and rationally view the impact of artificial intelligence. At the same time, we should encourage students to actively participate in the innovative application of artificial intelligence in propaganda and ideological work, and work together to promote the development of propaganda and ideological work in universities.

### **3.1.2. Cultural dimensions**

The important aspect of propaganda and ideological work in universities is the cultural dimension. Universities are important battlefields for cultural inheritance and innovation. Universities should fully leverage their cultural advantages, create a strong campus cultural atmosphere, and cultivate students' cultural literacy and humanistic spirit.

To inherit and promote excellent traditional Chinese culture, it is possible to establish traditional culture courses, cultural lectures, and traditional culture experience activities, and digitize and preserve the forms of university cultural tourism, cultural tourism attractions, celebrity stories, etc. using artificial intelligence technology. With the help of intelligent databases, students can easily access and become aware of the cultural heritage of the university. Moreover, with the help of artificial intelligence technologies such as image recognition and speech synthesis, traditional cultural content can be presented more vividly and intuitively, such as creating virtual historical scenes and animated videos that tell traditional stories, enhancing the audience's sense of identity and pride in excellent traditional culture. It can help students understand the profound and unique charm of China's excellent traditional culture, strengthen their sense of national pride and cultural identity, and make them unconsciously influenced by traditional culture. Create a beautiful campus cultural environment, so that students can receive cultural nourishment in a good environment.

### **3.1.3. Educational dimension**

The important approach to propaganda and ideological work in universities is the educational dimension. The fundamental task of universities should be to cultivate moral character and nurture talents. It is necessary to integrate propaganda and ideological work into the entire process of education and teaching, cultivate talents with comprehensive development in morality, intelligence, physical fitness, aesthetics, and labor, and become the successors of socialist construction<sup>[4]</sup>.

In the field of education, teachers can use various educational channels such as social media, mobile terminals, and smart campuses to provide personalized educational content recommendations with the help of artificial intelligence. They are able to analyze students' interests, learning habits, and psychological states, in order to provide personalized ideological education content for students. Teachers can use games to enhance students' participation and learning interest, as well as cultivate their teamwork spirit and innovation ability. University propaganda personnel can use artificial intelligence to present ideological and political content to the subject in the form of videos, audios, animations, etc., such as teaching processes. With the help of such new media forms as the school's official account, video number and Tiktok number, the attraction and appeal of ideological and political education can be improved, so that students can more intuitively experience and understand the content of ideological and political education.

### **3.1.4. Practical dimension**

The key component of propaganda and ideological work in universities is the practical dimension, which plays a crucial role. This is a key point. In practical applications, artificial intelligence methods can effectively stimulate students' enthusiasm for participation, add new vitality to propaganda and ideological work, and greatly improve its effectiveness.

Students can easily access personalized learning resources tailored to their needs through learning assistants powered by artificial intelligence. This technology allows students to experience the actual scene of ideological and political education in an immersive environment, giving them a more intuitive feeling of learning. In addition, learning assistants can intelligently recommend relevant learning materials and case studies based on students' learning progress and interests,

which greatly improves the pertinence and effectiveness of learning. Students can use artificial intelligence analysis tools to gain a deep understanding of user needs and hot topics on social media platforms, and based on this, develop personalized promotional strategies and plans. In the planning and organization process of campus cultural activities, students can also actively participate and add new ideas and unique features to the activities through artificial intelligence technology.

### **3.2. Three ring dual chain dual feedback mechanism**

#### **3.2.1. Content generation and push loop**

The generation and dissemination of content is the starting point of ideological dissemination, which is the planning cycle, covering everything from mechanism construction to practical operation. Universities can use artificial intelligence technology to accurately generate ideological and political content, guide ideology, promote campus cultural activities, promote anti construction propaganda, and enable targeted and efficient dissemination. By leveraging big data and artificial intelligence technology, we analyze students' interests, learning trajectories, and ideological status, and generate political and ideological content that meets their needs. Based on these data, the content not only includes traditional articles and lectures, but also attracts students' attention through multimedia forms such as short videos, social media articles, and animations. By analyzing student behavior data and personal needs, personalized content push can be achieved. Mobile notifications, emails, social media push notifications, and other forms can be used for push notifications. The content can be customized according to different disciplinary backgrounds and areas of interest, in order to enhance the relevance and timeliness of the ideological content. Dynamically adjust content push strategies based on data such as student interaction measures, click through rates, and learning duration to ensure that students' needs are always met.

#### **3.2.2. Public opinion monitoring environment**

Public opinion supervision is crucial for the effective implementation of ideological and political work in universities, serving as an execution loop that requires comprehensive public opinion supervision in both operation and content. Real time monitoring of students' ideological dynamics through social media, campus forums, news platforms, and other channels. Using natural language processing (NLP) technology and emotion analysis tools to identify students' emotional reactions and public opinion trends towards social hotspots and campus events, ensuring timely detection and resolution of problems.

Once schools discover potential ideological differences or signs of negative public opinion, they can quickly respond and release positive guidance information through official authoritative channels, effectively curbing the spread of negative thoughts and ensuring the smooth and orderly development of various campus work. Schools can quickly respond based on feedback from public opinion monitoring, flexibly adjust educational content and communication strategies, and avoid deviations in ideological and political work. This dynamic adjustment mechanism provides guidance for the dissemination of ideas in the correct direction, effectively ensuring its progress.

#### **3.2.3. Feedback optimization loop**

The feedback loop plays a crucial role in the evaluation process by collecting and analyzing students' interactive feedback. It can effectively improve the quality of ideological education content, create a distinctive brand of the school, and promote the comprehensive development of students, which is essential to a large extent. Continuously improving the content and presentation methods of ideological dissemination, constructing a cycle mechanism of dissemination feedback optimization, in order to enhance the accuracy and practical effectiveness of ideological education. By combining online and offline methods, schools can obtain students' feedback on ideological content, and carry out targeted training for teachers' ideological and political teams, as well as psychological health education for students.

#### **3.2.4. Data analysis chain**

The data analysis chain forms the cornerstone of the entire thought dissemination system. With the help of big data

analysis, key information can be obtained from massive student behavior data to assist universities in formulating more accurate ideological and political communication strategies. By integrating and analyzing multiple data sources, including student learning behavior, social media interactions, and ideological survey results, schools can grasp students' emotional reactions, ideological changes, and social attention hotspots during learning. According to the analysis results of the data, schools can develop more targeted ideological and political education content, and then formulate customized promotion plans. For example, after analyzing students' learning trajectories, click through rates, engagement rates, and other behavioral data, schools can know which content has aroused students' interest, and then follow it in push notifications.

### **3.2.5. Emotional interaction chain**

The emotional interaction chain emphasizes the emotional connection between teachers and students, using various forms of online and offline interaction to increase students' emotional identification with ideological content, thereby improving the affinity and effectiveness of ideological education. With the help of online platforms such as school social media accounts and learning management systems, teachers and students can interact in real-time. Students can express their opinions and ask questions at any time, and teachers can interact with students through comment replies, online Q&A, and other methods to enhance the immediacy and interactivity of ideological education. In addition to online interaction, offline interaction is also very important. Schools can use methods such as symposiums, ideological and political classroom discussions, and on-site visits to red education bases to enhance emotional resonance between students and teachers, so that ideological and political education is no longer just transmitted online, but relies on rich offline interactions to enhance students' perception and experience.

### **3.2.6. Dual feedback online and offline**

Universities can obtain students' ideological changes and learning feedback from multiple dimensions, which can be achieved through a dual feedback mechanism of online and offline, ensuring that the adjustment and optimization of ideological and political education can cover all levels. Through online channels such as social media platforms, surveys, and comment sections, students can freely express their opinions and views on ideological content. These feedbacks can timely reflect students' ideological status and educational effectiveness. Through offline methods such as classroom discussions, face-to-face communication between teachers and students, and symposiums, teachers can more directly obtain students' true thoughts and confusion. The face-to-face feedback mechanism can help teachers gain a deeper understanding of students' emotions and needs, thereby optimizing educational content. The online and offline dual feedback mechanism operates synergistically, and after data integration and analysis, more comprehensive feedback information can be obtained to ensure the comprehensive and accurate optimization of ideological work. Combining the speed of online feedback with the depth of offline feedback can make the optimization process of ideological dissemination more complete. Through continuous planning, operation, implementation, feedback, and optimization processes, evaluation work can be more effectively completed, thereby shaping brand uniqueness.

## **3.3. Effect evaluation**

To ensure that the evaluation of this model is feasible and scientific in enhancing the effectiveness of ideological work in universities, various evaluation methods can be used to comprehensively measure and analyze from different aspects. These evaluation methods can be achieved through quantitative data, qualitative analysis, long-term tracking, and feedback mechanisms.

Quantitative evaluation is the use of data collection and analysis to quantify the effectiveness of ideological dissemination. It can measure the specific values of certain key indicators, thereby tracking and improving ideological work. Qualitative evaluation involves subjective analysis of the effectiveness of ideological dissemination, such as in-depth interviews with teachers and students, thematic discussions, case studies, and other methods, in order to understand the impact of ideological work on students' ideological transformation, emotional resonance, and values. Long term

tracking and evaluation is to observe and record the long-term impact of students' ideological changes, so as to ensure that the effectiveness of ideological and political education is not just short-term behavior, but can continue to influence students' values and social responsibility. The feedback mechanism collects and analyzes feedback information, continuously optimizes the content and implementation methods of ideological and political education, and constructs a feedback optimization loop system. With these evaluation methods, this model measures the effectiveness and efficiency of ideological and political work in universities, ensuring the practical effectiveness of precise transmission, public opinion monitoring, and interactive feedback. Supported by data technology and standardized evaluation processes, evaluation work has become scientific, comprehensive, and operational, which is very effective in enhancing the effectiveness of ideological and political work in universities.

## 4. Conclusion

The continuous innovation of digital technology has brought new opportunities for the development of ideological and political work in universities. The “Four Dimensions, Five Elements, Three Rings, Double Chains, and Double Feedback” model proposed in this article provides innovative and intelligent means for ideological and political education in universities, fundamentally enhancing the accuracy and influence of ideological work.

By leveraging the four aspects of ideology, culture, education, and practice to achieve a four in one driving force, coupled with the organic integration of content, form, channel, subject, and effect, a complete digital propaganda system is constructed. In addition, the synergy between the three-loop mechanism (content generation and push loop, public opinion monitoring loop, feedback optimization loop) and the dual chain dual feedback mechanism (dual chain of data analysis and emotional interaction, dual feedback online and offline) can effectively explain how digital technology can comprehensively expand the coverage, timeliness, and participation of ideological and political work in universities. This mode can make the dissemination of ideas more accurate and more extensive, and can optimize the actual effect of ideological and political education through real-time monitoring and multi-dimensional feedback. Moreover, it has promoted the transformation of ideological education from traditional models to intelligent and innovative models.

Looking ahead, the deep integration of digital technology will definitely further promote the transformation and upgrading of ideological and propaganda work in universities. The transformation brought about by digital technology is not only the innovation of tools and forms, but also the reshaping of ideological and educational concepts. The ideological and propaganda work in universities needs to continuously leverage the digital wave to break down the boundaries of traditional thinking and build a more dynamic and interactive ideological guidance system. This is a necessity of the times and an inevitable responsibility for the mission of education. Under the promotion of digitalization, universities will continue to innovate and optimize, and will embark on a broader path of development and expansion in the future, truly achieving a new era leap in ideological education.

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## Disclosure statement

The authors declare no conflict of interest.

## References

- [1] Ge H, 2024, Exploration of Strategies for Enhancing Ideological and Political Education of College Students from the Perspective of New Media. *News Research Guide*.
- [2] Cao J, Yang T, 2024, Exploring the Digital Empowerment of University Propaganda, Ideological and Cultural Work. *Journal of Beijing University of Science and Technology (Social Sciences Edition)*, 40(2): 33–39.
- [3] Li F, 2020, Challenges and Countermeasures of Ideological and Political Education in Colleges and Universities in the Era of All Media. *Journal of Shanxi Datong University (Social Sciences Edition)*, 4: 15–19.
- [4] Wan X, 2024, Application and Effect Analysis of Gamified Education Methods in Junior High School Physical Education Teaching. In: 2024 Cultural Information Development Forum Proceedings.

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