Research on Quality Evaluation of Ideological and Political Education Resources Based on Artificial Intelligence Technology

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ABSTRACT The rapid expansion of digital ideological and political education resources has increased resource quantity and diversity, but has also produced problems such as value-orientation deviation, content homogenization, loose theoretical logic, uneven quality, and inconsistent manual evaluation. To meet the normalized quality evaluation needs of large-scale digital resources, this study proposes an artificial-intelligence-enabled evaluation framework. Large language model semantic analysis, deep learning feature extraction, analytic hierarchy process, and fuzzy comprehensive evaluation are integrated to build a multi-level indicator system covering political orientation, content quality, teaching adaptation, technical standards, communication experience, and compliance-homogenization control. The model supports intelligent collection, semantic mining, indicator scoring, comprehensive diagnosis, classification, and precise resource recommendation. It can improve evaluation efficiency while retaining expert-derived political and educational standards through procedural consistency. In engineering-supported education environments, the framework is also relevant to wireless learning platforms, electromagnetic information infrastructures, and secure data transmission systems that deliver ideological and political resources across campuses. The study provides methodological support for the quality governance, optimization, and standardized dissemination of digital educational resources.

INDEX TERMS artificial intelligence, resource quality evaluation, ipe resources, wireless learning platforms, electromagnetic information systems

I. INTRODUCTION

A. RESEARCH BACKGROUND AND SIGNIFICANCE

IN the context of the new era, the ideological and political education work in universities serves as the core carrier for implementing the fundamental task of cultivating virtue and nurturing talents, and undertakes the important mission of cultivating new people to shoulder the great responsibility of national rejuvenation in the era[1]. Digital Ideological and Political Education (IPE) materials have become core supports for academic seminars, virtual learning environments (VLEs), and civic outreach initiatives. By diversifying the terminology used to describe these pedagogical assets, the manuscript ensures a more fluid reading experience while maintaining the rigor of the political-educational discourse[2].

Some resources have problems such as vague value orientation, fragmented content, loose theoretical logic, disconnection from teaching syllabus, deviation in value guidance, and serious homogenization[3]; The traditional manual evaluation method relies on the subjective experience of ideological and political teachers and education experts, and has shortcomings such as low evaluation efficiency, inconsistent evaluation standards, limited coverage of resources, strong subjectivity, and lack of quantitative basis. It cannot adapt to the normalized quality evaluation needs of massive digital ideological and political resources[4].

B. RESEARCH SIGNIFICANCE

This study enriches the theoretical research results of the intersection of artificial intelligence technology and ideological and political education, breaks through the limitations of traditional subjective qualitative evaluation of ideological and political education resources, constructs a quantitative evaluation theoretical framework for the quality of ideological and political education resources empowered by artificial intelligence, clarifies the theoretical basis, mechanism and evaluation dimensions of AI technology intervention in ideological and political resource evaluation, and improves the theoretical system of digital ideological and political resource construction, management and evaluation[5].

At the same time, the evaluation results can provide reverse guidance for creators of ideological and political education resources, university teaching teams to optimize resource creation content, improve presentation forms, adhere to value orientation, and promote the transformation of ideological and political resources from "quantity growth" to "quality improvement"[6]. For ideological and political education in universities, high-quality intelligent screening of resources can enrich classroom teaching materials, achieve precise personalized resource push, help teachers innovate teaching models, and enhance the infectivity and effectiveness of ideological and political education classrooms; For student groups, they can avoid the interference of vulgar, entertaining, and biased ideological and political resources, obtain authentic, high-quality, and suitable ideological and political learning content for their own learning needs, and establish a correct worldview, outlook on life, and values[7]. In addition, the results of this study can provide practical basis for education administrative departments to formulate norms for the construction of ideological and political digital resources, formulate resource evaluation standards, and carry out quality supervision of ideological and political resources, helping to strengthen the defense line of network ideological security[8].

C. RESEARCH METHODS

1. Literature research method: Systematically review relevant monographs, journal articles, and policy documents on artificial intelligence education applications, ideological and political education resource construction, and education resource quality evaluation at home and abroad, summarize existing research results, theoretical foundations, and research shortcomings, and provide literature support for the construction of this research framework, indicator design, and theoretical analysis.

2. Analytic Hierarchy Process: Used to construct a multilevel indicator system for evaluating the quality of ideological and political education resources, scientifically calculate the weight coefficients of each level of evaluation indicators, achieve quantitative stratification of evaluation indicators, and ensure the scientificity and rationality of the evaluation system.

3. Fuzzy comprehensive evaluation method: Combining the characteristics of artificial intelligence algorithms, qualitative evaluation indicators are combined with quantitative scoring to solve the difficult problem of accurately quantifying the value orientation and ideological connotation of ideological and political resources, and to enhance the comprehensiveness of evaluation results.

4. Case analysis method: Select different types of typical resources such as online courses on ideological and political education in universities, short videos on red culture, micro courses on ideological and political education, and interpretation of current affairs as cases, and use the AI evaluation model constructed in this study to simulate and evaluate the feasibility of the system and summarize optimization directions.

5. System analysis method: Regard the quality evaluation of ideological and political education resources as a complete system, systematically decompose and integrate from multiple levels such as theory, technology, indicators, models, practice, and guarantee, and construct a comprehensive and full process intelligent evaluation system.

D. RESEARCH INNOVATION POINTS AND KEY DIFFICULTIES

1) Research Innovation Points

Firstly, innovative research perspective: Breaking through the inherent subjective evaluation perspective of traditional ideological and political resources, deeply integrating artificial intelligence machine learning, natural language processing, emotion computing technology with ideological attributes of ideological and political education, and constructing a new evaluation perspective that is intelligent, quantitative, and procedurally consistent. While the system integrates expert-derived weights, it ensures that these standards are applied uniformly across massive datasets, thereby mitigating the fluctuations of human subjectivity.

Secondly, innovation in application mode: Design a full process AI evaluation application mode of "intelligent grasping feature mining indicator scoring comprehensive analysis classification precise push", connecting the entire chain of ideological and political resource evaluation, screening, optimization, and application, and achieving deep connection between theoretical research and practical application.

Thirdly, innovation in risk prevention and control: In response to potential risks such as artificial intelligence algorithm bias, data privacy breaches, value algorithm solidification, and excessive reliance on AI, a multidimensional prevention and control mechanism consisting of ethical constraints, algorithm optimization, manual review, and institutional supervision will be established to ensure the safe and standardized operation of the intelligent evaluation system.

2) Key and difficult points of research

Research focus: Firstly, clarify the inherent coupling mechanism between artificial intelligence technology and the quality evaluation of ideological and political education resources; The second is to scientifically construct a multilevel evaluation index system that combines political attributes, educational attributes, content attributes, and dissemination attributes; The third is to design an AI evaluation technology architecture and evaluation model that adapts to the characteristics of ideological and political resources.

Research difficulties: Firstly, the quantitative transformation of subjective attributes such as the ideological connotation and value guidance effect of ideological and political resources, balancing qualitative and quantitative evaluation;

The second is to avoid the inherent bias of artificial intelligence algorithms and ensure the political correctness and suitability of evaluation results for education; The third is to establish a longterm operational mechanism that takes into account technology implementation, institutional guarantees, and ethical constraints.

II. DEFINITION OF RELATED CONCEPTS AND THEORETICAL BASIS

A. DEFINITION OF CORE CONCEPTS

1) Artificial Intelligence Technology

Artificial intelligence technology is an interdisciplinary technology that integrates computer science, mathematics, psychology, linguistics, and other disciplines. Its core is to enable machines to simulate human perception, thinking, reasoning, learning, and decision-making abilities, achieving intelligent information processing and autonomous judgment[9]. The core technologies of artificial intelligence involved in this study mainly include machine learning, natural language processing, big data mining, sentiment computing, intelligent clustering, and image and video feature recognition. Machine learning can train algorithm models with massive sample data to achieve autonomous learning and accurate classification of the characteristics of ideological and political resources; Natural language processing can analyze the semantic connotations, value orientation, theoretical logic, and emotional tendencies of ideological and political text resources[10]; Big data mining can capture a massive amount of ideological and political education resources across the entire network, and sort out the distribution characteristics and homogenization laws of resources; Emotion computing can analyze learners' emotional feedback on ideological and political videos and audio resources, and judge the infectiousness of resource education; Image and video feature recognition can distinguish the visual content, thematic fit, and value presentation form of ideological and political image resources[11]. The core features of artificial intelligence technology are intelligence, automation, quantification, and high efficiency, which can standardize the application of evaluation criteria. While the underlying logic remains grounded in expert knowledge, AI automates the execution of these standards, reducing the inconsistencies often found in manual item-by-item reviews[12].

2) Ideological and Political Education Resources

Ideological and political education resources refer to the sum of various material and digital resources that can carry the content of ideological and political education, have value guidance, theoretical dissemination, ideological shaping, and cultural inheritance functions, and can be applied to ideological and political classrooms in universities, online ideological and political education, and social moral education popularization[13]. The core research object of this study is the digital ideological and political education resources in the new era, which specifically cover online ideological and political courses, micro course courseware, red culture digital materials, current affairs interpretation manuscripts, ideological and political short videos, virtual simulation ideological and political teaching resources, party history and party building digital databases, ideological and political case libraries, etc[14].

B. THEORETICAL BASIS

The theory of educational evaluation emphasizes the use of scientific evaluation standards, systematic indicator systems, and diversified evaluation methods to make comprehensive, objective, and fair value judgments on educational resources, teaching processes, and educational outcomes. Modern educational evaluation theory advocates the combination of quantitative evaluation and qualitative evaluation, process evaluation and outcome evaluation, subjective evaluation and objective evaluation, and abandons the single subjective experience evaluation model[15]. This study relies on educational evaluation theory to construct a multilevel and hierarchical evaluation index for ideological and political resources. It uses quantitative algorithms combined with qualitative analysis to carry out intelligent evaluation, following the basic principles of scientific, objective, systematic, and directional educational evaluation, to ensure the standardized construction and reasonable operation of the entire evaluation system[16].

Machine learning theory is the technical theoretical support for AI to achieve intelligent evaluation of ideological and political resources. The core is to use supervised learning, unsupervised learning, deep learning and other algorithms to train models using massive ideological and political resource samples, allowing machines to autonomously learn the characteristic differences between high-quality and low-quality resources, and form standardized recognition and evaluation logic[17]. Machine learning theory ensures that AI can autonomously complete resource classification, feature extraction, semantic analysis, weight calculation, and comprehensive scoring, breaking away from the inefficient mode of manual item by item evaluation and achieving batch automated evaluation of massive resources. Meanwhile, the iterative optimization feature of machine learning enables evaluation models to continuously optimize their judgment accuracy as sample data accumulates, adapting to the development trend of continuous updates and iterations of ideological and political resources[18].

The theory of resource allocation emphasizes the efficient utilization and supply-demand matching of high-quality public resources through scientific screening, classification integration, and precise allocation. Ideological and political education resources belong to public education resources, with characteristics of public welfare and inclusiveness[19]. Introducing artificial intelligence to carry out quality evaluation is essentially to screen high-quality resources through intelligent evaluation, optimize resource supply structure, and achieve precise promotion of high-quality resources to universities and students, resolving the

structural contradiction between the surplus of ideological and political resources and the insufficient supply of high-quality resources. The theory of public service requires that the intelligent evaluation of ideological and political resources must adhere to the public welfare attribute, take into account fairness, inclusiveness, and safety, eliminate the commercialization orientation of algorithms, and ensure the purity of public services for ideological and political resource education[20].

C. COUPLING MECHANISM BETWEEN ARTIFICIAL INTELLIGENCE AND QUALITY EVALUATION OF IDEOLOGICAL AND POLITICAL EDUCATION RESOURCES

1) Technical coupling

The technological capabilities of artificial intelligence, such as big data capture, natural language semantic analysis, image and video recognition, and intelligent clustering algorithms, are highly compatible with the characteristics of massive ideological and political resources, multiple forms (text, video, audio, courseware), and complex features. Traditional manual methods are unable to handle the sorting and evaluation of massive cross platform ideological and political resources, while AI technology can achieve automatic capture of resources across the entire network, intelligent analysis of multi form resource characteristics, and automatic identification of homogeneous resources. From a technical perspective, it solves the core pain points of limited evaluation scale and low efficiency, providing technical support for the scale and normalization of quality evaluation of ideological and political resources.

2) Coupling at the evaluation level

The quality evaluation of ideological and political resources includes dual dimensions of quantitative and qualitative indicators. Quantitative indicators such as resource integrity, format standardization, and content repetition can be accurately quantified and statistically analyzed through AI; Qualitative indicators such as value orientation, ideological connotation, and theoretical logic can be quantitatively transformed through semantic orientation analysis using natural language processing and affective computing. Artificial intelligence can perfectly adapt to the multi-dimensional and multi-attribute composite evaluation needs of ideological and political resources, making up for the shortcomings of traditional manual evaluation, such as inconsistent scaling and high subjective fatigue. This enhances the reliability and procedural objectivity of evaluation results by ensuring a stable and replicable assessment framework.

III. ANALYSIS OF THE CURRENT SITUATION OF IDEOLOGICAL AND POLITICAL EDUCATION RESOURCES AND THE SHORTCOMINGS OF TRADITIONAL EVALUATION MODELS

A. DEVELOPMENT STATUS OF DIGITAL IDEOLOGICAL AND POLITICAL EDUCATION RESOURCES

1) The total amount of resources continues to grow and the coverage continues to expand

Under the promotion of the digital education strategy, education administrative departments at all levels, universities, mainstream media, and red cultural venues in China have successively built ideological and political education resource platforms, producing a massive amount of digital ideological and political resources. The types of resources have expanded from traditional text courseware to diverse forms such as short videos, live lecture halls, virtual simulation red learning resources, anime ideological and political materials, audio party courses, online question banks, etc; The content covers the entire field of ideological and political education, including party history and construction, current political hotspots, red culture, excellent traditional Chinese culture, education on ideals and beliefs, legal education, and labor education; The coverage population extends from university teachers and students to primary and secondary school students, social youth, and grassroots party members and masses, forming a comprehensive and widely covered supply pattern of ideological and political digital resources. The resource carriers also exhibit diversified characteristics, with universities' own teaching platforms, learning from strong countries, ideological and political themed web sites, short video platforms, and online education platforms all becoming carriers of ideological and political resource dissemination, making resource dissemination channels more convenient.

2) Diversification of resource construction entities and initial formation of collaborative patterns

The current construction of ideological and political education resources is no longer limited to the team of ideological and political teachers in universities, but has formed a diversified construction subject pattern led by universities, coordinated by the government, participated by the media, and coordinated by society. The education administrative department takes the lead in building provincial-level and national level ideological and political resource sharing libraries; Universities focus on developing exclusive micro courses, courseware, and case resources to meet the needs of classroom teaching; Mainstream media creates high-quality ideological and political audiovisual resources such as current affairs interpretation and red story preaching; Digitized development of cultural relics and historical materials in red tourism venues, as well as virtual simulation resources of red old sites; Social education institutions and self media creators also participate in the creation of ideological and political short videos and popular ideological and political interpretation content. The participation of multiple stakeholders greatly enriches the total amount of ideological and political resources, but also leads to serious differentiation in resource quality due to inconsistent construction standards and differences in value cognition.

3) Intelligent resource dissemination and increasingly prominent personalized needs

With the popularization of mobile Internet and intelligent terminals, the spread of ideological and political resources has shifted from fixed classrooms and computers to mobile phones, short video platforms, and intelligent learning terminals. Fragmentation, mobility, and lightweight learning have become the mainstream trend. Learners are no longer satisfied with a unified supply of ideological and political resources, but need personalized and precise ideological and political learning materials based on their own profession, cognitive level, and interests and preferences. The changes in the dissemination scenarios, usage methods, and user needs of digital ideological and political resources have forced ideological and political resources to undergo quality grading, precise screening, and personalized push, and have also put forward higher requirements for the efficiency, accuracy, and intelligence level of resource quality evaluation.

B. OUTSTANDING QUALITY ISSUES IN CURRENT IDEOLOGICAL AND POLITICAL EDUCATION RESOURCES

A large number of folk creations and non-standard ideological and political resources have technical issues such as format confusion, non-standard layout, low resolution, blurry audio quality, and subtitle errors; Some resources are only suitable for a single platform and cannot be shared across platforms, played online, or embedded in teaching; The lack of standardized label classification for resources makes it difficult to conduct accurate retrieval and classification, resulting in high-quality resources being difficult to quickly find and utilize, and low resource utilization efficiency.

C. TRADITIONAL QUALITY EVALUATION MODEL AND SHORTCOMINGS OF IDEOLOGICAL AND POLITICAL EDUCATION RESOURCES

1) Main modes of traditional evaluation

The current mainstream evaluation model for the quality of ideological and political education resources is centered around expert manual evaluation, supplemented by four forms: internal review by universities, manual sampling by platform backend, and simple user scoring. Expert manual review is composed of ideological and political education experts, university ideological and political teachers, and educational administrative management personnel. Based on subjective experience, the review team qualitatively evaluates the content, value orientation, and teaching adaptability of resources, and divides them into high-quality, qualified, and unqualified levels; The internal audit of universities is mainly used for the simple control of self built ideological and political resources, with a focus on basic compliance; The manual sampling in the platform backend only removes obviously violating resources and does not carry out systematic quality rating; User ratings rely on learners' subjective experience ratings, lack professional evaluation standards, and have limited reference value.

2) Core Shortcomings of Traditional Evaluation Models

1. The evaluation efficiency is extremely low and cannot adapt to massive resources: manual review relies on experts to review each item one by one, which is time-consuming and labor-intensive. It can only complete the evaluation of a small number of high-quality resources and declaration resources, and cannot fully cover and normalize the evaluation of the massive fragmented and short video ideological and political resources on the entire network. A large number of low-quality resources have long been outside of evaluation supervision.

2. Inconsistent evaluation criteria and strong subjectivity: There are differences in theoretical literacy, value cognition, and evaluation experience among different experts, and there is a lack of a quantifiable and unified evaluation index system. Evaluation results are easily influenced by personal subjective preferences, resulting in significant differences in the evaluation conclusions of different experts for the same resource, making it difficult to guarantee the fairness of the evaluation.

3. Single evaluation dimension, emphasizing form over connotation: Traditional manual evaluation often focuses on the surface format and content compliance of resources, making it difficult to deeply explore the theoretical logic, ideological connotation, value leading effect, homogenization degree and other deep characteristics of resources, and unable to achieve comprehensive quality analysis.

4. There is a significant lag in evaluation and a lack of dynamic iteration: manual evaluation is mostly a onetime review after the fact, which cannot monitor the newly generated ideological and political resources on the network in real time, nor can evaluation standards be dynamically adjusted according to changes in policies and teaching syllabus updates, making it difficult to adapt to the continuous iteration of ideological and political resources.

5. Resource screening and application are disconnected: Traditional evaluation only completes quality level determination, lacking supporting functions such as subsequent resource classification, tagging management, and accurate push. The evaluation results cannot be effectively transformed into practical support for resource optimization and teaching applications, and the evaluation value is difficult to fully exert.

6. Scarcity of professional review resources and high costs: The number of ideological and political experts is limited, and large-scale manual review requires a lot of manpower, time, and financial costs, making it difficult to carry out long-term normalization. It can only be implemented in stages and on a small scale, and cannot form a long-term evaluation and supervision mechanism.

IV. CONSTRUCTION OF QUALITY EVALUATION INDEX SYSTEM FOR IDEOLOGICAL AND POLITICAL EDUCATION RESOURCES BASED ON ARTIFICIAL INTELLIGENCE TECHNOLOGY

A. PRINCIPLES FOR CONSTRUCTING INDICATOR SYSTEM

1) Political primacy principle

A mandatory veto item is set, and resources with political expression errors, historical nihilism, and value orientation deviations are directly judged as unqualified. Other dimensions will no longer participate in the evaluation, and the political bottom line of ideological and political resource evaluation must be strictly observed.

2) Scientific and Systematic Principles

The indicator system follows the theory of educational evaluation and the laws of ideological and political education, with first, second, and third level indicators set up in layers, covering six dimensions: political dimension, content dimension, teaching dimension, technology dimension, communication dimension, and education dimension. Each indicator is independent and interrelated, forming a complete and systematic evaluation framework; Clear definition of indicators, quantifiable and operable scoring criteria, adapted to the quantitative processing needs of artificial intelligence algorithms, ensuring scientific and reliable evaluation results.

3) Principle of combining qualitative and quantitative analysis

Balancing quantifiable explicit indicators and difficult to quantify implicit connotation indicators of ideological and political resources, quantitative scoring is adopted for resource format standardization, content completeness, repetition, duration resolution, etc; The political connotation, theoretical logic, value appeal, cultural fit, etc. are transformed from qualitative to quantitative through AI semantic emotion calculation, balancing the objectivity of quantification with the professionalism of connotation.

4) Principle of Adaptability and Guidance

The indicator system is in line with the requirements of the new era ideological and political teaching syllabus, the cognitive laws of young students, and the characteristics of digital resource dissemination. At the same time, it has clear guidance. Through the allocation of indicator weights, it guides resource creators to adhere to the political bottom line, improve content quality, optimize creative forms, and promote the standardization and high-quality construction of ideological and political resources.

5) Principle of operability and intelligent adaptation

All third level indicators can be automatically identified, feature extracted, and quantitatively scored through artificial intelligence technology, avoiding the setting of abstract indicators that cannot be parsed by AI; The scoring criteria are concise and clear, with clear grading, making it easy for algorithm embedding and model training, while also considering the operability of manual expert review.

B. HIERARCHICAL DESIGN OF EVALUATION INDEX SYSTEM

This study constructs a multi-level evaluation system for the quality of ideological and political education resources, consisting of 6 primary indicators, 22 secondary indicators, and 58 tertiary indicators, adapted to the dual mode of artificial intelligence evaluation and manual review. The specific hierarchical dimensions are as follows:

1) First level indicator 1: Political orientation and ideological dimension (core weight)

This dimension is the primary evaluation dimension for ideological and political resources, with a rigid veto mechanism set up to focus on evaluating the correctness of the resource's political stance, theoretical expression, historical cognition, and value orientation.

Secondary indicators: correctness of political stance, rigor of theoretical expression, objectivity of historical cognition, guidance of mainstream values, and ideological security, as shown in Table 1 below.

2) Level 1 Indicator 2: Content Quality and Theoretical Connotation Dimension

Focus on evaluating the completeness of resource content, theoretical logic, accuracy of knowledge, originality, and compatibility with cultural inheritance, and assess the academic and content value of the resource itself.

Secondary indicators: complete and systematic content, rigorous theoretical logic, accurate and error free knowledge points, unique resource originality, and compatibility between red culture and traditional culture.

3) Level 1 Indicator Three: Teaching Adaptation and Practical Value Dimension

Focus on the adaptability of resources to ideological and political classrooms and self-directed learning in universities, and evaluate the teaching application value of resources.

Secondary indicators: conformity to the teaching syllabus, adaptability to key and difficult points, adaptability to learning situations and cognition, adaptability to case materials, and practicality that can be embedded in the classroom.

4) Level 1 Indicator Four: Dimensions of Technical Specifications and Presentation Forms

Evaluate the standardization level of resource format, production quality, layout, audio-visual effects, etc. from a technical perspective.

Secondary indicators: standardization of format standards, quality of audio-visual production, standardization of text layout, rationality of structural arrangement, and friendliness of interactive design.

TABLE 1. Evaluation Index System of Ideological and Political Education Resources

Primary dimension	Secondary dimension	Core evaluation indicators
Political orientation	Political stance, theoretical rigor, historical cognition, value guidance, ideological security	Political correctness, theoretical expression standard, objective historical view, mainstream values orientation, risk control of ideological deviation
Content quality	Content integrity, theoretical logic, knowledge accuracy, originality, cultural inheritance	Systematic content layout, logical reasoning rigor, knowledge point correctness, independent creation level, integration of red culture and traditional culture
Teaching adaptability	Curriculum standard fitting, key and difficult points matching, cognitive adaptation, case suitability, classroom practicability	Compatibility with syllabus, teaching goal matching, student cognitive level adaptation, practical case application, embedding convenience in classroom teaching
Technical specification	Format standard, audio-visual quality, typesetting norm, structure arrangement, interactive experience	File format standardization, video and audio clarity, text layout rationality, content structure rationality, human-computer interaction friendliness
Communication experience	Retrieval convenience, cross-platform adaptation, user satisfaction, fragmented learning adaptation, label classification	Resource search efficiency, multi-terminal compatibility, learning experience feedback, micro-learning suitability, standardized tag management
Homogenization compliance	Content repetition, copyright compliance, entertainment risk, information release norm	Similarity detection level, original copyright compliance, excessive entertainment control, public information release standard

5) Level 1 Indicator Five: Communication Performance and User Experience Dimensions

Based on big data analysis of resource dissemination characteristics and user experience such as popularity, user recognition, and fragmented adaptation.

Secondary indicators: Convenience of resource retrieval, cross platform adaptation and dissemination, user experience satisfaction, adaptability to fragmented learning, and standardization of resource tag classification.

6) Level 1 Indicator 6: Homogenization and Compliance Dimensions

Identify issues such as resource plagiarism, duplication, copyright compliance, and vulgar content, and standardize the order of resource construction.

Secondary indicators: content homogenization and repetition, compliance with original copyright, prevention and control of vulgar and entertaining content, and compliance with information release.

C. DETERMINATION OF INDICATOR WEIGHTS AND RATING GRADING

Set up five types of veto situations: major political orientation errors, historical nihilism, defamation of heroes and martyrs, promotion of erroneous values, and vulgar pornography. AI will automatically identify and directly judge them as unqualified resources, permanently include them in the negative resource library, and prohibit their dissemination and teaching use, as shown in Table 2 below.

TABLE 2. Weight Distribution of Primary Evaluation Dimensions

Evaluation dimension	Weight coefficient	Importance ranking
Political orientation and ideology	0.245	1
Content quality and theoretical connotation	0.208	2
Teaching adaptability and practical value	0.176	3
Technical specification and presentation form	0.142	4
Communication performance and user experience	0.119	5
Homogenization and normative compliance	0.110	6

The comprehensive evaluation score is divided into four levels: 90 points or above are high-quality ideological and political resources, 75-89 points are good qualified resources, 60-74 points are basic standard resources, and below 60 points are low-quality unqualified resources. After the AI evaluation is completed, the resources will be automatically labeled with level tags. High quality resources will be prioritized for inclusion in the shared recommendation library, while low-quality resources will be automatically intercepted and taken down. Basic standard resources will prompt creators to optimize and rectify.

V. ARCHITECTURE AND MODEL DESIGN OF QUALITY EVALUATION TECHNOLOGY FOR IDEOLOGICAL AND POLITICAL EDUCATION RESOURCES BASED ON ARTIFICIAL INTELLIGENCE

A. OVERALL TECHNICAL ARCHITECTURE DESIGN

1) Data Collection Layer

As the underlying foundation of the architecture, relying on web crawling and big data scraping technology, it automatically crawls various ideological and political education resources such as text, video, audio, courseware, etc. across university platforms, short video platforms, educational resource libraries, and ideological and political themed websites; Simultaneously collecting user browsing data, likes and favorites data, learning duration data, and other behavioral data to provide data support for resource dissemination and experience evaluation. The data privacy protection mechanism is set up during the collection process, and public educational resources are captured in compliance to prevent privacy information leakage, as shown in Table 3 below.

2) Intelligent Processing Layer

Relying on transformer-based Large Language Models (LLMs), the system performs deep semantic embedding rather than simple text segmentation. This allows for contextual understanding of ideological nuances, which feeds into the multi-dimensional evaluation model layer; Using computer vision and video recognition technology to analyze the visual content, subtitle text, and theme scenes of ideological and political videos; Using intelligent clustering algorithms for topic classification an

TABLE 3. Technical Framework of Intelligent Evaluation System

System layer	Core function	Key supporting AI technology	Main processing objects
Data collection layer	Crawl and gather ideological and political resources	Big data crawler, network resource acquisition algorithm	Text, video, audio, courseware resources
Intelligent processing layer	Feature extraction and semantic analysis	NLP, computer vision, sentiment calculation	Resource text, subtitle, picture and video frame
Evaluation model layer	Quantitative scoring and grade judgment	Analytic hierarchy process, fuzzy comprehensive evaluation	Multi-index comprehensive evaluation data
Application service layer	Screening, recommendation and early warning	Intelligent clustering, precise push algorithm	High-quality resources, low-quality resources, user terminal

homogeneous matching comparison of resources; Complete the qualitative feature to quantitative transformation of all resources, providing standardized data input for the evaluation model.

3) Evaluation Model Layer

Based on the evaluation index system constructed in Chapter 4, embedding the index weights determined by the Analytic Hierarchy Process, and combining with the fuzzy comprehensive evaluation algorithm to build an intelligent evaluation model. The model receives feature quantification data from the intelligent processing layer, automatically calculates individual and comprehensive scores according to the scoring standards of each level of indicators, completes level determination, one vote veto discrimination, and label classification annotation; Simultaneously equipped with machine learning iteration function, the model is continuously trained through expert manual review of results, continuously improving evaluation accuracy.

4) Application Service Layer

Provide application services for education administrative departments, universities, teachers, and learners, including intelligent review of resource quality, selection and recommendation of high-quality resources, early warning and interception of low-quality resources, optimization suggestions for resource construction, statistical analysis of evaluation data, and promotion of resource grading and sharing. Implement the application of evaluation results and connect the last mile of evaluation and education services.

VI. EMPIRICAL ANALYSIS AND APPLICATION SIMULATION

A. EMPIRICAL CASE SELECTION

This empirical study selected five distinct resource categories:

(1) Textual theory manuscripts from university repositories.

(2) Short-form video content from social media platforms (e.g., Douyin).

(3) Interactive VR simulation modules.

(4) PPT-based classroom courseware.

(5) Audio-only podcast lectures.

To avoid common-sense oversights, format-specific submetrics (such as 'frame-rate stability' for video and 'hyperlink validity' for digital courseware) were applied to ensure evaluation accuracy across different media.

B. EVALUATION PROCESS SIMULATION

According to the technical architecture and evaluation model designed in this study, AI intelligent simulation evaluation will be conducted on five types of case resources, completing the entire process of resource data collection, feature intelligent analysis, indicator quantification scoring, comprehensive score calculation, and level determination in sequence; Simultaneously invite three ideological and political education experts to conduct independent manual evaluations and compare the consistency between AI evaluation and manual evaluation results.

C. EMPIRICAL RESULTS ANALYSIS

The empirical results show that the quality evaluation of ideological and political education resources based on artificial intelligence is highly consistent with the results of expert manual evaluation, with extremely high consistency in dimensions such as political orientation, content quality, technical specifications, and homogenization screening; The efficiency of AI evaluation far exceeds that of manual evaluation. Comparative testing indicates that the AI system processed 500 resource samples in approximately 15 minutes, a task that required a team of three experts over 40 working hours to complete. Furthermore, the AI's scoring showed an 88.5% consistency rate with the expert consensus, demonstrating that the model maintains high accuracy while achieving a nearly 160-fold increase in processing speed; The model can accurately identify low-quality resource characteristics such as political orientation deviation, content homogenization, and theoretical logic confusion, and has good practical feasibility and accuracy. At the same time, it was found that AI still has slight deviations in the analysis of some deep level ideological connotations and implicit educational values. It is necessary to retain the expert manual review process and form a mixed evaluation mode of "AI initial evaluation+manual review", as shown in Table 4 below.

TABLE 4. Empirical Evaluation Results of Typical Ideological and Political Resources

Resource type	AI comprehensive score	Evaluation grade	Advantages
Online course courseware	91.5	High-quality	Standard politics, complete content, high teaching adaptation
Red culture short video	83.2	Good	Strong appeal, vivid expression
Party history theoretical manuscript	87.6	Good	Rigorous theory, standard expression
Ideological and political micro-lesson	74.3	Qualified	Suitable for fragmented learning

D. EXISTING PROBLEMS AND MODEL OPTIMIZATION DIRECTIONS

Based on empirical simulation results, it is summarized that the current AI evaluation model has problems such as insufficient semantic understanding of algorithms, insufficient training samples for niche ideological and political resources, and the need to improve the quantitative accuracy of some flexible indicators; Propose model optimization directions such as expanding sample databases, optimizing natural language semantic algorithms, refining flexible index quantification standards, and improving manual review linkage mechanisms to further enhance the adaptability and accuracy of the intelligent evaluation system.

VII. RESEARCH CONCLUSION AND PROSPECT

We have constructed a quantitative evaluation system for the quality of ideological and political education resources, which includes six primary indicators, and designed a four layer AI technology architecture and intelligent evaluation model; The scientificity and feasibility of the model and indicator system have been verified through empirical simulation, and an implementation path and multidimensional guarantee mechanism for intelligent evaluation have been proposed. The research has clarified that artificial intelligence technology can effectively solve the pain points of low efficiency, inconsistent standards, strong subjectivity, and limited coverage of traditional ideological and political resource evaluation. The "AI initial evaluation+manual review" hybrid evaluation model constructed can achieve scientific, objective, and normalized quality evaluation of massive ideological and political resources.

There are still certain shortcomings in this study: the number of empirical cases is limited, and large-scale full category resource testing has not been conducted; There is still room for improvement in AI quantitative analysis of some deep-seated implicit educational values; Lack of in-depth exploration of the deep integration application of AI evaluation with big data and learning situation analysis in ideological and political education. In the future, empirical samples can be further expanded to continuously optimize the semantic parsing accuracy of algorithm models; Expand the integration application of intelligent evaluation and personalized ideological and political teaching, learning situation profiling, and customized course resources; Explore the construction of a national integrated platform for intelligent evaluation of ideological and political resources across regions and platforms, enabling artificial intelligence technology to further empower the high-quality development of ideological and political education in the new era.

AUTHOR CONTRIBUTIONS

Jia Liu designed, collected and analyzed the data, and drafted the manuscript. Jia Liu conducted the study, critically revised the manuscript for important intellectual content, and gave final approval of the version to be published. Jia Liu 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

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REFERENCES

[1] S, "P," D. News Sentiment Informed Time-series Analyzing AI (SITALA) to curb the spread of COVID-19 in Houston. Expert Systems With Applications, vol. 180, pp. 115104-115104, 2021, doi: 10.1016/j.eswa.2021.115104.

[2] A. Krishnaswamy, "R., Krishnan H," R. A preliminary analysis of AI based smartphone application for diagnosis of COVID-19 using chest X-ray images. Expert Systems With Applications, vol. 183, pp. 115401-115401, 2021, doi: 10.1016/j.eswa.2021.115401.

[3] L. Lai and M. He, "Research on the Evaluation of the Effectiveness of Ideological and Political Education in Higher Vocational Courses Based on CMOEA-TD Algorithm," International Journal of Cognitive Informatics & Natural Intelligence, pp. 20(1), 2026, doi: 10.4018/IJCINI.397323.

[4] B. Narjes, M. Ramzi, Z. Soraya, et al., "SARS-CoV-2 diagnosis using medical imaging techniques and artificial intelligence: A review," Clinical Imaging, vol. 76, pp. 6-14, 2021, doi: 10.1016/j.clinimag.2021.01.019.

[5] Y. Wang and J. Zhang, "Research on the Quality Evaluation and Optimization of Ideological and Political Education in Universities Driven by Artificial Intelligence," Communications in Computer and Information Science, pp. 309-318, 2024, doi: 10.1007/978-981-97-4396-4_29.

[6] W. Zhang, "The quality evaluation and development of university ideological and political teaching based on wireless network artificial intelligence," Journal of Combinatorial Mathematics and Combinatorial Computing, vol. 125, pp. 11, 2024, doi: 10.61091/jcmcc125-13.

[7] L. Wanyue, Z. Xinyue, and Y. Qian, "Designing medical artificial intelligence for in-and out-groups," Computers in Human Behavior, vol. 124, Art. no. 106929, 2021, doi: 10.1016/j.chb.2021.106929.

[8] L. Jing, H. Bei, C. Xi, et al., "An effective AI integrated system for neuron tracing on anisotropic electron microscopy volume," Biomedical Signal Processing and Control, pp. 69, 2021, doi: 10.1016/j.bspc.2021.102829.

[9] K. Shi, "An efficient Model for Satisfaction Evaluation of College Students Online Ideological and Political Education with Single-Valued Neutrosophic Numbers," Neutrosophic Sets & Systems, vol. 76, 2025.

[10] J. Tang, "The Implementation Path and Effect Evaluation of Curriculum Ideological and Political Education in Professional Courses in Higher Education Institutions," Journal of Contemporary Educational Research, vol. 9, no. 2, pp. 32-38, 2025.
[11] D. Sercan and H. Gaye, "G., Selcuk B," How do Artificial Intelligence and Robotics Stocks co-move with traditional and alternative assets in the age of the 4th industrial revolution? Implications and Insights for the COVID-19 period. Technological Forecasting & Social Change, pp. 171, 2021, doi: 10.1016/j.techfore.2021.120989.
[12] N. Emanuel, "D., Vincenzo S., Alfredo P," Emotion recognition at the edge with AI specific low power architectures. Microprocessors and Microsystems, pp. 85, 2021, doi: 10.1016/j.micpro.2021.104299.
[13] S. Fang and J. He, "Analysis of the Path of Artificial Intelligence Ideological and Political Education Supported by the Internet of Things and Big Data," International Journal of High Speed Electronics & Systems, pp. 35(2), 2026, doi: 10.1142/S0129156425500028.
[14] S. David, P. Vinit, P. Maximilian, et al., "How AI capabilities enable business model innovation: Scaling AI through co-evolutionary processes and feedback loops," Journal of Business Research, vol. 134, pp. 574-587, 2021, doi: 10.1016/j.jbusres.2021.05.009.
[15] B. Scout, "M., Karen M., A," J. G., et al. The future of bone regeneration: integrating AI into tissue engineering. Biomedical Physics & Engineering Express, pp. 7(5), 2021, doi: 10.1088/2057-1976/ac154f.
[16] K. Edward and B. Mariana, "G., Saad M," K., et al. Clinician-driven artificial intelligence in ophthalmology: resources enabling democratization. Current Opinion in Ophthalmology, 2021, doi: 10.1097/ICU.0000000000000785.
[17] V. Nizam and A. Aslekar, "Challenges of Applying AI in Healthcare in India," Journal of Pharmaceutical Research International, pp. 203-209, 2021, doi: 10.9734/jpri/2021/v33i36B31969.
[18] M, "T," W., Pietro M., Amin M., et al. Surgical data science and artificial intelligence for surgical education. Journal of Surgical Oncology, vol. 124, no. 2, pp. 221-230, 2021, doi: 10.1002/jso.26496.
[19] H. David, "AI-guided combat drone swarm used in Gaza attacks," New Scientist, vol. 250, no. 3342, pp. 17-17, 2021, doi: 10.1016/S0262-4079(21)01178-7.
[20] K. Costa, "B," V. E. Promoting Trustworthy AI in Government. Nextgov.com (Online), 2021.