Original Paper

Research on the Dilemmas and Countermeasures of Al-Enabled Precision Legal Popularization in Western Areas

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Abstract

In the context of the dual strategic goals of comprehensive rule of law and Digital China, the legal education work in western regions faces practical challenges such as inefficiency in traditional models, fragmented resources, and diversified needs. The introduction of AI technology offers a new approach to precise legal education. AI technology provides a technical breakthrough for addressing the last-mile challenge in legal education. However, in the practice of AI legal education in western regions, three core issues—data barriers, cultural adaptation imbalance, and ethical norms—have constrained the full release of technological efficiency. This paper, based on typical cases from Guizhou Province, proposes a three-dimensional driven system of data collaboration, scenario adaptation, and ethical governance to promote the transformation of legal education in western regions from extensive coverage to precise penetration.

Keywords

Western regions, AI legal education, precise legal education, technology governance, challenges and countermeasures

1. Introduction

The report of the 20th National Congress of the Communist Party of China has clearly emphasized accelerating the construction of a rule-of-law society and promoting the spirit of socialist rule of law as a core task for advancing the modernization of national governance. It stresses that the effectiveness of legal education is crucial for building a solid foundation for a rule-of-law society. However, due to geographical isolation, weak economic foundations, and complex ethnic and religious conditions, the western region faces multiple structural constraints. The traditional legal education model has long been plagued by a serious imbalance between its coverage and depth. Although efforts such as the 'Eighth Five-Year Legal Education Policy' and the 'Legal Culture Grassroots Initiative' have improved legal awareness among the target audience, the conversion rate of legal knowledge remains low. Dispute resolution still relies heavily on personal relationships rather than legal procedures, highlighting the urgent need for the western region to transition from formal legal education to substantive rule of law. In

the digital age, where digital technology is reshaping social structures, economic models, and governance patterns at an unprecedented pace, the digital era has ushered in a new era of human social development. The rapid rise of emerging digital technologies, such as big data, AI, and blockchain, has not only injected strong momentum into economic and social development but also presented new challenges and opportunities for the modernization of the national governance system and governance capabilities.

The breakthrough in artificial intelligence (AI) technology has opened new avenues for addressing the legal education challenges in western regions. For instance, the procuratorial organs in Guizhou Province have collaborated on and piloted the use of the Procuratorial Business Application System 20, a pioneering initiative that has achieved national firsts in areas such as collaborative law enforcement assistance. As a national big data comprehensive experimental zone, Guizhou Province has taken the lead in piloting the use of the Procuratorial Business Application System 20, actively exploring advancements in digital rule of law. By constructing a legal supervision model, they have optimized case handling procedures, enhanced data sharing, and improved the accuracy and effectiveness of legal supervision. However, given the demands for building a rule-of-law society in western regions, while digital technology empowers precise legal education, it also presents new challenges. Therefore, the focus is on the three-dimensional dilemma of data collaboration scenarios adapted to AI empowerment for precise legal education and ethical governance. Through the application of typical cases, this study reveals how AI technology can overcome the last-mile bottleneck, providing theoretical support and practical pathways for the transition from legal knowledge imparting to the cultivation of rule-of-law thinking in western regions.

2. With the Help of AI, Western China is Exploring Precise Legal Education

The nationwide legal education, as a key component and practical symbol of the socialist rule of law system with Chinese characteristics, not only highlights the innovative localization path of building a rule-of-law China but also forms the core experience paradigm for the development of socialist rule of law civilization. By integrating the legal concepts, knowledge, and norms of socialism with Chinese characteristics into people's hearts, it transforms these elements into the legal awareness and belief in the rule of law among all social members. The value logic of this process is presented in a dual-dimensional progression, through a layered transmission mechanism that integrates concepts, knowledge, and norms. This mechanism transforms the core of the rule of law, which emphasizes scientific legislation, strict law enforcement, fair administration of justice, and universal compliance with the law, into a community of legal faith among social members. It internalizes respect for, learning of, adherence to, and application of the law as a natural part of citizens' thinking and behavior, ultimately manifesting as a rule consciousness that drives the governance efficiency of social order.

2.1 Traditional Law Enforcement Model

Traditional legal education practices have continuously strengthened the public's political recognition, value recognition, and institutional confidence in the Chinese socialist legal path by building a chain of

empowerment that includes faith in the rule of law, rights awareness, and participation capabilities. This has facilitated the transformation of citizens from passive law-abiders to active governance subjects, forming a virtuous cycle that activates the effectiveness of the rule of law and enhances people's subjectivity. With the advent of the digital age, data has become a crucial resource for governance. However, due to the long-standing challenges of cost, efficiency, and effectiveness in traditional legal education models, these models are increasingly unable to meet the diverse social governance needs of the western region, characterized by multiple ethnic groups, vast areas, and low population density. Traditional legal education relies on fixed frameworks such as policy promotion, legal text compilation, and case compilation, which heavily emphasize form over substance. The content of legal education updates lag behind legal revisions and social changes, such as the 2021 revision of the Implementation Regulations of the Land Management Law, which is still being used in some western regions after the 2014 version was implemented, leading to misunderstandings among the public about policies like the three-rights separation of homesteads and the entry of collectively-owned construction land into the market. The traditional legal education model relies on a crude method of offline booths and online mass distribution, resulting in severe resource misallocation and insufficient use of new media platforms. For example, in a city in the west, the judicial bureau distributed promotional materials on the Minor Protection Law to the elderly and pushed short videos on women's rights protection to migrant workers, resulting in a mismatch between the target audience and the content of less than 30% of the information. Therefore, the practice of traditional legal education models in the western region shows that a one-dimensional supply, crude dissemination, and experiential evaluation are no longer sufficient to meet the legal needs of grassroots governance.

2.2 AI Enables Accurate Legal Education Mode

The construction of a society governed by the rule of law is a core issue in the modernization of national governance. With the development of digital technology, smart justice has become a key direction for judicial reform. However, traditional legal education models have long been constrained by one-way supply, extensive dissemination, delayed service, and experiential evaluation, leading to a mismatch between legal education resources and audience needs. Today, breakthroughs in artificial intelligence (AI) technology offer a technical opportunity to reconstruct legal education models. The AI legal education system, centered on the DeepSeek large model legal knowledge graph and multi-modal interaction technology, achieves full-chain intelligence from demand perception to content generation, service response, and effect evaluation. This system has enabled a leap from broad coverage to deep penetration in legal education. However, precise AI legal education is not a single technology application but a collaborative innovation involving natural language processing (NLP), knowledge graphs, multi-modal interaction, edge computing, and other technologies. For example, the intelligent system developed and piloted by the procuratorial organs of Guizhou Province, using the procuratorial business application system 20 as an example, has multiple dimensions of promoting precise legal education. In judicial practice, AI technology can not only accurately identify the legal needs of different groups and regions

through the analysis of massive legal consultation data, case data, and social public opinion but also break the limitations of time and space, expanding the channels and methods of legal education dissemination. For example, by analyzing consultation records on platforms such as the 12348 hotline, AI can identify high-frequency legal issues in a certain period or region, thereby conducting targeted legal education and avoiding a one-size-fits-all approach To improve the accuracy of legal education.

3. The Dilemma of AI-enabled Accurate Legal Education in Western China

3.1 Data Barrier Dilemma

Precision legal education leverages the rule of law big data in cyberspace and modern information technology to achieve a model that identifies, targets, and implements policies based on demand and problem orientation. However, the western region faces dual challenges in precision legal education: data silos and inefficient annotation. The data silos in the western region result in an annual case closure rate for grassroots courts that is less than one-third of that in the eastern region, leading to a scarcity of training samples and low cross-departmental data sharing rates. For instance, the Longwei District Justice Bureau in Wuzhou City must manually collect public opinion clues and cannot connect with the police's petition data in real time, forcing it to use manual web crawlers Excel to aggregate public security case data from the police department, which takes an average of 4 hours per day. In contrast, a place in the east has achieved real-time case clue transmission through a political and legal collaboration platform, with an efficiency difference of 23 times. The lack of standardization in data annotation leads to a focus on results over process in judicial documents, with some cases only recording the judgment result and lacking key information such as the trial debate evidence chain, which affects the accuracy of AI model training. The essence of smart supervision is to deeply integrate digital technology into the subject setting model of national supervision and institutional operations. During case handling, supervisory authorities accumulate a large amount of case data, including case information, evidence materials, and investigation reports. However, due to data barriers and information silos, judicial data sharing faces many difficulties.

3.2 Cultural Adaptation Imbalance

There is a significant disparity in the application of AI for precise legal education across different regions. Economically advanced areas have advantages in digital technology investment and talent development, leading to better outcomes in AI-based legal education. In contrast, economically underdeveloped areas, with limited funds and technology, lag behind in the application of AI for precise legal education. This regional disparity not only affects the overall effectiveness of precise legal education but also exacerbates the development imbalance between regions. Since the implementation of the Eighth Five-Year Legal Education Plan in southwestern China, the coverage of legal education at the grassroots level has expanded. However, most legal education efforts remain one-way. In western rural areas, where the elderly population is large and the proportion of smartphone users is low, and internet coverage and device ownership are limited, AI legal education platforms struggle to reach this demographic, leading to blind spots in intelligent legal education services. This further marginalizes the elderly group in

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accessing legal information. Additionally, the presence of multiple ethnic minority languages in western regions means that existing AI legal education systems have low accuracy in recognizing non-standard languages and lack vocabulary for ethnic minority dialects. Some western ethnic regions also prioritize customary law in dispute resolution, and traditional AI systems generate solutions based on written laws, which can lead to semantic misunderstandings in legal education content and conflicts with village rules and regulations, thereby affecting the precision and effectiveness of legal education.

3.3 Technical Ethics are out of Order

In judicial practice, some AI legal education systems default to collecting sensitive information such as users 'geographical location and contact lists through user agreements without clearly informing users about the data usage and security measures. For example, when a smart legal education terminal was promoted in the northwest pastoral area, it failed to provide a Tibetan version of the privacy policy, leading to herders being unknowingly having their facial features collected, which triggered a collective trust crisis. Some grassroots courts also face conflicts between technological reliance and judicial responsibility after introducing AI-assisted judgment systems. A court directly cited the results of AI-generated similar cases in its judgment without conducting a substantive review of the algorithm logic, leading to the higher court revoking the judgment on the grounds of mechanical justice, thereby undermining judicial authority. Additionally, in the binary relationship between AI users and services, users bear disproportionate risks. An AI contract review tool incorrectly deemed the validity flaws of standard terms as legally valid, causing economic losses to users. However, users must go through lengthy litigation to prove that the company's algorithm was at fault, making the cost of rights protection far exceed the benefits.

4. AI-enabled Precision Legal Education Optimizes the Path in Western China

4.1 Judicial Data Collaboration and Sharing

In the digital age, precise legal education cannot be achieved without technological research and development and security measures. This requires the government and enterprises to increase investment in digital technology R&D, continuously support universities and research institutions in conducting relevant research, and promote the application and innovation of digital technology in legal education. Additionally, the government should establish and improve data security management systems. In terms of data sharing, it should refer to the Guizhou Xiaofa AI model to establish a three-level judicial data platform at the provincial, municipal, and county levels, achieving standardized access to court judgments, trial records, and enforcement information. It should also formulate unified standards and mechanisms for data sharing to facilitate data circulation and utilization among departments. Furthermore, it should strengthen the classification and grading protection of data, using advanced data encryption and access control technologies to ensure data security during collection, storage, transmission, and use. It should also enhance monitoring and early warning for data leaks and tampering, taking timely measures to reduce security risks.

4.2 Develop Personalized AI Law Enforcement

President Xi Jinping has emphasized the need to innovate in the methods of legal education and publicity, focusing on practical outcomes. This approach serves as a guideline for the comprehensive promotion of the rule of law in all aspects of national work. The integrated construction of the rule of law aims to address the issues of unbalanced and inadequate development in the rule of law, enhancing the systematic, holistic, and coordinated nature of legal construction. Considering the unique conditions of western regions, large model small sample technology can be utilized to develop specialized models for typical scenarios in these areas. Additionally, technical support for generating multi-modal content, including text, voice, video, and VR panoramic views, can be provided to enhance user engagement. Reinforcement learning technology can be introduced to dynamically optimize recommendation strategies based on user feedback. Furthermore, a cultural advisory committee can be established to involve ethnic scholars and intangible cultural heritage bearers in the design and development of legal education content. A dialect speech recognition and synthesis system can support over 20 western dialects, including Tibetan, Uyghur, and Yi.

4.3 Improve the Ethical Governance of AI Law Popularization

The digital age has raised the bar for the digital literacy of legal education personnel. To enhance their digital case handling capabilities and ensure smooth coordination between the supervisory department and other departments, it is essential to jointly conduct specialized training on digital case handling across multiple departments. Through such joint training, we can improve the digital literacy and professional skills of supervisory personnel, enabling them to skillfully use digital tools in their work, thus meeting the demands of judicial work in the digital age. This initiative also promotes the deep integration and efficient connection of AI technology among various departments, which is crucial for advancing precise legal education in western regions. By organizing technical assistance, talent exchanges, and other activities, we can enhance the AI-based precise legal education capabilities in economically underdeveloped areas. Additionally, it is important to strengthen the coordination of legal education efforts across regions to promote balanced development. We should also deepen research and guidance on traditional legal education models and AI-enhanced precise legal education models, addressing issues such as data collection challenges and technical application difficulties. Encouraging experience sharing and cooperation across different fields, promoting advanced technology application models and management practices, and fostering the coordinated development of AI-based precise legal education models in various sectors is essential.

5. Conclusion

In the practice of AI-assisted precise legal education in the western region, the tension between technical rationality and cultural value has consistently been a key aspect of the modernization of the rule of law. Governing the country according to law is a fundamental strategy of the Communist Party of China, and legal education is a crucial method for enhancing citizens' legal literacy. The path of modernizing AI-

assisted legal education in the west involves a dynamic interplay and coexistence of technical and cultural rationality. Only by transcending the efficiency-focused illusions of instrumental rationality and returning to the cultural foundation of value rationality can we safeguard the roots of the rule of law culture in the west in the wave of digital rule of law, achieving a two-way synergy between technological empowerment and cultural inheritance.

Fund Project

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