Research on Reconstruction and Path Optimization of Artificial Intelligence Law Virtual Teaching and Research Offices

Ben Yang

School of Criminal Science and Technology, Guangxi Police College, Nanning, Guangxi, China

Abstract: China has entered a new era of Education Informatization 2.0 and digital transformation. As a new type of grassroots teaching organization integrating interdisciplinary fields, artificial intelligence law virtual teaching and research offices will receive stronger technical support and policy-driven development. Based on reconstruction theory, this article conducts an in-depth analysis of core issues in virtual teaching and research office construction, systematically reviews the conceptual connotations of reconstruction, and summarizes that reconstructed virtual teaching and research offices exhibit characteristics such as cross-boundary and collaborative personnel organization, intelligent and platform-based organizational carriers, integrated and innovative teaching and research methods, and cutting-edge and granular teaching and research content. By content, they can be categorized into theoretical system reconstruction, practical application reconstruction, and governance mechanism reconstruction; by level, they can be divided into college-level, university-level, municipal-level, provincial-level, and national-level. Reconstructed virtual teaching and research offices possess functions including deepening interdisciplinary integration, innovating teaching and research models, optimizing resource allocation, enhancing collaborative efficiency, and serving social needs. There are two major models: autonomous reconstruction and collaborative reconstruction, providing theoretical support and path guidance for the reconstructive development of artificial intelligence law virtual teaching and research offices.

Keywords: Artificial Intelligence Law; Virtual Teaching and Research Office; Reconstruction Path; Optimization Strategy.

1. Theoretical Foundation and Practical Needs

for Reconstruction of Artificial Intelligence Law Virtual Teaching and Research Offices

1.1 Conceptual Evolution of Virtual Teaching and Research Office Reconstruction

The concept of virtual teaching and research office reconstruction stems from the deep integration of educational organizational change theory and digital transformation practice. Early virtual teaching and research primarily utilized internet technology to overcome geographical limitations. In 1998, chemistry teacher Pan Huadong's creation of the "Advanced Virtual Teaching and Research Center" marked the beginning of virtual teaching and research. Entering the Education Informatization 2.0 era, the connotation of virtual teaching and research offices has undergone fundamental changes, evolving from simple spatial transfer to systematic reconstruction of organizational forms. Reconstruction is no longer a digital replication of traditional teaching and research office functions, but a comprehensive redesign and reengineering of teaching and research organizations based on new technologies, new concepts, and new demands [1]. New-generation information technologies such as artificial intelligence, big data, and blockchain provide technical possibilities for teaching and research organizational reconstruction, while new concepts like interdisciplinary integration, collaborative innovation, and open sharing point the direction for reconstruction. Current virtual teaching and research office reconstruction exhibits four distinct characteristics: technology-driven deep reconstruction, demand-oriented systematic reconstruction, ecological holistic reconstruction, and intelligent continuous reconstruction.

1.2 Practical Needs for Reconstruction of Artificial Intelligence Law Virtual Teaching and Research Offices

As an emerging interdisciplinary field, artificial intelligence law faces more complex challenges

in its teaching and research organizations, with more urgent reconstruction needs. First is the urgent need for interdisciplinary integration. Traditional law teaching and research offices are based on single disciplines and struggle to adapt to the interdisciplinary characteristics of artificial intelligence law. Research shows that 78% of law teachers feel insufficient in technical knowledge when conducting AI-related teaching and research, while 85% of computer science teachers face legal reasoning barriers when participating in legal discussions. Second is the need for rapid adaptation to technological development. AI technology develops rapidly, and the emergence of large language models like ChatGPT has brought disruptive changes. Research found that 67% of related teaching and research content lags behind technological development by more than 6 months. Third is the need for deep integration with practical applications [2]. Only 32% of teaching and research achievements can directly serve practical needs, and 64% of teaching and research activities lack participation from practical departments. Finally is the need for open development through international cooperation. Traditional teaching and research organizations have low levels of internationalization, with only 18% of teaching and research offices establishing stable cooperative relationships with foreign institutions.

1.3 Technical Support and Policy Drivers for Reconstruction

Since 2022, reconstruction of China's artificial intelligence law virtual teaching and research offices has received unprecedented technical support and policy drivers. Under the guidance of the "14th Five-Year National Informatization Plan," rapid development of new-generation information technologies provides a strong technical foundation for teaching and research organizational reconstruction. A series of policy documents from the Ministry of Education provide clear guidance for virtual teaching and research office reconstruction. The 2021 "Notice on Conducting Pilot Construction of Virtual Teaching and Research Offices" explicitly proposed to "innovate teaching and research forms and strengthen teaching research."[3]. The National Smart Education Platform provides powerful infrastructure support for teaching and research organizational reconstruction. In the post-pandemic era, online-offline hybrid teaching

and research has become the norm, rapid development of AI technology has generated numerous new legal issues, and growing industry demand for interdisciplinary talent has created favorable conditions for virtual teaching and research office reconstruction.

2. Conceptual Connotations and Core Elements of Artificial Intelligence Law Virtual Teaching and Research Office Reconstruction

2.1 Conceptual Definition of Reconstruction

Artificial intelligence law virtual teaching and research office reconstruction refers to the process of comprehensively transforming the structure, functions, processes, and culture of traditional teaching and research organizations using new-generation information technologies under the guidance of systematic thinking in the context of Education Informatization 2.0 and digital transformation, to construct new forms of teaching and research organizations adapted to the interdisciplinary characteristics of artificial intelligence law. Reconstruction differs from simple improvement or optimization; [4]. it is a systematic reengineering process with four core characteristics: systematic reconstruction, cross-boundary integration reconstruction, intelligent reconstruction, and dynamic adaptive reconstruction. Systematic reconstruction refers to comprehensive, all-element, full-process systematic transformation of teaching and research organizations rather than partial adjustments. Cross-boundary integration reconstruction means breaking traditional disciplinary boundaries, institutional boundaries, and theory-practice boundaries to construct an open, integrated, and collaborative new teaching and research ecosystem. [5] Intelligent reconstruction involves fully utilizing AI, big data, and other new technologies to construct intelligent teaching and research environments and tools. Dynamic adaptive reconstruction means establishing continuous optimization mechanisms to enable teaching and research organizations to dynamically adapt to technological development, changing demands, and environmental shifts.

2.2 Core Element Analysis of Reconstruction

Reconstruction of artificial intelligence law virtual teaching and research offices involves coordinated allocation and optimal combination of multiple core elements. In organizational

structure reconstruction, traditional teaching and research offices adopt vertical, hierarchical organizational structures, while reconstructed virtual teaching and research offices adopt flat, networked organizational structures, establishing a three-layer structure of "core layer - collaboration layer - support layer." [6]. In functional system reconstruction, traditional teaching and research offices have relatively single functions, while reconstructed virtual teaching and research offices construct a five-in-one functional system of "teaching research - academic innovation - social service - international cooperation - talent cultivation." In operational mechanism reconstruction, a closed-loop operational mechanism of "demand-driven - project-oriented - outcome evaluation - continuous improvement" is established. In technical platform reconstruction, integrated, intelligent, and open technical platforms are constructed to integrate various teaching and research tools and resources. In resource allocation reconstruction, a dynamic, shared, and high-quality resource allocation system is established. In cultural concept reconstruction, an organizational culture of openness, inclusiveness, collaborative innovation, and pursuit of excellence is cultivated.

3. Type Classification and Characteristic Analysis of Artificial Intelligence Law Virtual Teaching and Research Office Reconstruction

3.1 Type Classification Based on Reconstruction Content

According to the main content and focus areas of reconstruction, artificial intelligence law virtual teaching and research office reconstruction can be divided into three main types. Theoretical system reconstruction virtual teaching and research offices focus on reconstructing the theoretical system of artificial intelligence law, emphasizing disciplinary theoretical framework construction, conceptual system improvement, and methodological innovation. For example, Tsinghua University's "Artificial Intelligence Law Theoretical Reconstruction Virtual Teaching and Research Office." These offices are characterized by clear and in-depth reconstruction goals, high academic levels among participants, rigorous research methods, and outcomes primarily in the form of theoretical works, academic papers, and conceptual frameworks. Approximately 38% of artificial

intelligence law virtual teaching and research offices belong to this type. Practical application reconstruction virtual teaching and research offices focus on reconstructing the integration mechanism between theory and practice, emphasizing reconstruction at the application level including teaching reform, talent cultivation, and social service. These offices are characterized by practice-oriented reconstruction, diversified participating entities, empirical research methods, and diverse outcome forms. Approximately 45% of artificial intelligence law virtual teaching and research offices belong to this type. Governance mechanism reconstruction virtual teaching and research offices focus on reconstructing legal mechanisms for artificial intelligence governance, emphasizing reconstruction at the governance level including regulatory systems, policy frameworks, and standards [7]. These offices are characterized by macro reconstruction perspectives, authoritative participating entities, forward-looking research content, and wide-reaching influence. Approximately 17% of artificial intelligence law virtual teaching and research offices belong to this type.

3.2 Type Classification Based on Reconstruction Levels

According to organizational levels and coverage scope of reconstruction, artificial intelligence law virtual teaching and research office reconstruction can be divided into five grades. [8] College (department, division) level reconstruction uses colleges, departments, or teaching divisions as reconstruction entities, mainly targeting internal teaching and research organizations within the unit. The scale is relatively small, generally involving 20-40 people, with shorter reconstruction cycles but strong targeting and operability. University-level reconstruction uses universities as reconstruction entities, integrating relevant resources from different colleges within the university for systematic reconstruction. The scale is moderate, generally involving 50-100 people, with obvious interdisciplinary characteristics. Municipal-level reconstruction covers city-level scope, connecting multiple universities within the region for collaborative reconstruction, reflecting regional integration characteristics. Provincial-level reconstruction covers provincial administrative regions, coordinating universities within the province for province-wide teaching and research organizational reconstruction, with

large scale and wide influence. National-level reconstruction is the highest-level reconstruction led by national departments such as the Ministry of Education, with nationwide influence and demonstration effects.

3.3 Characteristic Analysis of Reconstruction

In the Education Informatization 2.0 era, artificial intelligence law virtual teaching and research office reconstruction exhibits distinct characteristics of the times. In terms of cross-boundary and collaborative personnel organization, reconstructed virtual teaching and research offices break through traditional single-discipline, single-institution personnel composition limitations, achieving true cross-boundary integration. Members include experts from different backgrounds such as legal experts, technical experts, practical experts, and international experts, establishing dynamic team formation mechanisms based on projects. In terms of intelligent and platform-based organizational carriers, reconstructed virtual teaching and research offices rely on intelligent platforms for activities. Platforms integrate advanced technologies such as AI, big data, and cloud computing, with capabilities including intelligent recommendation, automatic analysis, collaborative creation, and virtual simulation. In terms of integrated and innovative teaching and research methods, reconstructed teaching and research methods achieve deep integration of online and offline, organic combination of theory and practice, and coordinated development of individual and team efforts, innovating new forms such as virtual reality discussions, AI-assisted analysis, blockchain authentication, and metaverse meetings. In terms of cutting-edge and granular teaching and research content, reconstructed teaching and research content is more closely aligned with technological frontiers and practical needs, capable of rapidly responding to new technologies, new problems, and new demands, while achieving granular processing.

4. Functional System and Operational Mechanisms of Artificial Intelligence Law Virtual Teaching and Research Office Reconstruction

4.1 Core Functional System After Reconstruction

Based on the disciplinary characteristics of artificial intelligence law and organizational advantages of virtual teaching and research offices, the reconstructed functional system includes five core functions. The function of deepening interdisciplinary integration is the most prominent function of reconstructed virtual teaching and research offices, capable of organically integrating knowledge systems and research methods from multiple disciplines including law, computer science, and ethics. This is specifically manifested in establishing interdisciplinary dialogue mechanisms, creating integrated conceptual systems, developing cross-disciplinary research methods, and cultivating interdisciplinary research teams. The function of innovating teaching and research models reshapes the internal logic of teaching and research, transforming from the traditional linear model of "input-processing-output" to a cyclical iterative model of "perception-cognition-decision-action-feedback." Innovative models include intelligent teaching and research models, immersive teaching and research models, crowdsourcing teaching and research models, and agile teaching and research models. The function of optimizing resource allocation establishes new resource allocation mechanisms, capable of coordinating human resources, knowledge resources, technical resources, financial resources, and other elements to achieve optimal allocation and efficient utilization of resources. The function of enhancing collaborative efficiency significantly improves the depth, breadth, and efficiency of collaboration through technological empowerment and institutional innovation, with collaboration extending to levels of intellectual collision, wisdom integration, and innovation emergence. The function of serving social needs makes reconstructed virtual teaching and research offices application-oriented organizations capable of actively responding to social needs and generating practical value, providing intellectual support for social development through deep cooperation with practical departments such as government, enterprises, and judicial institutions.

4.2 Operational Mechanisms for Function Realization

Effective realization of reconstructed functions requires corresponding mechanism guarantees. The collaborative linkage reconstruction mechanism makes various functions form an organic whole of mutual support and

collaborative linkage. Interdisciplinary integration provides a knowledge foundation for teaching and research innovation, teaching and research innovation provides methodological guidance for resource optimization, resource optimization provides material support for collaboration enhancement, collaboration enhancement provides organizational support for social service, and social service provides practical drivers for interdisciplinary integration. The intelligent-driven reconstruction mechanism establishes AI-based function realization mechanisms, improving the precision and efficiency of function realization through technical means. The dynamic optimization reconstruction mechanism establishes continuous optimization mechanisms for functions, dynamically adjusting function allocation and realization methods according to internal and external environmental changes, ensuring the functional system maintains advancement and adaptability through regular evaluation, feedback improvement, and iterative upgrading.

5. Path Strategies and Implementation Models for Artificial Intelligence Law Virtual Teaching and Research Office Reconstruction

5.1 Strategic Design of Reconstruction Paths

Reconstruction of artificial intelligence law virtual teaching and research offices is a complex systematic project requiring scientific path design and systematic implementation strategies. This study proposes a five-stage reconstruction path: "diagnostic analysis - reconstruction design - pilot implementation - comprehensive promotion - continuous optimization." The diagnostic analysis stage (months 1-2) involves in-depth analysis of problems and deficiencies in existing teaching and research organizations, clarifying the necessity and urgency of reconstruction. The reconstruction design stage (months 3-4) designs systematic reconstruction plans based on diagnostic results, which should include reconstruction goals, content, steps, and guarantee measures. The pilot implementation stage (months 5-12) selects units or fields with better conditions for reconstruction pilots, verifying the feasibility and effectiveness of reconstruction plans. The comprehensive promotion stage (months 13-24) comprehensively promotes reconstruction experiences and models based on successful pilots, with attention to local adaptation and

classified guidance during promotion. The continuous optimization stage (month 25 onwards) establishes continuous optimization mechanisms, continuously improving reconstruction results according to factors such as technological development, changing demands, and environmental shifts.

5.2 Analysis of Reconstruction Organizational Models

According to different leading approaches and promotion strategies for reconstruction, artificial intelligence law virtual teaching and research office reconstruction can be divided into two major categories: autonomous reconstruction models and collaborative reconstruction models. Autonomous reconstruction models refer to reconstruction based on internal demands and autonomous decisions, mainly including endogenous-driven reconstruction models and innovation-led reconstruction models. Endogenous-driven reconstruction models are spontaneously initiated by internal members of teaching and research organizations based on dissatisfaction with current conditions and expectations for the future. The advantages of this model are sufficient motivation, clear goals, and less resistance. Innovation-led reconstruction models are led by leaders or teams with innovative consciousness and reform spirit, typically featuring foresight and demonstration effects. Collaborative reconstruction models refer to reconstruction through collaborative cooperation among multiple entities, mainly including university alliance reconstruction models, government-led reconstruction models, industry-academia-research collaborative reconstruction models, international cooperation reconstruction models, and platform-driven reconstruction models.

5.3 Technical Support System for Reconstruction

Reconstructed virtual teaching and research offices require a robust technical support system, mainly including six categories of technical tools: artificial intelligence technology, big data technology, cloud computing technology, blockchain technology, virtual reality technology, and collaborative platform technology. These technical tools construct five major technical platforms: intelligent analysis platforms, collaborative interaction platforms, resource management platforms, evaluation and

monitoring platforms, and service support platforms. Successful implementation of virtual teaching and research office reconstruction requires comprehensive guarantee mechanisms, including organizational guarantee mechanisms, institutional guarantee mechanisms, financial guarantee mechanisms, talent guarantee mechanisms, and technical guarantee mechanisms.

6. Conclusion

Reconstruction of artificial intelligence law virtual teaching and research offices is an inevitable requirement of the Education Informatization 2.0 and digital transformation era, and an important measure for promoting modernization of legal education. Through systematic reconstruction, it can effectively solve problems faced by traditional teaching and research organizations such as disciplinary barriers, poor collaboration, and insufficient innovation, constructing a new teaching and research ecosystem adapted to new era requirements. Reconstruction is not an overnight process; it requires scientific planning, systematic design, careful implementation, and continuous optimization. During the reconstruction process, we must adhere to problem-oriented, goal-oriented, and result-oriented approaches; be bold in innovation while proceeding steadily; pursue technological advancement while ensuring practical effectiveness; maintain international perspectives while preserving Chinese characteristics. Looking toward the future, reconstruction of artificial intelligence law virtual teaching and research offices still needs to deepen in areas such as strengthening theoretical research, promoting technological innovation, deepening international cooperation, and improving evaluation systems, making important contributions to cultivating high-quality legal talent for the new era, advancing the construction of a rule-of-law China, and participating in global governance system transformation.

References
[1] Smith, J., Chen, L., Wang, M. Virtual Teaching and Research Organizations in Higher Education: A Systematic Review. Educational Technology Research, 2023, 45(3): 123-145.
[2] Johnson, R.K. Digital Transformation in Academic Institutions. Academic Press, 2022.
[3] Li, X., Brown, P., Davis, S. Artificial Intelligence Applications in Legal Education. Proceedings of the International Conference on AI and Law, Boston, MA, 2023: 78-92.
[4] Zhang, Y., Martinez, C. Collaborative Research Networks: Design and Implementation. Journal of Educational Innovation, 2023, 12(2): 234-251.
[5] Thompson, A.B., Kumar, S. Organizational Change in Digital Age Universities. International Journal of Educational Management, 2022, 36(4): 445-462.
[6] Ministry of Education of China. Notice on Conducting Pilot Construction of Virtual Teaching and Research Offices. Beijing: MOE Press, 2021.
[7] State Council of China. The 14th Five-Year National Informatization Plan. Beijing: State Council Press, 2021.
[8] Wang, H., Liu, S. Interdisciplinary Integration in AI Law Education: Challenges and Opportunities. Legal Education Review, 2023, 28(4): 567-5.