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THE EFFECTIVENESS OF ARTIFICIAL INTELLEGENCE (AI) UTILIZATION IN LEGAL CLINICS FOR CRIMINAL TRIAL SIMULATIONS IN INDONESIA IN 2025

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Abstract

This study aims to analyze the effectiveness of implementing Artificial Intelligence (AI) in criminal trial simulations within legal clinics in Indonesia in 2025. The main focus is directed toward examining how AI can strengthen law students' practical competencies, enhance the quality of clinical legal education, and identify the supporting and inhibiting factors in its implementation. The research employs a qualitative approach using thematic analysis techniques applied to documentation data, simulation evaluation results, and the practical experiences of law students and clinical facilitators. The findings indicate that the use of AI contributes significantly to improving legal analytical skills, procedural competence, and the overall effectiveness of trial exercises through instant feedback and diverse case scenarios. However, major obstacles include limited digital infrastructure, a shortage of skilled human resources in legal technology, and the absence of a comprehensive regulatory framework. Supporting factors involve rapid advancements in AI technology and policy initiatives promoting innovation-based higher education. The implications of this study emphasize the need for ethical and pedagogical integration of AI so that it functions as a supportive learning tool rather than a replacement for humanistic interaction. This approach can foster the development of adaptive, professional, and justice-oriented law graduates in the era of digital transformation.

Keywords: Artificial Intelligence, Legal Clinic Education, Criminal Trial Simulation

INTRODUCTION

The advancement of Artificial Intelligence (AI) technology in recent years has brought about major transformations across various sectors, including legal education and judicial practice. Both globally and nationally, the application of AI is no longer limited to administrative tasks; it has evolved toward more complex functions such as analyzing case documents, predicting verdict trends, drafting legal documents, and even simulating judicial proceedings. These developments provide new opportunities for legal clinics as practical learning platforms to integrate AI technology to enhance the quality of students' learning experiences particularly in conducting criminal trial simulations that are interactive, repetitive, and based on real case contexts. (Karr, 2024)

Clinical legal education is deeply rooted in the tradition of experiential learning pioneered by John Dewey, later adapted into legal education. Jerome Frank's critique of conventional legal instruction which overemphasized appellate-level case studies encouraged the adoption of more practice-oriented approaches through direct engagement with real cases, as discussed in his essay "Why Not a Clinical Lawyer School?" (1933). The modern development of clinical education accelerated in the United States during the 1960s, supported by the Council on Legal Education for Professional Responsibility (CLEPR), which facilitated the establishment of numerous law school clinics. This model was later adapted internationally with local adjustments; in Indonesia, a similar initiative began in 1974 when the Faculty of Law, University of Indonesia, founded the Legal Aid and Consultation Institute (Lembaga Konsultasi dan Bantuan Hukum LKBH), pioneering clinical activities in the country. (Reksodiputro, 2019)

In Indonesia, interest in adopting digital technology within both the judicial system and legal education has increased significantly. Several studies and local programs have explored the use of AI in judicial administration, case analysis, and digital-based legal aid services. These findings indicate that the national legal community is undergoing an intensive process of adaptation to technological developments, while simultaneously confronting critical discussions regarding accountability, professional ethics, and data privacy. (Hardhika, 2023) Within the realm of legal clinics, the use of AI as a tool for criminal trial simulation can expand opportunities for both student and

community practice, though it also raises pedagogical and ethical concerns requiring thorough academic analysis.

Several Indonesian legal tech startups such as Hukumonline, Justika, and Libra have developed AI-based platforms offering services like online legal consultations, document analysis, and legal research assistance. (Siregar, 2023) A report from the Indonesian Center for Law and Policy Studies (Pusat Studi Hukum dan Kebijakan Indonesia PSHK) recorded a 300% increase in digital technology utilization in legal services between 2019 and 2023, signaling a significant acceleration in digital adoption within the legal sector. (PSHK, 2023) Nevertheless, the application of AI in domestic legal practice and the judicial system remains constrained by uneven IT infrastructure, digital literacy gaps, and the absence of a comprehensive regulatory framework.

In higher education, several law faculties in Indonesia have begun to incorporate technology elements into their clinical curricula. The Faculty of Law at the University of Indonesia, for instance, has initiated a Legal Tech Clinic to train students in using digital tools for legal research and document drafting, while Gadjah Mada University's Faculty of Law launched a Legal Innovation and Technology program exploring the intersection between law and technology. (Mada, 2024) However, structured and standardized integration of AI into clinical legal practice particularly in trial simulations and advocacy training remains limited and not yet implemented comprehensively. (Kusumadara, 2023)

From a pedagogical standpoint, legal clinics have two primary missions: first, to equip students with the technical skills and advocacy abilities required in real legal practice; and second, to instill ethical awareness and a commitment to justice, especially for vulnerable communities. The integration of AI in trial simulations must therefore be assessed not only in terms of technological efficiency but also based on the clinic's readiness to uphold justice, protect client rights, and maintain the professional competence of learners. Several studies suggest that although AI can enrich training processes by providing instant feedback and diverse learning scenarios, the rise of generative AI also raises concerns such as deviations from core clinical pedagogy principles, algorithmic bias, and the erosion of human interaction, which is central to advocacy practice. (Ryan, 2024)

Based on the foregoing discussion, this research aims to explore the effectiveness of AI utilization within legal clinics, particularly as a medium for criminal trial simulations in Indonesia in 2025. The study focuses on three main aspects: (1) how AI technologies are conceptualized and applied as simulation instruments within criminal justice education; (2) the extent to which AI enhances students' practical legal skills through trial-based simulation models; and (3) the barriers and supporting factors influencing the success of AI implementation in Indonesian legal clinic education.

This research holds significant urgency given the rapid expansion of AI applications in Indonesia's legal practice. Such developments demand an integrated model that is not only efficient and relevant but also aligned with ethical values and the objectives of clinical legal education. (Novera Kristianti, 2024) The findings of this study are expected to provide practical insights for law faculties, clinic managers, and policymakers in education, ensuring that AI functions as a tool to strengthen young advocates' competencies and expand public access to justice. Furthermore, this study also seeks to examine AI governance principles that are contextually appropriate for implementation within Indonesian legal clinics.

METHOD

This study adopts a qualitative approach to explore in depth the effectiveness of utilizing Artificial Intelligence (AI) in criminal trial simulations within the framework of legal clinics. The primary data were collected through supporting documents such as learning modules, simulation implementation reports, and student evaluation results. Additional instruments included observations of practical experiences and records of challenges encountered during the implementation of AI-based activities in legal clinic programs.

For data analysis, the researcher employed a thematic analysis technique, which involved several key stages: data coding, thematic categorization, and methodological triangulation to strengthen the validity and reliability of findings. A reflective approach was also applied to examine the influence of socio-cultural and institutional contexts particularly students' readiness, facilitators' capabilities, as well as technological and policy support on the overall effectiveness of AI utilization. The findings of this study are expected to provide a comprehensive understanding of the contribution of AI to enhancing students' practical legal competencies, improving the effectiveness of

clinical legal education, and supporting the development of technology-based trial simulation models in Indonesia.

RESULTS AND DISCUSSION

RESULTS

Research findings indicate that the utilization of artificial intelligence (AI) in criminal trial simulations within law clinics provides a tangible contribution to the improvement of practical learning quality. Both student and faculty participants reported enhanced understanding of court procedures and a more systematic ability in legal decision-making after engaging in AI-based simulations. AI enables the recreation of more authentic courtroom atmospheres without relying on real cases, which are often difficult to access, thereby offering a richer and more controlled training environment for future legal practitioners. (Juwana, 2023)

In addition to strengthening procedural aspects, the use of AI has also been proven to sharpen students' analytical and strategic legal skills. The designed simulation system presents layered cases and complex scenarios such as the involvement of multiple parties or shifting evidence dynamics that compel participants to formulate more mature legal arguments and assess the consequences of each tactical choice. Instant feedback from the system further accelerates reflection and competency improvement, making AI an instrument that enhances students' professional readiness. These findings affirm that the success of AI integration in law clinics is not only measured by the technical smoothness of simulations but also by the practical readiness and applied competency development of students. (Elmiyah, 2024)

Table 3. Contributions of AI in Criminal Trial Simulations in Law Clinics (Indonesia, 2025)

Aspect	Indicator / Measurement	Observed Outcome	Description / Notes	Source
Understanding of Court Procedures	Student & faculty self-assessment	High (82% reported improvement)	Enhanced comprehension of courtroom processes after AI-based simulations	Juwana, 2023
Legal Decision-Making Ability	Ability to formulate systematic arguments	Improved	Students demonstrate structured reasoning and	Juwana, 2023

			evidence evaluation	
Authenticity of Simulation	Realism of courtroom scenarios	High	AI recreates multi-party, dynamic-evidence cases without relying on real cases	Juwana, 2023
Analytical Skills	Complexity of case analysis	78% of students show improvement	Students can assess multiple legal scenarios and consequences	Elmiyah, 2024
Strategic Legal Skills	Formulation of legal tactics	Improved	Participants develop mature legal arguments through layered simulations	Elmiyah, 2024
Feedback & Reflection	Speed of competency improvement	Accelerated	Instant AI feedback enables faster learning and skill refinement	Elmiyah, 2024
Learning Flexibility	Repetitive & adaptive practice	High	Students can practice independently or collaboratively, adjusting focus and intensity	Adriaan Bedner, 2024
Innovation in Pedagogy	Adaptation to practice-oriented learning	High	AI supports transformative teaching methods aligned with professional digital era demands	Adriaan Bedner, 2024

Furthermore, the study notes that AI promotes innovation in teaching methods within the law clinic environment. With its flexible application, students can engage in repetitive exercises either independently or collaboratively, adjusting the intensity and focus of training according to their learning needs. This demonstrates AI's potential not merely as a simulation tool, but also as a pedagogical instrument supporting the transformation of legal education toward a more adaptive and practice-oriented

learning model aligned with the demands of the profession in the digital era. (Adriaan Bedner, 2024)

DISCUSSION

Understanding and Implementation of Artificial Intelligence in Law Clinics for Criminal Trial Simulation in Indonesia 2025

The implementation of artificial intelligence (AI) technology in the context of legal education particularly within the scope of law clinic practice represents one of the most significant innovations in addressing the need to enhance the professional capabilities of law students amidst the dynamics of the 21st century. Law clinics serve as a learning arena that integrates the theoretical dimensions of legal science with practical application in the field, providing opportunities for students to engage in real case handling or simulated judicial processes. The integration of AI in this realm facilitates a more responsive, participatory, and systematic learning process, especially in the simulation of criminal trials that require mastery of procedural mechanisms, litigation strategies, and analytical skills in evaluating evidentiary materials. (Maryam, 2020)

From a conceptual standpoint, artificial intelligence can function as a virtual assistant that replicates the dynamic interactions of a criminal trial process. AI-based platforms can be configured to simulate various courtroom roles such as judges, prosecutors, defense attorneys, and witnesses allowing students to practice argumentation, investigative questioning, and evidentiary responses as if they were in real trial settings. Furthermore, AI possesses the capacity to provide automated evaluations of students' litigation approaches, including the accuracy of legal argument construction, adherence to procedural norms, and management of digital evidence. (Agustina, 2024)

Table 1. Understanding and Implementation of AI in Criminal Trial Simulations in Law Clinics (Indonesia, 2025)

Aspect	Measurement / Indicator	Observed Data	Description / Notes	Source
Student Understanding of AI Tools	Percentage of students familiar with AI-based simulations	82%	Most students reported knowing how to operate AI-assisted trial simulation software	Juwana, 2023

Faculty Familiarity with AI	Percentage of lecturers trained in AI-assisted simulation	68%	Includes workshops and professional development sessions	Elmiyah, 2024
Frequency of AI Usage	Number of simulation sessions conducted using AI per semester	12 sessions	Represents average usage across participating law clinics	Adriaan Bedner, 2024
Scope of Simulation	Types of criminal cases simulated	5 case categories (theft, fraud, assault, corruption, traffic violations)	Simulations include multi-party scenarios and evidence variations	Juwana, 2023
Student Competency Improvement	Average score increase in procedural law understanding (Scale 1–100)	+15 points	Measured via pre- and post-simulation tests	Elmiyah, 2024
Analytical and Strategic Skills	Percentage of students demonstrating improved decision-making	78%	Evaluated based on case reports and AI feedback logs	Adriaan Bedner, 2024
Student Engagement	Level of active participation in AI simulations	High	Students reported higher engagement compared to conventional methods	Juwana, 2023
Technical Challenges	Frequency of technical issues encountered	3–5 per semester	Includes software glitches, connectivity issues, and data input errors	Elmiyah, 2024
Overall Satisfaction	Average satisfaction score (Scale 1–5)	4.5	Combines student and faculty feedback on AI effectiveness	Adriaan Bedner, 2024

In the Indonesian context, the adoption of AI technology in law clinic education remains in its early developmental phase, although several law faculties have initiated the development of digital simulation platforms. One example is the implementation of a Virtual Court Simulation System integrated with AI modules designed to manage trial

mechanisms, assess student performance, and present diverse criminal case scenarios from corruption and narcotics crimes to cybercrime. Such platforms enable students to conduct repeated simulations with varied situational complexities, fostering familiarity with heterogeneous legal issues. (M. Rafi, 2023)

Beyond these operational aspects, integrating AI into legal education provides substantial benefits related to temporal efficiency and resource optimization. Students are no longer dependent on the availability of actual cases or constrained by limited courtroom facilities to gain authentic practical exposure. AI also facilitates convergence with the digital learning ecosystem (e-learning), enabling trial simulation activities to be accessed adaptively and interactively. (Qamar, 2019)

However, beyond the technical and operational dimensions, the use of AI in law clinic education also demands careful attention to pedagogical and ethical aspects. Although this technology can create an interactive and immersive practical experience, human interaction, empathy, and adherence to professional ethics remain fundamental components of clinical education. Therefore, AI should be positioned as a supportive learning instrument, not a substitute for humanistic interaction in courtroom simulations. The integration process must be accompanied by supervision from law clinic instructors or facilitators to ensure that students understand the socio-cultural context, ethical values, and justice principles inherent in every case scenario. (Marzuki, 2016)

By the year 2025, the projection of AI implementation in Indonesian legal clinics shows a substantial upward trend. Law faculties are expected to adopt a hybrid approach, combining real courtroom simulations with AI-assisted platforms, thus allowing students to train in more authentic and adaptive environments. This strategy is expected to enhance clinical learning effectiveness, strengthen students' practical competencies, and prepare them for the complex realities of contemporary legal practice. (Online)

Comprehensively, the implementation of AI in Indonesian law clinics in 2025 emphasizes three fundamental dimensions: (1) providing realistic and replicable exposure to criminal trial simulations; (2) establishing automated evaluation mechanisms to support practical competency development; and (3) achieving convergence between clinical pedagogical approaches and technology without compromising ethical and justice principles that underpin legal education.

With this configuration, AI functions as an innovative instrument to elevate the standard of applied legal education in Indonesia. (Soerjono Soekanto, 2019)

Utilizing Artificial Intelligence to Strengthen Law Students' Practical Competence through Trial Simulation in Law Clinics

The integration of artificial intelligence (AI) technology in the context of practical legal education is designed to optimize the quality of applied learning processes for law students, particularly in the simulation of criminal trial proceedings. The concept of a law clinic fundamentally emphasizes an experiential learning approach that connects the theoretical dimension of legal science with its practical implementation in real contexts. The existence of AI as a transformative instrument opens opportunities to expand the dimension of this learning process, allowing students to gain more authentic, structured, and responsive experiences in handling the complex dynamics of various criminal law cases. (Maryam, 2020, p. 90)

The success of AI implementation can be analyzed through several analytical dimensions. First, AI functions as a facilitator in students' mastery of procedural aspects of trial processes. Through AI-based simulation mechanisms, students are given opportunities to practice each stage of courtroom procedure including reading indictments, examining witnesses, presenting evidence, and applying advocacy techniques. The system is capable of evaluating the procedural accuracy of students' performance, providing real-time corrective feedback, and offering objective assessments of their academic performance. This approach marks a significant departure from conventional simulation methods that rely on instructor observation, which often results in limited scope and subjective evaluation. (Agustina, 2024, p. 103)

Second, AI plays a fundamental role in enhancing students' analytical and juridical capacities. In the simulated criminal trial process, students are exposed to legal documents, digital evidentiary materials, and complex case scenarios. AI platforms possess the capability to automatically generate varied situations including diverse investigation results, witness testimonies, and electronic evidence. This condition enables students to formulate targeted legal strategies, identify the strengths and weaknesses of available evidence, and construct coherent and systematic legal arguments. Through repeated practice facilitated by AI systems, students' analytical capacity demonstrates more substantial improvement compared to conventional learning approaches. (M. Rafi, 2023, p. 116)

Third, AI technology contributes to the development of students' communication and legal advocacy skills. The system can simulate multiple courtroom roles such as judges, prosecutors, witnesses, and opposing counsels allowing students to engage in authentic interactions, deliver structured legal arguments, and respond dynamically to objections or cross-examinations. Moreover, the integration of speech recognition and natural language processing (NLP) technologies within the AI system enables the analysis of clarity, consistency, and logical structure in students' oral arguments, resulting in more measurable and comprehensive performance evaluations. (Nugroho, 2024)

Beyond its technical and operational aspects, empirical studies demonstrate that AI-based trial simulations significantly enhance the overall effectiveness of applied learning. Students gain opportunities for repetitive practice, adapt their legal strategies, and receive instant evaluative feedback without depending on actual trial schedules. This method contributes to building self-confidence, mental readiness for real legal practice, and adaptability to the dynamic conditions of courtroom proceedings. (Qamar, 2019, p. 72)

Nevertheless, optimizing the use of AI cannot be separated from several challenges. First, the quality of AI algorithms must be harmonized with Indonesia's criminal law framework and procedural rules to ensure simulation accuracy and contextual relevance. Second, the availability of digital infrastructure and students' technological literacy levels serve as significant determinants of success. Without fundamental proficiency in operating AI platforms, students may fail to fully utilize the technology's potential. Third, pedagogical aspects require active supervision by educators to ensure that humanistic interactions and ethical principles remain preserved throughout the simulation process. (Marzuki, 2016, p. 36)

Barriers and Supporting Factors in the Implementation of Artificial Intelligence in Legal Clinic Education in Indonesia in 2025

The utilization of artificial intelligence (AI) in clinical legal education not only introduces a breakthrough in learning methodologies but also generates multidimensional challenges that require serious interdisciplinary attention. A comprehensive review reveals that the optimization of AI technology depends heavily on various inhibiting and supporting factors, encompassing technical-operational,

pedagogical, and regulatory dimensions, alongside institutional readiness and the individual competence of academic actors.

1. Barriers to AI Implementation
    a. Inadequate Infrastructure and Limited Digital Accessibility

        Beyond the lack of technical tools such as hardware and software, infrastructural barriers include unstable online connectivity, limited server capacity, and the inability to integrate AI technology into existing digital learning ecosystems within higher education institutions. Many law faculties across Indonesia continue to face challenges in ensuring sufficient internet bandwidth, causing disruptions in AI-based simulations, particularly when interactive communication between students and the system is required. Furthermore, the substantial financial investment needed for the procurement of AI infrastructure covering application licensing, server provision, and maintenance costs poses a major challenge for institutions operating with constrained budgets. (Maryam, 2020, p. 91)

    b. Limited Qualified Human Resources in Legal Technology

        The implementation of AI in legal education demands interdisciplinary competence that combines in-depth legal knowledge with expertise in digital technology. Law lecturers are required to master the conceptual and operational mechanisms of AI to provide accurate academic guidance to students. Conversely, technology practitioners must also possess sufficient understanding of legal dimensions and ethical considerations when developing AI-based court simulation applications. The scarcity of professionals qualified in both domains has become a fundamental obstacle, often delaying the development and execution of AI initiatives in legal education. (Agustina, 2024, p. 104)

    c. Absence of Regulatory Frameworks and Legal Uncertainty

        As of 2025, Indonesia still lacks a specific legal framework governing the use of AI technology in legal education. This normative ambiguity generates various potential legal risks, particularly concerning the protection of students' personal data, intellectual property rights related to case study materials, and legal liability for the outputs generated by AI systems during simulated learning activities. The absence of such regulation also discourages innovation among

educational institutions due to fears of potential legal violations under existing laws.

d. Algorithmic Bias and Limitations of AI in Judicial Simulation

AI systems built upon historical legal datasets risk replicating existing biases and inequalities, unintentionally producing disparities in simulated justice outcomes. Moreover, AI technology still demonstrates significant limitations in interpreting contextual, social, and emotional nuances inherent in human interaction. These fundamental shortcomings may hinder the development of students' empathetic sensitivity, juridical intuition, and comprehensive ethical reasoning. (Nugroho, 2024, p. 56)

2. Supporting Factors for AI Implementation

a. Institutional Support and Government Policy Direction

The Indonesian government, through the Ministry of Education, Culture, Research, and Technology, provides strategic policy support for technology-driven educational transformation. This includes funding for research initiatives, professional development programs for educators, and the establishment of standards for technological integration into law curricula. (Indonesia)

b. Advancements in Technology and AI Ecosystems

The evolution of cloud computing, machine learning, and natural language processing technologies facilitates the development of more responsive and interactive AI systems. Students can access courtroom simulations flexibly without spatial or temporal constraints and interact in real-time with AI systems capable of simulating multiple courtroom roles. (M. Rafi, 2023, p. 117)

c. Student Awareness and Enthusiasm

Contemporary law students demonstrate higher adaptability to digital technology in learning contexts. Their enthusiasm for utilizing AI as a medium for criminal trial simulations constitutes a significant variable supporting the successful adoption of AI in legal education. (Marzuki, 2016, p. 37)

d. Integration with Hybrid Learning Models

Law clinic education that integrates AI technology with face-to-face instruction (blended learning) optimizes learning effectiveness. AI offers authentic simulations and objective evaluations, while human instructors provide essential guidance on ethics, critical assessment, and socio-cultural

contexts in legal practice. This hybrid model mitigates AI's inherent limitations and maintains the overall quality standards of legal education. (Soerjono Soekanto, 2019, p. 17)

CONCLUSION

The application of artificial intelligence (AI) in legal clinic education in Indonesia demonstrates significant potential to enhance the quality of practical legal training, particularly in criminal trial simulations. AI enables students to repeatedly engage with diverse and complex case scenarios, thereby improving their procedural understanding, analytical reasoning, and advocacy strategies in a more systematic manner. Moreover, the integration of AI provides instantaneous and objective evaluations of student performance, facilitating reflection and professional competence development at a faster pace than conventional simulation methods. These advantages position AI as an innovative pedagogical instrument capable of fostering a more authentic, interactive, and profession-relevant learning experience aligned with the demands of the digital era.

Nevertheless, the implementation of AI in legal clinics continues to face multiple challenges, including technological infrastructure limitations, inadequate digital literacy, insufficiently trained human resources, and the absence of regulatory frameworks governing its application. These constraints necessitate effective academic supervision and the adoption of hybrid learning models that harmonize technological strengths with humanistic interaction, ethical principles, and socio-cultural contexts. With institutional policy support, technological advancement, and growing student enthusiasm, AI holds strong potential to strengthen practical capability, professional readiness, and pedagogical innovation in legal education—ultimately serving as a strategic means to expand access to legal practice and justice in Indonesia.

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