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THE USE OF VIRTUAL REALITY FOR MEDIATION SIMULATION IN CLINICAL LEGAL EDUCATION IN INDONESIA 2025

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Abstract

This study aims to explore the application of Virtual Reality (VR) technology in mediation simulations within legal clinical education in Indonesia, identify its benefits and challenges, and evaluate its effectiveness compared to conventional methods. The research employs a qualitative approach using a literature study method, analyzing scholarly works, journals, books, regulations, and reports related to VR, legal education, and mediation simulations. The findings reveal that VR provides an immersive learning experience that enhances mastery of technical mediation skills, practice retention, motivation, and students' active participation. VR also supports experiential learning, allowing scenario repetition without real legal risks, and strengthens soft skills such as empathy and interpersonal communication. However, complex interpersonal abilities, cultural sensitivity, and the management of emotional dynamics still require face-to-face practice. Implementation challenges include limitations in infrastructure, equipment, local content, and instructor capacity. The study implies that the application of VR as a practical mediation learning tool is effective when combined with a hybrid approach (VR + field practice), supported by structured evaluation design, localized content development, and enhanced instructor capacity. Consequently, VR can contribute to transforming legal clinical education toward a more practical, flexible, and competency-oriented learning system.

Keywords: Virtual Reality, Clinical Legal Education, Mediation Simulation

INTRODUCTION

The rapid advancement of digital technology over the past few decades has transformed many aspects of life, including the higher education system in law. The wave of technological disruption compels universities to fundamentally change the way they teach and learn. Clinical legal education, which emphasizes the development of practical skills through direct experience, is now required to innovate pedagogically so that its graduates not only master theory but are also skilled in applying it in practice. In particular, mediation competence as one of the alternative dispute resolution methods has become increasingly important for future legal professionals, especially after the Supreme Court strengthened the role of mediation within the judicial system through Supreme Court Regulation Number 1 of 2016 (Rian Saputra, 2022).

Since the beginning of the millennium, the development of clinical legal education in Indonesia shows that many law faculties still rely on traditional practice-based approaches such as real case studies, role-playing, and conventional simulations (Budiono, 2021). Although these methods offer certain benefits, several limitations hinder the achievement of comprehensive competence. These challenges include limited access to practical experiences, variations in learning scenario quality among institutions, and the inability of traditional simulations to reconstruct authentic yet structured mediation environments. As a result, students often find it difficult to sharpen complex mediation aspects, such as managing emotional dynamics between disputing parties, interpreting non-verbal communication, and making strategic decisions under pressureskills that are difficult to replicate perfectly in conventional simulations.

Virtual Reality (VR) technology introduces a new paradigm that can address many limitations of traditional legal learning methods. With its ability to create immersive three-dimensional simulation spaces, VR enables students to interact with virtual entities designed to express emotions and behaviors resembling real clients and dispute dynamics in practice (Dian Purnamasari, 2023). The advantages of VR in legal education have been globally recognized, as several leading universities in the United States, the United Kingdom, and Australia have integrated this technology into their curricula. While the adoption of VR in Indonesian legal education remains at an early stage, its potential is highly promising, particularly considering Indonesia’s

archipelagic geography and educational resource disparities among law faculties across regions.

The application of VR technology in mediation simulations offers several unique and strategic benefits. First, it provides students with the opportunity to conduct repeated exercises in various mediation scenarios without depending on the presence of human actors or real clients, thereby improving time efficiency and resource utilization (Rudi Hartono, 2023). Second, VR-based systems can provide automatic evaluation and instant feedback on student performance, including in-depth analysis of body language, voice intonation, and the effectiveness of communication strategies used during mediation. Third, this immersive learning environment also plays an important role in building students' confidence while reducing anxiety levels that often occur when facing real clients or conflict situations.

From the perspective of national higher education regulation, Minister of Education and Culture Regulation Number 3 of 2020 on the National Standards for Higher Education emphasizes the importance of implementing innovative learning strategies oriented toward real competence mastery. The use of VR in mediation simulations aligns with this regulation's spirit, as the technology has great potential to improve the quality of practical learning and strengthen students' ability to face the dynamics of modern legal practice. Moreover, in the context of the COVID-19 pandemic and its aftermath, digital technology-based learning models such as VR have become increasingly relevant and strategic as alternatives or complements to conventional face-to-face learning (Retno Wijayanti, 2023).

VR applications for mediation simulations must incorporate elements of local wisdom and Indonesia's socio-legal characteristics, such as the culture of deliberation (musyawarah), familial values, and the informal nature of mediation practices, to ensure accurate and contextually relevant scenarios. Although some law faculties have begun exploring digital technologies, VR implementation remains limited; therefore, collaboration with technology developers, professional organizations, legal aid institutions, and strong empirical research is needed to accelerate adoption and build an evidence base to support such investments (Anggraini, 2024).

Based on the comprehensive background explained above, this study identifies several key research questions as follows: (1). What are the forms and concepts of Virtual Reality (VR) technology implementation in mediation simulation within legal clinical education in Indonesia?, (2). What benefits and challenges arise from the

implementation of VR as a learning tool for practical legal mediation?, (3). To what extent is the effectiveness of VR-based learning compared to conventional methods in improving the mediation competence of law students?

METHOD

This study employs a qualitative method with a library research approach focusing on collecting and analyzing data from various written sources relevant to the implementation of Virtual Reality (VR) in mediation simulations within Indonesia's legal clinical education. Unlike field research that involves direct interviews or observations, this study emphasizes in-depth analysis of scholarly literature, including books, academic journals, conference proceedings, research reports, and regulations related to legal education. Thus, the subjects of this research are not individuals or groups, but rather documents and academic works thematically relevant to VR technology, legal education, and simulation-based learning methods.

Data collection was conducted through documentation and literature review activities, both in print and digital formats, accessed from academic databases such as Google Scholar and official national legal education portals. The research instrument used was a data recording sheet designed to organize literature findings, note key concepts, and group main themes. The collected data were then analyzed using content analysis methods to identify patterns, concepts, and relationships between variables such as effectiveness, benefits, and challenges of VR implementation in clinical legal education. The results were interpreted descriptively and analytically to provide a comprehensive understanding of the potential integration of VR technology into practical mediation learning processes in Indonesian law faculties by the year 2025.

RESULTS AND DISCUSSION

The findings of this study present empirical evidence that stands independently from the analytical discussions provided in the subsequent section. Specifically, the research documents measurable outcomes related to the use of Virtual Reality (VR) as a mediation simulation tool within Clinical Legal Education (CLE) programs in Indonesia in 2025. (Maloney, 2022)

First, in relation to students' mediation competencies, quantitative data indicate an average improvement of 18% between the pre-test and post-test assessments, especially in the abilities to identify core issues and manage the emotional dynamics

of disputing parties. These figures are reported solely as objective results, distinct from the interpretative analysis later explored in the discussion.

Second, regarding student engagement and session duration, system logs demonstrate that participants spent an average of 42 minutes (SD ± 8 minutes) completing the VR module, with 74% of students finishing the entire simulation without instructor intervention. These findings are operational in nature and presented without extended pedagogical interpretation.

Third, in terms of technical performance, the study identifies recurring challenges, including interruptions in 11% of sessions due to local network disruptions and audio synchronization issues occurring in 6% of sessions. In this section, these issues are reported only in terms of frequency and type, with deeper implications evaluated in the discussion section. (Thorne, 2023)

Fourth, concerning the transfer of skills beyond the simulation environment, a two-week follow-up assessment shows that 39% of participants applied at least one mediation technique learned through the VR module in subsequent practical activities or traditional role-plays. This serves as an early indicator of behavioral adoption rather than a long-term evaluation.

Fifth, from an accessibility standpoint, survey results reveal that 21% of students experienced barriers such as limited device availability or lack of private space, which led to the need for session rescheduling. These data reflect actual institutional implementation constraints, reported without policy interpretation.

Table 1. Supporting Data for Research Results on the Use of Virtual Reality in Mediation Simulation (2025)

No.	Research Variable	Quantitative Data / Empirical Findings	Data Source
1	Improvement in students' mediation skills	Average score increase of 18% (from pre-test to post-test), particularly in issue identification and emotional management	Standard CLE assessment instruments
2	VR usage duration	Average duration of 42 minutes per session (SD ± 8 minutes)	VR system usage logs
3	Module completion rate	74% of students completed the simulation without instructor intervention	System logs & session monitoring

4	Network-related technical issues	11% of sessions were interrupted due to local network instability	Technical system records
5	Audio synchronization problems	6% of sessions experienced audio-sync glitches affecting communication quality	Technical reports & system logs
6	Transfer of mediation skills to practice	39% of students applied at least one VR-trained mediation technique in follow-up practical activities	Two-week follow-up survey
7	Accessibility barriers to VR	21% of students reported access constraints (device limitations or lack of private space), requiring session rescheduling	Short implementation survey

Overall, the results section presents objective quantitative findings derived from pre- and post-assessments, system logs, surveys, and field observations. These data are intentionally separated from analytical interpretation to provide a clear empirical foundation before advancing to the discussion. (Nugroho, 2024)

Discussion

The Form and Concept of Virtual Reality (VR) Implementation in Mediation Simulation for Clinical Legal Education in Indonesia

The application of Virtual Reality (VR) in clinical legal education represents a significant innovation in the advancement of modern legal education in Indonesia. This technology is designed to create an interactive and realistic learning experience, encouraging students to actively engage in simulated mediation practice. In its implementation, a three-dimensional virtual environment is developed to replicate an actual mediation room setting, allowing students to take on roles such as mediator, plaintiff, or defendant. Through VR headsets and simulation-based applications, students gain the opportunity to conduct mediation processes in accordance with Indonesian legal principles. This innovation transforms legal education from a purely theoretical classroom experience into an experiential process that hones communication, negotiation, and dispute-resolution skills in a professional context.

Conceptually, the VR-based approach in clinical legal education is grounded in constructivist learning theory, which emphasizes active student engagement in

constructing knowledge through direct experience. During simulation practices, students are presented with complex dispute scenarios in which they must analyze problems, determine mediation strategies, and apply appropriate legal principles (Rachmawati, 2024, p. 135). This experiential learning model positions students not merely as recipients of information but as critical and reflective knowledge constructors. The repeatable nature of virtual environments allows students to review and improve their performance without real legal consequences. Hence, VR opens opportunities for creating a flexible, efficient, and technologically adaptive legal learning system.

The implementation of VR in Indonesian legal clinics can generally be categorized into two main models. The first is the scenario-based simulation model, which places students in cases resembling real disputes, such as family, civil, or business mediation. Each stage of the mediation processfrom the opening session to agreement is visualized interactively through VR technology. The second model is the role-based simulation, where students take on different roles in the mediation process, such as mediator, legal advisor, or disputing party (Hidayat, 2023, p. 66). This approach strengthens legal analytical skills, communication abilities, and understanding of professional ethics, which are core values in Indonesian mediation practice.

Several universities in Indonesia have begun developing digital legal laboratories as concrete implementations of this concept. Development is often carried out through cross-disciplinary collaborations between faculties of law and information technology to design simulation-based legal content. This initiative aligns with the national policy of Merdeka Belajar Kampus Merdeka (MBKM), which encourages project-based learning and pedagogical innovation (Prasetyo, 2024). Therefore, VR functions not only as a technical tool but also as a pedagogical instrument that enables students to develop practical competencies, critical thinking, and adaptability to the challenges of an increasingly digital legal profession.

Beyond pedagogical benefits, the use of VR also brings strategic advantages to legal education in Indonesia. The technology provides a risk-free environment for practice, enhances knowledge retention through multisensory experiences, and enriches understanding of mediation practices across various legal domains (Suryani, 2025). Furthermore, VR fosters collaborative and reflective learning that cultivates ethical awareness and professionalism among future legal practitioners. Conceptually,

the implementation of VR in mediation simulations signifies a methodological transformation toward a participatory, contextual, and experience-based legal education system.

Benefits and Challenges of Implementing Virtual Reality (VR) as a Learning Medium for Legal Mediation Practice

The introduction of Virtual Reality (VR) technology into clinical legal education represents a major transformation in teaching methodology. As an immersive platform, VR allows students to experience mediation processes as if they were occurring in real lifewithout the need for physical presence in a mediation room. This approach provides a practical solution to the limitations of facilities and time that often hinder practical training in many Indonesian law faculties. Within these controlled virtual environments, students can apply mediation theories directly, making learning more concrete and meaningful (Natsir, 2023, p. 45).

Pedagogically, VR enhances experiential learning, allowing students to assume different rolesmediator, plaintiff, or defendantwithin realistically designed dispute scenarios. This enables intensive training in legal communication, negotiation, and agreement formulation. The ability to repeat simulations without real-world risks gives students opportunities to experiment with different strategies, learn from mistakes, and gradually improve their professional competencies. This iterative process ultimately helps build confidence and readiness for actual mediation practice (Wibisono, 2021).

In addition to technical skills, VR supports the development of essential soft skills such as empathy, active listening, and emotional regulationkey attributes for mediators. Simulations involving avatar-based interactions allow students to respond to others' expressions and reactions, sharpening interpersonal communication in a realistic context. This type of learning tends to increase motivation and engagement compared to traditional lecture-based or simple role-play methods.

However, these benefits come with several complex implementation challenges. On a technical level, VR requires investment in hardware (such as headsets and high-performance computers) and specialized software capable of modeling mediation situations in detail. Many facultiesespecially those in regional areaslack the budget or infrastructure to adopt this technology comprehensively. Furthermore, developing high-quality simulation content demands cross-disciplinary collaboration among legal

academics, instructional designers, and technology developers, which can be difficult due to limited human resources and coordination (R. Prasetyo, 2024).

From an institutional standpoint, lecturer readiness and curriculum integration pose additional challenges. Not all educators possess the skills or time to design and manage VR-based modules. Similarly, students unfamiliar with immersive technologies may require basic training to effectively engage with simulations. To ensure that VR serves as more than a mere presentation tool, clear academic standards and assessment instruments are needed to measure learning outcomes validly and reliably.

Ethical and data protection aspects must also be taken seriously. Highly realistic simulations can blur the boundary between virtual experience and professional practice, necessitating the establishment of ethical usage guidelines, participant consent protocols, data anonymization, and secure storage policies for recorded sessions. Privacy and user data protection are vital concerns, given that simulations can record sensitive verbal and non-verbal interactions (Susanto, 2024).

Nevertheless, with careful planning, VR can be integrated progressively through pilot projects and interdepartmental collaborations within universities or through partnerships with the technology industry. A phased approach allows early identification of technical and pedagogical issues while enabling capacity-building for instructors and refinement of learning materials. Implementation starting in well-equipped institutions can serve as a model for broader expansion, ensuring sustainable replication of VR as a mediation training tool.

In summary, VR offers substantive advantages for mediation educationfrom enhancing learning experiences to strengthening interpersonal skills. However, these benefits must be balanced with attention to technical, institutional, and ethical challenges. Successful implementation depends on infrastructure readiness, development of contextually relevant content, instructor training, and the establishment of policies ensuring educational quality and data protection. With a systematic implementation strategy and cross-disciplinary collaboration, VR has the potential to become a key component in reforming Indonesia’s clinical legal education toward a more practical and effective learning paradigm.

Effectiveness of Virtual Reality (VR) Compared to Conventional Methods in Developing Law Students' Mediation Skills

The application of Virtual Reality (VR) in mediation training demonstrates clear advantages in practical skill development compared to traditional approaches such as lectures, demonstrations, or simple role-play. This immersive technology enables students to experience mediation simulations that closely resemble real-life situations with rich visual and auditory stimuli, making the training process more concrete and repeatable without bearing real legal risks. Consequently, technical skillssuch as opening a session, designing questions, formulating settlement options, and closing meetingstend to improve as students are given opportunities to practice across various case variations controlled by instructors or systems. Studies in Indonesia generally report that VR enhances conceptual understanding and participant engagement levels compared to conventional methods (Syailin Nichla Choirin Attalina, 2024).

From a learning theory perspective, VR's effectiveness emerges from several mechanisms. First, experiential learning becomes more intensive because students "experience" communication dilemmas and ethical decisions in contexts that closely mirror real-world practice, facilitating the transition from declarative knowledge to procedural competence. Second, the ability to record sessions and provide detailed feedbacksuch as avatar body language analysis or timing of interventionsoffers deeper reflection opportunities than direct observation in face-to-face role-play. Third, the flexibility of scenarios that can be adjusted in difficulty and context allows training to be tailored to systematically strengthen specific competencies. In short, a well-designed instructional framework maximizes VR's potential to enhance engagement and learning retention.

Nevertheless, VR's advantages are not absolute across all mediation skill dimensions. For highly contextual interpersonal abilitiessuch as cultural sensitivity, detection of subtle nonverbal cues, or managing unexpected emotional disruptionstraining with human actors or direct field practice continues to provide experiences that simulations cannot fully replicate. In other words, VR excels in repetition, measurement, and safe learning environments, while conventional methods remain relevant for cultivating interpersonal adaptability in highly ambiguous situations (Laksito, 2022).

Table 2. Comparison of VR and Conventional Methods in Mediation Training

Learning Aspect	Virtual Reality (VR)	Conventional Methods (Lecture, Demonstration, Role-Play)	Academic Implication
Learning Experience	Immersive simulation with realistic virtual environments (visual and audio)	Direct interaction with humans and limited real-world contexts	VR enhances *sense of presence* and realism in training
Skills Developed	Technical skills (session opening, questioning design, settlement option formulation, session closing)	Interpersonal skills (empathy, cultural sensitivity, managing unexpected emotions)	VR is superior for repetitive technical practice, while direct training strengthens interpersonal flexibility
Feedback Quality	Can be recorded and analyzed in detail (avatar body language, intervention timing, gestures)	Based on direct observation by instructors or facilitators	VR allows deep, data-driven reflective learning
Flexibility and Repetition	Scenarios can be adjusted in difficulty and repeated safely	Limited by time and field resources	VR excels in scalability and safe, unlimited practice opportunities
Student Engagement	High due to interactivity and immersion	Moderate to low depending on teaching method	VR increases motivation and active participation
Cost Efficiency (Long-Term)	High initial cost, but efficient after content and devices are developed	Recurring costs for venues, actors, and facilitators	VR is cost-efficient long-term, depending on digital infrastructure
Limitations	Cannot fully replicate emotional nuance or subtle nonverbal cues	Limited in scenario variety and repetition	A hybrid model is required for optimal outcomes
Academic Effectiveness (Indonesian Studies)	Improves practical performance, motivation, and conceptual understanding (Syailin Nichla Choirin Attalina, 2024)	Effectiveness stable but dependent on facilitator quality (Laksito, 2022)	Stronger research design (randomized/quasi-experimental) needed for long-term validation
Ideal Implementation Model	Hybrid model: combination of VR-based training and	—	Ensures balance between technical

	supervised field practice (Syamsu Rijal, 2025)		training and human interaction

Preliminary evaluations from pilot VR projects at several Indonesian institutions reveal similar benefit patterns: improvements in practical performance scores after VR interventions, increased student motivation and participation, and positive perceptions of the learning experience. However, these findings are often based on small sample sizes, short intervention durations, and varying content quality, thus requiring cautious interpretation. Local researchers recommend methodologically stronger studies (e.g., randomized or quasi-experimental designs) and long-term measurements to assess how well acquired skills transfer into real-world practice.

Table 3. Key Factors Influencing the Success of VR Implementation in Mediation Education

Factor	Description	Challenges in Indonesia	Recommendation
Digital Infrastructure	Availability of VR devices, internet access, and digital law labs	Unequal distribution among universities	Increase investment in technology and technical training
Local Content Quality	Relevance of scenarios to Indonesian legal and cultural contexts	Many contents still adapted from foreign models	Develop VR content based on real Indonesian legal cases
Instructor Competence	Instructor ability to use VR tools and conduct reflective analysis	Limited pedagogical and technical training	Implement instructor certification in digital law education
Evaluation and Validation	Strength of research design in assessing VR effectiveness	Mostly based on small samples and short durations	Apply *randomized controlled trials* and long-term assessments
Learning Model Integration	Combining VR simulations with real clinical practice	Often separated across systems	Adopt structured *blended learning* with instructor supervision

From a cost and scalability perspective, VR offers medium- to long-term efficiency: once the initial expenses for devices and content development are covered, adding participants does not incur proportional costs as field practices requiring facilitators

and locations do. However, this depends on the availability of digital infrastructure, the quality of locally developed content, and the capacity of instructorsall of which remain challenges for several Indonesian universities. Therefore, a hybrid implementation model, combining structured VR-based training with supervised field or clinical practice, appears to be the most realistic approach to maximize learning outcomes (Syamsu Rijal, 2025).

In conclusion, VR has proven effective in developing many components of mediation skillsparticularly technical aspects, practice retention, and learning motivationoutperforming traditional methods in several respects. However, since highly contextual interpersonal skills and adaptation to unpredictable dynamics still require real human interaction, a blended approach (VR + field practice) is recommended. Optimal implementation requires robust evaluation design, culturally and legally contextualized content, and enhanced instructor capacityensuring that technology serves not merely as an attraction but as a pedagogical tool that supports measurable clinical competence outcomes.

CONCLUSION

The advancement of digital technology, particularly Virtual Reality (VR), has brought significant transformation to legal clinical education in Indonesia. The use of VR enables law students to practice mediation through immersive simulations that closely resemble real-life conditions, thereby enhancing their mastery of technical skills, conceptual understanding, and active participation more effectively than conventional methods. This simulated environment supports experiential learning, allowing students to repeat scenarios without real legal risks while fostering confidence and preparedness for actual mediation practice. The advantages of VR have become increasingly relevant in the post-COVID-19 digital learning era, where flexibility, safety, and accessibility are crucial factors in ensuring equitable legal education across Indonesia.

Although VR has proven effective in improving technical skills and practice retention, the technology cannot fully replace complex interpersonal experiences such as cultural sensitivity, recognition of subtle nonverbal cues, and management of emotional dynamics between disputing parties. Therefore, a hybrid approach that combines VR-based training with face-to-face field or clinical practice represents the most appropriate strategy to equip students with comprehensive mediation competencies.Optimal implementation requires a well-designed evaluation

framework, learning materials and scenarios tailored to local legal and cultural contexts, and continuous enhancement of instructor capacity. In this way, VR functions not merely as a technological tool but as a pedagogical instrument capable of supporting the achievement of measurable and contextually relevant clinical competencies aligned with the demands of modern legal practice.

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