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A literature review of AI in higher legal education across the MENA region

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ABSTRACT
Since 2020, the adoption of artificial intelligence has significantly increased in higher education worldwide. In legal studies, there has been a rise in the use of AI-powered tools, presenting various opportunities and challenges. In the MENA region, more universities are embracing this new technology for different educational purposes. This literature review, conducted from October to December 2024, surveyed Scopus-indexed research on the integration of AI in MENA law faculties. The review found a significant lack of studies on the topic. Existing research primarily focused on the use of AI in other disciplines, at a single university, within a specific country, or among several MENA countries. The findings underscore the need for comprehensive research that investigates the application of AI in law faculties in the region by exploring the current awareness levels of law professors and students, usage strategies for learning enhancement, feedback on AI integration, and the underlying ethical implications.

KEYWORDS : Artificial intelligence (AI), Higher education (HE), Law faculties/schools, Legal education, Middle East and North Africa (MENA).

1 Introduction

Coined around the 1950s by American inventor John McCarthy, artificial intelligence has gained prominence since 2020. There has been a notable increase in the application of AI-powered solutions within law faculties worldwide, presenting various opportunities and challenges. This rise was fueled by the outbreak of SARS-CoV-2 pandemic, prompting law professors to adopt hybrid forms of instruction. In this regard, Scopus-indexed research confirmed that the emergence of AI has been a significant advantage for legal educators and university students around the world. Adapting to distancing measures has propelled AI-assisted education, leading to an increase in hybrid learning forms such as blended learning and project-based learning model models. Many higher education institutions have also begun introducing new skills into legal education to keep up with this rapid growth. In addition, AI technology has provided legal educators and lawyers with many learning, research, and professional opportunities. Regarding predictive analytics tools, ChatGPT can, for instance, provide comprehensible responses to questions relevant to legal education and careers through prediction capabilities. Research has also found that AI contributes to enhanced career development for law students (Wang & Yang, 2024). The legal profession reflects the advancements in legal education, as efficient legal services based on AI-enhanced solutions are the byproduct of effective AI-assisted legal programs. LLMs were found to increase productivity and efficiency within the legal profession, allowing lawyers to focus on more complex ones. These are some of the promising opportunities for legal education and practice spotted so far in Scopus-indexed research.

On the other hand, research has found that integrating AI into legal studies is accompanied by several challenges. Firstly, there are genuine concerns about whether law graduates will be able to adapt to future changes in the legal profession. Law faculties are slow to respond to the unprecedented digital turn, which requires that these institutions learn 'lawtech' skills and knowledge to meet the 21st century demands. Another major challenge is algorithmic bias, which occurs when errors in the computer system generate discriminatory or unfair output, like favoring one group over another. Melanie Reid cautioned against the overreliance of law students on technology as a whole, risking being misguided by AI inaccuracies (2019, as cited in Bridgesmith & Elmessiry, 2021, p.822). For example, ChatGPT can produce biased responses due to biased input, it can also hallucinate generate new content—or hallucinate—when it lacks sufficient information. Another significant challenge is data privacy. In 2020, the European Union designed nine measures to protect individuals from AI-driven surveillance, as breaches of personal information could have harmful consequences (Bridgesmith & Elmessiry, 2021, p.824). With the growing presence of AI systems in legal studies, there is an increased danger of data breaches, heightened surveillance, and loss of control over personal information. These challenges are increasing pressure on higher education systems to use AI carefully and responsibly.

A number of countries in the MENA region are actively investing in technology to improve their education systems. This interest aligns with the 2030 sustainability development agenda which aims to address the 'multiple crisis' affecting the region, characterized by complex natural, economic, and geopolitical issues (Zwiers *et al*., 2019, pp.2,5). Achieving quality education across all levels and disciplines has become a necessity, particularly in terms of advancing legal education at the tertiary level. Based on a worldwide bibliometric analysis of the relationship between AI and legal education (Mong & Thanh, 2024), this literature review explores trends in existing Scopus-indexed research on the use of these AI-powered solutions in MENA universities, with the aim to examine their use in law faculties. This choice was driven by a desire to map the current landscape of AI usage and to foster scholarly discussion about developing regionally relevant solutions. For this purpose, this literature review addresses two research questions:

- Are there Scopus-indexed studies examining the use of AI in the MENA law faculties?
- What are the main research trends regarding the use of AI in higher education in the region?

2 Methods

To answer these questions, sources related to the topic under scrutiny were searched using keywords. Data was first collected by retrieving articles from Scopus about the use of AI in legal education worldwide, then across the MENA region. This database was selected because it offers

a wider range of journals and more citation analysis than other databases, namely the Web of Science, PubMed, and Google Scholar (Falagas *et al*., 2008, pp.341-2). The search involved three main stages within the 'Article title, Abstract, Keywords' option: The first stage involved looking for the following keyword combinations: ("Artificial Intelligence") AND ("Higher Education" OR "Legal Education" OR "Law Education" OR "Legal Studies" OR "Law Studies"). The second stage was more specific as it focused on collecting information from publications about the use of AI in law faculties across MENA countries, using the following keywords: ("Artificial Intelligence" AND "Legal Education" OR "Law Education" OR "Legal Studies" OR "Law Studies" AND "MENA"). The Final stage involved narrowing the focus down to individual MENA countries to improve result quality.

The selection criteria were threefold: (a) selection was limited to studies published in English, (b) the studies had to be on the use of AI in higher (legal) education, , and (c) studies including MENA countries alongside countries from outside the MENA region were excluded. The sources were then manually added to Mendeley Reference Manager to facilitate easier citation and referencing. Reference lists of selected articles were also reviewed for any relevant sources that may have been overlooked in earlier stages. The whole online search took place throughout October, November, and December 2024. As for coverage, given the absence of a standardized definition of the MENA region, this study was limited to the following eighteen countries: Algeria, Bahrain, Egypt, Iraq, Jordan, Kuwait, Lebanon, Libya, Mauritania, Morocco, Oman, Palestine, Qatar, Saudi Arabia, Syria, Tunisia, United Arab Emirates, and Yemen (Akkari, 2015, p.212).

3 Results and discussion

A total of sixty-two articles that explored the use of AI in the MENA region were identified. However, none of these articles addressed legal education. Out of the sixty-two studies, two concentrated on a specific discipline, seventeen focused on a specific university, thirty-five focused on one of the MENA countries, and eight addressed the wider MENA region as indicated in the figure below.

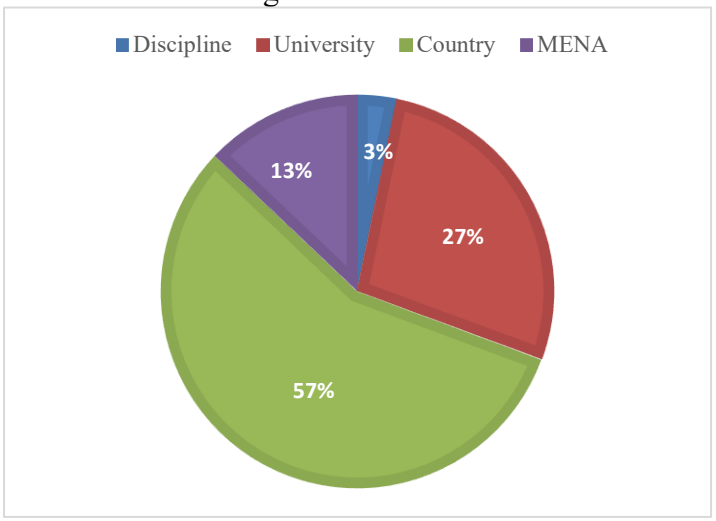

Figure 1 : Major research trends

3.1 Discipline level

This research trend accounting for only 3% of the screened studies (n=2) targeted a specific academic field other than legal studies. For instance, a study from Algeria explored how LLMs like ChatGPT supported computer programming education at Mustapha Stambouli University (Boudia & Krismadinata, 2024). Meanwhile, a study from Egypt underlined the acceptance of applying chatbots among students of the Arab academy for science and technology and maritime transport (Ragheb *et al*., 2022). Despite these valuable contributions at the discipline level, none has looked into the potential of AI in legal studies in the MENA region.

3.2 University level

The second trend examined the use of AI at a single university in the region rather than focusing on a law faculty. Representing 27% of the total contributions in the field (n=17), this

research trend either highlighted users' perceptions of AI in higher education or had a broader focus. For example, researchers at Hassan II University in Morocco gathered insights from one-hundred students about AI application in education (Imadi *et al*., 2023). In Saudi Arabia, there were examples of the similar focus. Researchers explored the opinions, attitudes, and perceptions of healthcare students from King Saud University (Alharbi *et al*., 2024). Others examined the preparedness of faculty members of King Faisal University to incorporate AI into their pedagogical practices (Alnasib, 2023), while others highlighted the necessity of raising awareness among Prince Sattam Bin Abdulaziz University academics regarding the transformative potential AI in education (Aldosari, 2020). Another university-level study probed the readiness of first-year undergraduate students to learn AI in an EFL course at a Saudi public university (Alenazi, 2024). A similar focus to that of Morocco and Saudi Arabia can be noticed in Palestinian universities. For example, study conducted at the Technical University Kadoorie explored the instructors' perceptions on incorporating AI into curriculum design (Salhab, 2024). Concurrently, researchers sought to explore the attitudes of An-Najah National University faculty members towards the opportunities and challenges of AI integration in the curriculum (Omar *et al*., 2024). Another study at an Emirati university assessed students' perceptions of how AI impacted their learning outcomes (Moussa *et al*., 2024). These studies demonstrated a strong interest in studying the integration of AI at the university level.

Within the same university-based level, another research trend emphasized breadth over focus, as researchers explored the pedagogical outcomes, ethical considerations, and socio-economic impacts of integrating AI in higher education. To illustrate, a study examined the emerging role of ChatGPT in reshaping the learning experiences of King Faisal University students (Almulla & Ali, 2024). Others explored the effects of 'Bashayer' chatbot system, integrated into WhatsApp application, on students' motivation level and learning strategies (A. M. Al-Abdullatif *et al*., 2023). Besides, others studied the successful integration and assessment of Blackboard Ally among Jazan University academics (Almufarreh *et al*., 2021). Regarding pedagogical outcomes, a study conducted in the University of Technology and Applied Science in Oman investigated the IA competencies that professors need for effective AI integration in higher education curricula (Khalil & Alsenaidi, 2024). A similar trend was followed in a study conducted at Qassim University's College of Sciences and Arts to assess the attributes of distance learning influencing student performance (ABU-DALBOUH, 2021). Likewise, another study examined the critical success factors (CSF) in e-learning among students at the Joint Command and Staff College in the UAE (Alnaqbi & Yassin, 2021). Another study at the university level highlighted the potential of using AI algorithms to predict students' grades in university courses (Latif *et al*., 2022). Other studies addressed various aspects of AI incorporation into higher education explored the ethical and equity issues relative to AI integration at a private Lebanese university (Elia, 2024), and examining the socio-economic impact of AI on the Saudi community from the students' perspectives at the Community College of Dammam in Saudi Arabia (Bamatraf *et al*., 2021). In sum, despite their valuable focus on the university level, these studies could have brought more insights by including the experience of law faculties with AI.

3.3 Country level

A third trend examined the adoption of AI in higher education within a single MENA country but overlooked the faculties of law. Accounting for 57% of all reviewed research, 35 studies included either a selection of universities from a MENA country or the higher education system in general. One category investigated the impact of AI integration on academic achievement in a particular MENA country. In Iraq, for example, a study looked at the influence of AI on student performance across universities (Altememy *et al*., 2023). In Jordan, a study explored how AI affected the learning quality and business performance of students across private universities (Hanandeh *et* al., 2024). In Lebanon, researchers studied the impact of AI on the academic writing of business students (Elia, 2024). In Saudi Arabia, several studies focused on AI and educational performance: A study evaluated the efficiency of AI-assisted teaching and learning EFL across Saudi universities (Jamshed *et al*., 2024); another examined the effects of educational technology on the cognitive and communication skills of Saudi university students

(Singh & Alodaynan, 2023); another study investigated how AI-assisted social learning networks, personal learning portfolios, and personal learning environments affected students' perceptions of the usefulness and ease of using AI-based platforms, such as Moodle, Blackboard, Coursera, Edmodo, and edX) (Saqr *et al*., 2024); another study looked at how the use of virtual platforms can enhance sustainability education in Saudi universities (Mutambik, 2024); an equally important study covered more areas as it analyzed the ethical, social, and educational implications of integrating AI in higher education (Al-Zahrani & Alasmari, 2024); and finally a study identified factors influencing the adoption of AI in teaching and learning environments (Alenezi, 2023). In Oman, two studies shed light on teaching performance: One examined the positive impact of AI on lecturers' teaching capabilities in higher education (Al-Saiari *et al*., 2024), whereas another investigated instructors' perceptions of Intelligent Tutoring Systems (ITS) along with their implications for computer programming education (Al-Shanfari *et al*., 2023). Finally, a study across Qatari universities investigated the impact of applying AI on entrepreneurship education (Alqahtani, 2023). To sum up, highlighting the relationship between AI integration and academic achievement revealed new opportunities that can inspire academics and policy makers.

At the same country level, research embarked on stakeholder perceptions of AI integration in higher education. For instance, studies conducted on Omani universities examined the views of university instructors and learners of AI regarding personalized learning (Al-Badi *et al*., 2022), and learners' preparedness for technologies of the 4th industrial revolution (Al-Maskari *et al*., 2024). Similarly, in Palestine, researchers explored undergraduate medical students' perceptions of AI in medicine (Jebreen *et al*., 2024), and university teachers' views of Educational Artificial Intelligence Tools (EAIT) in Gaza (Abdelmoneim *et al*., 2024). In Saudi Arabia, universities were the subject of in-depth research, researchers exploring university students' perceptions of AI, specifically its benefits and challenges (Almassaad *et al*., 2024 ; F. A. Al-Abdullatif *et al*., 2024). Others examined how students from King Abdulaziz University, Umm Al-Qura University, and the Saudi Electronic University perceive the relationship between their academic excellence and translation and web-based learning (Almakky, 2024). Another study identified the opportunities and challenges of AI-assisted learning in six higher education institutions in Saudi Arabia (Alotaibi & Alshehri, 2023). A study even evaluated the integration of Generative AI in the Saudi higher education system in general (Alammari, 2024). Finally, researchers in the UAE examined dental students' perceptions of how Metaverse technology could facilitate the achievement of their educational goals (Almarzouqi *et al*., 2024). Essentially, understanding these diverse perceptions is key to tailoring AI solutions to meet students' academic needs.

Another research trend at the country level explored the impact of AI on scientific or operational performance within a particular MENA country. In Morocco, a study assessed how AI influences research and higher education by surveying professors and university students across several universities (Moukhliss *et al*., 2024b). Another study scrutinized the impact of AI on research methodologies in Moroccan universities (Moukhliss *et al*., 2024a). In Saudi Arabia, a study highlighted AI's role in promoting joint scientific research between professors and students (Albasalah *et al*., 2022). Regarding operational performance, a Moroccan study evaluated AI's potential to boost the operational efficiency of Moroccan universities (Nekhass *et al*., 2024). In Egypt, researchers proposed a roadmap for universities to successfully integrate generative AI models in their curricula (ElFangary, 2024). In Oman, there was a discussion on the accreditation of AI programs from national and international standpoints (Marzouk, 2021). In the UAE, studies also focused on operational performance, with one examining AI integration into decision support systems in Emirati universities (Shwedeh, 2024), and another investigating the correlation between AI adoption, data policies and regulations, trust, and their impact on sustainability in higher education (Shwedeh *et al*., 2024). All these studies underscore the vital role of AI in providing innovative approaches for operational performance and management at the tertiary level.

In addition to focusing on perceptions and performance of AI integration in higher education, a number of studies emphasized the role of Chatbots in particular. In Morocco, one study examined the experiences of bachelor's students with using AI Chatbots (Aida *et al*., 2024). In Egypt, a study assessed the usage patterns of ChatGPT among postgraduates in two universities (Nemt-allah *et al*., 2024). In Qatar, a study assessed the performance of ChatGPT in emergency medicine residency exams (Iftikhar *et al*., 2024). Likewise, in Oman, a study investigated the

attitudes and ethical considerations of Business students towards using ChatGPT (Elbaz *et al*., 2024). Finally, in the UAE, a study identified the key factors influencing ChatGPT usage and students' attitudes across universities (Sallam *et al*., 2024). In conclusion, among the various outlooks that examined the integration of AI in one of the MENA countries, greater emphasis was made on the views of students and professors. The findings show a tendency towards large-scale research involving nationwide surveys system, revealing research preferences and Scopus recommendations.

3.4 MENA level

The last trend, accounting for 13% of all screened studies (n=8), examined AI applications in various higher education systems across the MENA region instead of focusing on a specific country, university, or discipline. A multidimensional study involving university students from Iraq, Kuwait, Egypt, Lebanon, and Jordan examined their usage and perceptions of ChatGPT (Abdaljaleel *et al*., 2024). In the same way, another study focusing on pharmacy students and faculty members from Jordan, Palestine, Lebanon, Egypt, Saudi Arabia, and Libya investigated their knowledge, attitudes, and practices (KAP) regarding AI applications in healthcare (Hasan *et al*., 2024). The second category of MENA-wide research explored opportunities associated with AI integration in the region. A study examined how AI could address major challenges in MENA, specifically regarding the standardization of teaching and learning and the increasing burdens on educators (Karam, 2023). Another study explored the potential of AI in enhancing capabilities in Arab universities (Mellor, 2024). The third category of MENA-level research focused on academic achievement. A study highlighted emerging themes regarding the quality of education in the region in the age of AI (Zaidan & Ehsan, 2024); another looked at the impact of AI on the academic performance of university students from Oman, Jordan, and Yemen (Jaboob *et al*., 2024); and another measured AI literacy among students from Lebanon, Saudi Arabia, Morocco, and Palestine using the Artificial Intelligence Literacy Scale (AILS) translated into Arabic (Hobeika *et al*., 2024). The fourth and last category of MENA-level research was a systematic review of AI integration across the higher education systems of the Gulf Cooperation Council (GCC) countries: Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and United Arab Emirates (Fadlelmula & Qadhi, 2024). In summary, surveying several MENA countries was more insightful as it provided a broader perspective of AI integration in higher education in the region. However, there was a lack of focus on the use of AI for legal education purposes in the region. Studies at the university, country, or MENA levels generally viewed legal faculties as components of larger systems rather than distinct entities with specific curricula, human resources, and professional pathways.

4 Limitations and future research

While this literature review aimed to give an overview of existing literature, it has several limitations that future research should consider. Using Scopus as the only database is the main restriction (Falagas *et al*., 2008) because it did not cover all scholarly work on the MENA region published in other databases. Future studies could explore a broader corpus by using more databases such as the Web of Science. Additionally, they could also expand on this review by conducting quantitative and qualitative analyses of AI use in legal education across the region. Highlighting similarities and differences could provide researchers and educational policymakers with valuable insight into best practices, opportunities, and challenges. Future research could also use the Unified Theory of Acceptance and Use of Technology (UTAUT) (Venkatesh *et al*., 2003) to assess the acceptance of AI among law students and faculty members in MENA as an innovative solution for legal education. This will clarify their willingness to embrace this new technology and its potential for successful integration. In addition, future studies could implement Connell and Black's recommendations, which involve pinpointing the essential skills for the successful practice of the legal profession, incorporating AI instruction into legal curricula, and encouraging collaborations between law students and technology start-ups (Connell & Black, 2019). Finally, future research needs to explore current awareness levels of AI among law professors and students, how these tools are being used to enhance learning, feedback on the benefits and challenges they present, and the ethical implications of AI integration in legal education.

Conclusion

Higher education is vital for ensuring successful employment. An innovative legal education equips future lawyers with essential professional skills, contributing to a safer and more just society, and promoting genuine sustainable development. Therefore, it is crucial to enrich this discipline with the latest innovations, ensuring "an education to law school students which will make them competitive in the legal market. Law schools need to embrace the increased presence of AI as research tools in the legal profession and adjust their curriculum accordingly" (Connell & Black, 2019, p.15). Improving the competitiveness of legal education through AI can help bridge the development gap among MENA countries.

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