

# The Impact of AI-Assisted Tools on Enhancing the Quality of Legal Translation Outputs: A Case Study of Jordanian Students

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**Abstract**—This study seeks to examine the effects of the use of Artificial Intelligence (AI)-assisted tools (ChatGPT and DeepL) on the quality of legal translation outputs by Jordanian undergraduates. As legal translation necessitates a high degree of specificity, context, and accuracy in the utilization of terminology, the following research will explore whether AI can help students accomplish this requirement. To achieve the research objective, a case study that combined methods was employed. A sample of 68 third- and fourth-year students from Zarqa University and Mutah University who specialize in translation was chosen to participate in the study. The participants were required to complete a pre-test and a post-test, each of which included legal texts (statutes, contracts, and court rulings). The following day's session involved utilizing AI. The quantitative analysis of the data collected from the exams and surveys indicated how terminology, grammar, context, and fluency improved translation quality. Qualitative analysis of surveys and interviews revealed participants' perceptions of their experiences and resources. The study's findings showed that using AI technologies to improve terminology, grammar, context, and fluency resulted in increased translation quality. Students also believed that the tools increased their confidence and efficiency; however, they also had concerns about overreliance on AI and the potential lack of legal content handling ability in the tools. Finally, this study revealed the pedagogical potential of using AI tools in legal translation training while pointing to the need for continuous human control and critical thinking.

**Index Terms**—AI-Assisted translation, legal translation, ChatGPT, DeepL

## I. INTRODUCTION

The translation of legal documents is one of the most complex areas of translation. It differs from general translation by a very high degree of close connection between the text being translated and the legal system, its terminological units, and the interpretive tradition of both the source and target languages. The translator is required to be not only highly proficient in the style conventions and legal terminology of both languages but also aware of the differences between the legal systems (Herschensohn, 2022). Otherwise, legal translation errors can have very serious consequences, including contractual disputes, misinterpretation of laws, or even miscarriages of justice. For students whose knowledge of the subject and language is still limited, the translation of legal texts is extremely difficult from an academic and professional perspective.

The integration of AI into the world of language technology has affected the way translators operate as well. As opposed to the previous generation of machine translation methods, the statistical (stat-based) and rule-based (RB) approaches to machine translation have had less success in the legal context of translation. The most recent development has been in the NMT/NLP (natural language processing) method, which has facilitated the creation of more intricate machine-driven tools that have increased the accuracy and efficiency of the translation of text. These instruments augment the power of

AI-versatile translation tools already possessed (Amirdabbaghian, 2025). DeepL, Google Translate, and OpenAI's recently launched ChatGPT use context-sensitive algorithms that generate more accurate and semantically coherent translations. Moreover, other machine translation tools, such as SDL Trados and memoQ, can also be made human-readable. This is useful for nonfiction books.

In education, these instruments based on AI are already commonplace in the language and translation fields and serve as extra content that enables students to assess their knowledge, receive feedback, and revise their projects multiple times. For those who translate, these can be utilized as cognitive tools, but they can also be used to improve their translation abilities.

The expanding use of legal translation in Jordanian higher education institutions has necessitated the teaching of such a specialized discipline. Many students have difficulty with vocabulary, syntactic structures, and legal reasoning when producing high-quality translations. The limited availability of bilingual legal resources and the differences between Jordanian legal traditions (based on civil, Islamic, and customary laws) and the source language (English) also create some issues (Shryock, 1995). Moreover, despite the growing use of AI-based tools, the area is still under-researched in terms of how AI tools impact the quality of students' legal translations.

Considering these findings, it is worthwhile exploring how these tools can be leveraged in the teaching of legal translation to help students acquire the necessary skills for legal translation. More specifically, it is important to examine whether these tools contribute to the improvement of students' translation accuracy, the suitability of the translation to the context, and terminological correctness.

#### *A. Problem Statement*

It is particularly important to mention that Jordanian students enrolled in the study of translation or law often struggle with legal translation due to their lack of legal terminology or legal style, as well as the inability to comprehend the legal systems of the target or source language. Traditional classroom teaching is often inadequate for equipping students with the cognitive and linguistic tools required for legal translation. Consequently, it is necessary to investigate alternative or complementary tools that could bridge the competency gap. This is because the accuracy of translation is essential, especially in legal contexts where accuracy has institutional and legal consequences. Therefore, the use of AI-assisted tools is a potential opportunity that has not been explored to the extent it could be in helping student translators fulfill these needs. Nonetheless, it is unclear how these techniques contribute to improved translation quality in legal contexts, if at all.

#### *B. Purpose of the Study*

This study's purpose is to examine the effect of the application of Artificial Intelligence (AI) tools to the process of legal translation among university students in Jordan. The study will compare the outputs and attitudes of students to these technologies. It will also investigate whether these technologies have an impact on the accuracy and context of legal translation outputs.

#### *C. Research Questions*

1. How do AI tools affect the accuracy of legal translation by Jordanian students?
2. How do students evaluate the application of AI tools in legal translation?
3. Can the use of AI tools improve the quality of legal translation?

#### *D. Significance of the Study*

The results of this study will have an impact on the field of AI-assisted translation teaching, including legal translation teaching, by allowing curriculum developers, translation teachers, and students to recognize the educational and practical value of utilizing AI-assisted translation tools in the competitive field of law.

#### *E. Scope and Limitations*

This study focuses on students who underwent legal translation training as part of their undergraduate studies, whether in translation, applied linguistics, or English language and literature majors. The participants were recruited from two Jordanian universities: Zarqa University and Mutah University. The research specifically aims to assess how AI tools affect the quality of legal translation tasks that these students produce. The study has several limitations. First, it is restricted to undergraduate students whose level of translation proficiency may not be as adept as that of professional legal translators or graduate students. Second, the research is restricted to a limited number of legal texts used in the undergraduate legal translation courses. Third, it focuses on a limited set of AI tools, such as ChatGPT and DeepL, and not the full array of translation technologies available. Therefore, the results of this study can be understood within this specific educational and institutional context.

## II. LITERATURE REVIEW

### *A. Legal Translation: Definitions and Characteristics*

Legal translation refers to the translation of legal texts and documents. It also requires that the texts and documents retain their original meaning and purpose (Kaplow, 1994). Legal translation is extremely specific; any misconception or

ambiguity could lead to misunderstandings or legal issues. Legal translation is distinguished by its specialized nature, the use of specialized terminology and structures, and the necessity of considering the cultural and legal context of the source text to achieve the desired effect in another jurisdiction (Evans et al., 2015). The main characteristics of legal translation include:

1. Legal translators must ensure accuracy; an error or omission could render an agreement invalid or cause a dispute (Simester, 1995). Law is precise, and legal language must be formal.
2. Legal documents are full of terms of art and jargon with no clear counterparts in other languages. Translators have to be aware of the precise legal meaning of such terms and sometimes even produce innovative solutions to express them. Studies note that legal translators have to analyze the source's rhetorical and syntactic structures to capture its implicit legal implications (Mediouni, 2016). In practice, this means having extensive bilingual legal lexicons and knowing how, or if, to domesticate concepts for the target legal system.
3. The law is always closely related to the culture. That is, the meanings of many legal terms, concepts, and provisions are based on the social and legal culture of the source country, so the translator needs to understand the culture behind the text to translate it in a way that will be valid in the target culture (Alcaraz, 2017). For example, the term "interest" as it relates to property or family relationships may have no corresponding concept in another culture, which requires an explanatory translation or adaptation. A translator should also consider the legal norms, the legal system, and the values of the society in the target country to ensure that the translated document is not only linguistically correct but also legally equivalent and socially appropriate in the target jurisdiction (Prieto-Ramos, 2017).

In short, legal translation is not just the domain of the translator but also of a lawyer, combining linguistic, subject-matter, and cultural knowledge (Al-Tarawneh, 2024). Legal translation is sometimes described as the task of a comparative lawyer. Such a translator should compare and contrast two legal systems and should be able to "mediate" between them. Accuracy of wording and the faithfulness of the legal intent are of utmost importance. This is because translated contracts, statutes, or court decisions are as binding as the original ones. Professional legal translators, therefore, are highly sensitive to the fact that their translation is supposed to be subjected to strict scrutiny and has to be correct and conform to the conventions of the target legal system (Procházka, 2022).

#### *B. AI in Translation: A General Overview*

In the last decade, artificial intelligence has advanced rapidly, and this includes in the field of translation. Rule-based and statistical machine translation methods have been replaced by Neural Machine Translation (NMT), which utilizes deep neural networks to learn linguistic patterns (Laurençon et al., 2022). The ability of modern AI translation tools to produce fluent and coherent translations at lightning speed is due to deep learning algorithms that are trained on vast bilingual corpora (Laurençon et al., 2022). By utilizing the most recent Natural Language Processing (NLP) methods, machine translation now has a greater capacity to determine context and subtlety, rendering the older methods of translation ineffective. This suggests that AI-driven machine translation produces more accurate and context-dependent results than previous methods and may be employed in real time in everyday contexts (Cheng et al., 2023).

Translation is an area of human activity in which technological change has contributed enormously to global communication (Shubham, 2024). A new term has been coined to refer to this type of translation—"AI translation." It is based on the premise that machine translation is carried out by humans (Selincourt, 2016). The most well-known examples of this technology are the online translation tools Google Translate and Microsoft's Bing Translate. They provide instant translations to millions of users with quality sufficient to meet their needs. Even though translations, especially in some more specialized fields, are often inadequate, users still choose them because they are fast and easy to use. The translation industry has almost completely integrated computer-aided translation (CAT) tools, providing translators with glossaries, translation memories, and other interfaces. This suggests that artificial intelligence can also support translators' workflows.

The rapid development of machine learning has created major breakthroughs in the field of machine translation, and large-scale neural language models have emerged rapidly as a result. In late 2022, OpenAI's ChatGPT model (GPT-3.5) proved that large-scale language models can be used in fields such as translation (Tian & Deng, 2024). Since ChatGPT and its successors are trained on large amounts of text and fine-tuned with more advanced learning techniques, the quality of AI-assisted translation has been significantly improved. In 2023, the multimodal model GPT-4 was released, which can accept text and images as input. GPT-4 has achieved near-human performance in various language tests, including translation. Although these models are not designed specifically for translation, their large scale and dialogue-based training enable them to analyze complex sentences and process long text paragraphs. Although the most effective AI models still cannot completely avoid errors (some common and specialized texts are still difficult to understand), the gap between machine translation and human translation has been significantly narrowed thanks to artificial intelligence technology (Acquaviva et al., 2022). This summary points to a vital pattern: artificial intelligence went from being a luxury to a necessity, and work on neural networks and natural language processing underpinned its relentless advance.

#### *C. AI-Assisted Tools Commonly Used in Translation (ChatGPT)*

ChatGPT is a powerful and versatile AI translation tool. It is a large language model (LLM) that can be fine-tuned to achieve conversational responses and perform a variety of language tasks (such as translation) even if it is not specifically

trained for a particular domain. ChatGPT is based on the GPT family of transformer architectures and can understand context and generate high-quality multilingual text using its multilingual training data. In specific tests, researchers demonstrated that ChatGPT possesses the ability to fluently handle contextual details and domain specificity, on par with domain-trained machine translation systems (Howard, 2013). For example, in one of these specific evaluations, ChatGPT outperformed leading neural machine translation (DeepL) systems by intuitively understanding the implicit meaning in literary translations and producing more concise, natural, and nuanced translations.

ChatGPT is used as a translation tool in professional settings. Its chat-like user interface allows translators to repeatedly edit translations. For example, a user can enter a sentence or paragraph and request that it be rephrased, rewritten with a different tone, or that different terms be used in subsequent queries. This interactive capability is considered an improvement over the one-off results of machine translation and enables basic collaboration between humans and artificial intelligence. Several professional studies have shown that translators find ChatGPT useful for generating a preliminary translation and proposing solutions for complex segments that could be edited to improve accuracy (Xu & Tan, 2025). Creating a draft from the source text (as opposed to translating the source text) frees up experts' time to review and proofread the text. Furthermore, because ChatGPT's native language can be used for proofreading/editing, translators have been observed using ChatGPT to paraphrase/correct translations, using their native language to improve the readability of their work (Choi, 2005). Another observed use case is ChatGPT explaining difficult terminology/concepts, etc. For example, a student or translator might ask ChatGPT to explain a term or provide an example of its use in the language to better understand it before translating the term.

Conversely, ChatGPT also has some limitations. While it can generate fluent translations, these can be inaccurate in terms of facts or terminology. For example, because the model is unfamiliar with legislation and lacks access to the most up-to-date legal databases, it might use incorrect legal terms or overlook certain subtleties. A recent survey of translators' opinions on ChatGPT revealed concerns about the system's reliability and competence with sensitive content (Wu et al., 2024). When working with sensitive texts, concerns may arise about the possibility of machine translations containing factual or cultural errors or about the confidentiality of client documents submitted to these systems. For example, in legal translation, ChatGPT may correctly translate a contractual clause, but without adopting the normal legal terminology or style of the target legal system (Haber et al., 2025). This means that the translated text will not be valid for official purposes.

Taken together, these considerations reinforce the view that ChatGPT is a useful tool, but it is not a substitute for human expertise. Best practice in the field is to use ChatGPT as an aid to accelerate and assist translation tasks (for example, for routine text or alternative phrasing), but a human translator should ensure the accuracy of legal terms and take responsibility for critical review and approval. In short, ChatGPT is an advanced translation technology powered by artificial intelligence. Its speed is faster than ever. Its fluidity is incredible. However, for it to be applicable in the professional legal industry, it still requires human control, wisdom, and the moral standards of its users.

#### *D. Previous Research on AI in Legal Translation*

With the development and application of AI tools like ChatGPT, the amount of research dedicated to evaluating AI performance in legal translation has increased in recent years. This type of research typically focuses on comparing human and machine translation. Studies before and after 2020 have shown that, while AI systems have made impressive progress in their performance, human translation still outperforms machine translation overall, particularly in terms of terminology and pragmatics. For example, Al-Romany, Tahseen, and Kadhim found a significant difference in quality between AI-generated and human-generated legal translation (Al-Romany et al., 2024). They found that human translation outperformed AI in capturing the distinctive features of legal language. They suggested that these features were formality, legal meaning, and context, which are easier for humans to understand (Al-Romany et al., 2024). Experience and expertise were found to benefit, as professional translators were able to correctly understand and reproduce complex legal expressions where AI was unable to do so (Al-Romany et al., 2024). In line with this, another study found that AI translations of legal texts often misinterpret legal terms or use them incorrectly, leading to ambiguities that a human expert would not make (Alqahtani, 2025). This ambiguity can be crucial in legal contexts, as mistranslating a term can impact the outcome of a case, so automatic legal translation is viewed with caution.

Many studies have since focused on comparing the performance of ChatGPT with other translation methods. Ding (2024) compared the performance of ChatGPT with four commercial NMT systems on the task of translating legal English to Chinese (Ding, 2024). Results were mixed and dependent on the translation direction: in the English-to-Chinese direction, both ChatGPT and the NMT engines performed well, with ChatGPT's translation quality being slightly lower but not statistically significantly different from the specialized NMT systems (Ding, 2024). This means that, for some language pairs and directions, ChatGPT can achieve performance comparable to dedicated machine translators. However, in the English-to-Chinese legal translation direction, neither ChatGPT nor the machine counterparts achieved an acceptable accuracy level. On average, NMT systems beat ChatGPT in this area, and more importantly, ChatGPT generated more errors, which were often more significant in nature. Ding noted that the types of errors made by ChatGPT and the NMT systems were similar (e.g., wrong legal terms, incorrect translations of complex structures), but ChatGPT made those errors more frequently (Ding, 2024). These results from the Chinese context support the hypothesis that ChatGPT's translation performance can vary; it can do well in one language direction but fail in another, perhaps due to differences in the coverage of training data or the complexity of the source text structures. They also reinforce the

assumption that legal translation presents a particularly challenging test for artificial intelligence, given the importance of accuracy and the differences between legal systems.

Zayed (2024) analyzed the English-Arabic translations of legal documents generated by ChatGPT (GPT-4 model) and compared them with human translations using various indicators, including the accurate use of legal terminology, the ability to translate complex and detailed sentences from the original text into easily understandable Arabic, and the degree of conformity with the norms of the local legal system. The main finding of this research was that human translation significantly outperformed the AI-generated results across all indicators (Zayed, 2024). In particular, human translators demonstrated a greater understanding of legal terminology and were able to translate complex legal structures more effectively, maintaining the formal style and typical expressions of local Arabic present in the Jordanian legal documents. In contrast, ChatGPT translations were less fluent and lacked context, failing to adequately reflect the use of technical terms and complex sentences in the legal documents (Zayed, 2024). For example, the author states that ChatGPT uses many words that can be characterized as direct transliterations of English legal terms into Arabic, albeit without full identity with the corresponding Arabic word. In other, albeit rare, cases, ChatGPT omits legal aspects (such as modal verbs or conditional clauses) that are essential for formulating legally binding documents such as contracts or regulations. As a result, the AI-generated text does not have the force of law and cannot be used as a legal document. The author concludes that AI tools such as ChatGPT or its equivalents have a very bright future (especially as they develop), but human translators are still essential, especially in legal texts (Zayed, 2024). Moreover, Zayed (2024) recommends a harnessing the best of both worlds approach where, for example, AI is used to assist humans by speeding up first drafts or providing suggestions, but the final translations are edited and vetted by human experts. This is in line with the consensus in the literature that AI can be useful for improving the efficiency of legal translation, but accuracy, liability, and a more profound understanding of law mean that AI is best used as an assistive technology rather than as a stand-alone solution (Zayed, 2024).

To conclude, it should also be noted that the interest in AI for legal translation is international and increasing. Outside the Middle East and East Asia, researchers in Europe and other regions have also studied this topic. For example, Moneus and Sahari (2024) conducted a contrastive study of legal text translations in several languages and found similar results: that human translation outperforms AI on important legal fidelity metrics despite the performance gain in speed (Moneus & Yousef, 2024). Across studies, a recurring theme is that legal translation is a “stress test” for AI systems because of the need for complete clarity and correctness, and thus, one of the last domains where human expertise outperforms automation (Moneus & Yousef, 2024). However, technical improvements continue to come each year, and researchers refine evaluation methods (both automated metrics and human assessments) to keep track of the narrowing gap. In the literature thus far written on the subject, a cautious perspective emerges that AI-assisted legal translation is useful and improving, but human oversight is necessary to ensure terminological precision, legal validity, and all the subtle meanings that legal texts entail.

#### *E. The Jordanian Context*

Jordan's legal and educational climate specifically allows for the use of AI in the legal translation of texts. Though the Arabic language is the official language of Jordan, English is also present in contracts and other formal documents of law, in business law, and in academic texts. As such, high-quality Arabic-to-English and English-to-Arabic translations are crucial services. Alzghoul et al. (2025) argue that legal translation is a specialty in the country. Jordanian universities have incorporated this into their educational program. For example, the University of Jordan's master's degree in translation offers a class dedicated to legal translation. During the course, students confront the difficulty of the English language through learning legal terminology, the recognition of the conventions of legal phrases, and the importance of language in the legal sphere. They are responsible for converting legal documents (contracts, statutes, court judgments) from Arabic to English and the other way around, with an emphasis on both clarity and precision. The description of the course is an example of what legal translation certification is like for Jordan's courts and other professional organizations. Documents must be translated and proofread by qualified translators. Some translators hold official certifications (Welchman, 2000). If an English contract is to be registered as an Arabic translation, it must be legally binding in court. Thus, there are also certified translators for this. Translation errors or minor inaccuracies can have legal implications, so their training is also quite comprehensive. Jordan's legal system is based on civil law, but it is also influenced by Islamic law; as a result, translators also need to know comparative law (Welchman, 2000). All these factors make Jordan both in need of high-quality legal translation and acutely aware of the obstacles involved.

The integration of AI into various educational contexts has long been a matter of concern, and AI-based writing tools such as ChatGPT have begun to pose questions in both the classroom and in professional practice (Alazzam et al., 2024). One recent investigation has examined the introduction of ChatGPT in Jordanian higher education, and its findings are consistent with those in other countries. Students in Jordan appear to be open to using ChatGPT in their studies, and their desire to use the technology is correlated with their perception of ease of use and usefulness in their studies (Ajlouni et al., 2023). That is, students will embrace the technology when they see it as saving them time or helping them learn the material (and it is easy to access and use), despite the potential pitfalls. The results of a study conducted in Jordan indicate that students are aware of the disadvantages of AI-based tools. However, misinformation or data privacy issues were not substantial factors in the overall attitude toward ChatGPT (Altikriti & Ziad, 2025). This suggests that so long as its utility is clear, students are less likely to let worries about misuse or other negatives get in the way. For instructors, conversations

have begun about integrating AI into curricula, with experts arguing that tomorrow’s translators should be equipped to use AI tools and to post-edit machine output. For example, a regional study emphasizes the importance of integrating machine translation and post-editing training into translator training programs as part of digital literacy development (Guerberof & Joss, 2019). At the more practical level, some faculty in Jordan are probably already letting students use ChatGPT or similar tools to write their translations and then teaching them to review and revise the output.

Legal translation is a highly technical field that demands a level of accuracy that often surpasses general translation, and Jordanian students and professionals are beginning to explore the use of AI-assisted tools to meet these demands. Indeed, ChatGPT has achieved enough fame in Jordan that legal practitioners have begun to recognize it as a new tool that could have potential in legal translation (Beirat et al., 2025). There are some reports that law students have been using ChatGPT to understand complicated cases or even draft bilingual moot court materials. However, because of the seriousness of legal translations, university administrators and instructors remind students not to rely on AI-produced outputs for legal translations. Rather, the narrative is that ChatGPT can support learning, as it can provide a fast draft or even explain a legal concept, and the student can verify and refine the AI output. That is, the benefits (speed, exposure to more fluent language patterns) are maximized, and the risks (students relying on the AI) are mitigated through human oversight. Jordanian policymakers and academics have begun to discuss policies for AI use, such as ensuring that, when students use online AI tools, they respect the ethical and privacy aspects and that AI does not hinder the development of students’ translation skills. Generally, the response to AI has been optimistic but cautious. With the proper training, AI tools can aid in the quality of legal translations by Jordanian students, as long as the students are taught to assess and correct the AI’s recommendations (Emara, 2024). The case study discussed here, which focused on Jordanian students, provides data on how ChatGPT might support (or in what ways it falls short in) legal translations produced by students. In the end, Jordan’s experience may be representative of the rest of the world—embracing technology in translation education but in a way that maintains the accuracy and cultural appropriateness that have defined Jordanian legal translation for centuries.

### III. METHODOLOGY

#### A. Research Design

This research was conducted using a case study design with a mixed-methods approach (quantitative and qualitative) to analyze the impact of using AI-assisted tools (ChatGPT and DeepL) on the quality of translated texts produced by Jordanian university students. To assess the accuracy and quality of translated texts before and after using AI-assisted tools, the researchers collected quantitative data. Qualitative data were also used to understand students' experiences, opinions, and attitudes towards using AI-assisted tools in translation work.

#### B. Participants

The sample consisted of 68 undergraduate students, 35 females and 33 males, studying translation, applied linguistics, or English language and literature. The participants were either juniors or seniors and had at least one course in legal translation. The participants were recruited from both Zarqa University and Mutah University, two Jordanian universities that specialize in training in translation and linguistics. All participants were selected on the basis of their basic familiarity with the legal translation tasks and terminology. Tables 1 and 2 present the distribution of the participants.

TABLE 1  
DISTRIBUTION OF PARTICIPANTS BY UNIVERSITY AND GENDER

University	Female	Male	Total
Zarqa University	21	19	40
Mutah University	14	14	28
Total	35	33	68

TABLE 2  
DISTRIBUTION OF PARTICIPANTS BY UNIVERSITY AND ACADEMIC YEAR

University	3rd Year (Juniors)	4th Year (Seniors)	Total
Zarqa University	22	18	40
Mutah University	13	15	28
Total	35	33	68

#### C. Instruments and Materials

The following instruments and materials were used in the study:

1. Pre- and Post-Tests on Legal Translation: Students completed two translation tasks, one before and one after they had the opportunity to use the AI tools. The texts were chosen to represent a range of legal genres, including contracts, court rulings, and statutes.
2. AI-Assisted Tools: During the follow-up test, students had access to ChatGPT and DeepL as artificial intelligence tools that they could use to create or improve their translations.
3. Survey Questionnaire: Students completed a questionnaire that included Likert scale questions about their experiences using AI-assisted tools. These questions covered the tools' perceived usefulness, perceived ease of

use, trust in the results, and willingness to use the tools in the future.

#### D. Data Collection Procedures

The process of collecting data occurred in these key stages over four weeks:

1. Orientation and Pre-Test: The research objectives and procedures were explained to the participants. They then conducted a pilot translation test (without using AI) by translating a random excerpt from a legal text (sample document provided) into English.
2. AI Tools Introduction: Students were trained in using ChatGPT and DeepL for legal translation, providing effective support, and analyzing the results.
3. Post-Test (with AI tools): At the end of the test, students completed a translation task (of the same difficulty and scope as previous tasks) and had access to AI tools. After completing the task, participants uploaded their final AI-assisted translations.
4. Interviews: After the following assessments, all participants completed a form. Semi-structured interviews were conducted with some participants to learn more about their experiences and ideas.

#### E. Data Analysis Methods

##### (a). Quantitative Analysis

The translation outputs from both the pre-test and post-test were evaluated using a standardized evaluation rubric that considered the following aspects:

1. Terminological accuracy.
2. Grammatical and syntactic structure.
3. Contextual and legal appropriateness.
4. Fluency and coherence.

Two human raters, both with legal translation experience, independently evaluated each translation to ensure that the two raters had a high degree of consistency. Statistical tests (e.g., paired t-tests) were conducted to assess whether the quality of the translation increased following the use of the AI platform.

##### (b). Qualitative Analysis

Descriptive statistics were employed to describe the results of the survey and the general attitudes and perceptions of the participants. Thematic analysis was employed to explore the primary themes regarding the students' perception of:

1. AI tool usefulness and limitations.
2. Confidence in AI-generated content.
3. Ethical concerns (e.g., overreliance, data privacy).
4. Personal strategies for integrating AI assistance into their workflow.

Data were interpreted using the six-stage model of Braun and Clarke to ensure the appropriate interpretation of the qualitative data (Braun & Victoria, 2006).

## IV. RESULTS

### A. Quantitative Findings

The effect of the AI-based tools on the quality of legal translation was determined by comparing the students' work prior to and following the translation exercises. To accomplish this, rubrics were created to assess the four areas: the accuracy of terminology, the syntax of speech, the context of the speech, and its fluency. Students could earn a maximum of 40 points for each translation task, with a maximum of 10 points for each of the four aspects mentioned above.

TABLE 3  
OVERALL IMPROVEMENT

Measure	Pre-Test Mean Score	Post-Test Mean Score	Mean Gain
Terminology Accuracy	6.2	8.1	+1.9
Syntactic Correctness	6.7	8.4	+1.7
Contextual Appropriateness	5.9	7.8	+1.9
Fluency and Coherence	6.5	8.6	+2.1
Total Score (Out of 40)	25.3	32.9	+7.6

Paired-samples t-test results show that the overall translation quality was significantly improved after using ChatGPT and DeepL.

### B. Qualitative Findings

#### (a). Student Perceptions

Surveys and interviews show that most students believe AI tools are very helpful in the translation process. Key points include:

1. Usability: 82% of students found ChatGPT and DeepL simple to utilize.

2. Confidence: 74% of students believed that AI could improve the translation process.
3. Awareness: 65% of respondents knew that AI-generated translations should be reviewed before submission.

(b). *Benefits Identified*

Students frequently cited the following benefits:

1. Terminology Inquiry: Artificial intelligence tools helped students understand legal terminology they previously struggled to remember.
2. Grammar and Style: Because of ChatGPT's recommendations, their sentence accuracy and length increased.
3. Speed: Time is saved in completing task drafts.

(c). *Concerns Raised*

Despite the positive feedback, students expressed several concerns:

1. Overdependence: Some students expressed concern about relying too heavily on AI without training themselves.
2. Accuracy: Some students were concerned that they were entrusting too many tasks to the AI without developing their own skills.
3. Context Sensitivity: 40% of students said that artificial intelligence sometimes fails to understand context.

C. *Emerging Patterns and Themes*

The following outcomes are exhibited after conducting a thematic analysis of the subject's content during the interview:

1. Terminology: Participating students broadened their understanding of legal terms and terminology. ChatGPT provided them with technical terms that they could practice or confirm.
2. Constant and Fluency: Consistency and fluency: The translations in the retest were more consistent in style, and the variations in tone or register were smaller. AI assistance had a longer consistency.
3. Contextual Understanding: The students increased their understanding of the different jurisdictions through the mistakes they observed regarding AI. This enhanced their understanding of the legal systems beneath them.
4. Workflow: With the help of AI, students were able to transform more swiftly and with less initial fear, with extra time devoted to reflection and revision. Many students described a process of first writing, then reviewing and improving it, using ChatGPT as a starting point and having their training to ensure accuracy.

## V. DISCUSSION

### A. *Interpretation of Results*

The results of this investigation demonstrated that the AI-versed tools (ChatGPT and DeepL) have a beneficial and quantifiable impact on the quality of legal translation that is performed by Jordanian students of law. The result of the post-test demonstrated a significant difference in all of the criteria (termed as terminology, syntactic accuracy, context-appropriateness, and fluency). This indicates that the tools have a significant impact on both linguistic and stylistic correctness in an academic setting.

Students found the suggestion of legal terminology and grammatical structures particularly helpful, as it avoided the errors and unclear wording that are often found in machine translation. However, the paper also reveals that AI is fallible. Students recognized that the jurisdiction-specific language and over-literal translations of legal statements were incorrect, demonstrating the limitations of AI in the specific knowledge and judgment of the domain, particularly regarding critical legal texts.

The results indicate that AI can enhance the quality of translation, but its effectiveness is dependent on the user's critical reading skills and legal translation training.

### B. *Implications for Translation Pedagogy*

The implementation of AI-based technology in the translation field (primarily in the legal sphere) is a field that is plentiful with opportunities. The researchers believe that ChatGPT-like tools can be considered cognitive aids for students that help them to initially create a rough draft and explore alternative wording or terminology that they would not have considered.

In the legal field of translation, the incorporation of AI into teaching and learning is particularly significant:

1. Educate students on the importance of iteration; they will analyze the output of machines and revise it.
2. Help with developing post-editing abilities, which are of increasing importance in modern translation processes.
3. Support student reflection as students contrast their own translations with the suggestions provided by computers.

However, for AI to have a teaching value, instructors must be sure to explain the necessity of critical thinking and revision. To make sure the tools are employed effectively, students must be trained in the responsible use of AI tools (e.g., how to recognize errors and improve results to be legal).

### C. *Challenges and Ethical Considerations*

Despite the educational value of these tools, they also raise several practical and ethical issues:

1. Additionally, students may rely on the output of AI and lose their passion for developing fundamental skills in legal translation and comparative law; this would diminish their potential for professional development in the

- long term.
2. Translations generated by AI are likely to be inaccurate, and small errors can have significant consequences in legal situations. Students may not realize this danger and may provide translations that are inaccurate or misrepresented without supervision.
  3. Students may participate in actual legal agreements or delicate legal texts via a chatbot like ChatGPT or DeepL, which poses questions about the security of data and the rights to intellectual property. Institutions must create formal rules that regulate the handling of data and intellectual property. The issues listed above are reasons for creating formal rules in academic environments that regulate the ethical behavior of AI, ensure human oversight, and define the acceptable methods of the classroom.

#### *D. Comparison With Prior Research*

The results of this study are in line with previous studies, both internationally and regionally. Like Ding (2024) and Zayed (2024), this study has found that ChatGPT and DeepL enhance fluency and lexical accuracy but perform poorly in the legal accuracy dimension, especially in context-bound and complex contexts. Also, the results of this study align with Al-Romany et al. (2024) in that the use of AI in legal translation requires human post-editing. The uniqueness of this study lies in the participants' group, as the focus is on Jordanian undergraduate students, a group that has not been adequately represented in the literature. The investigation, which focuses on the engagement of Jordanian undergraduate students with AI in a formal educational environment, provides information about the pedagogical benefits and challenges of AI in the legal translation field within the Jordanian context. In this regard, the results indicate that the utilization of AI in a guided and ethical manner can have a positive effect on student learning.

## VI. CONCLUSION

The objective of this paper was to investigate the potential for AI-powered translation tools to enhance the quality of legal translations produced by Jordan's undergraduate students. Methods included pre- and post-tests, surveys, and interviews. The researchers conclude that the quality of the translations increased significantly after students had access to automated translation tools. More specifically, they significantly enhanced their grasp of terminology, grammar, context, and fluency.

Qualitative results demonstrated that the students found the AI tools beneficial, time-saving, and educational during the writing or revision phase of translations. On the other hand, students recognized the lack of automation in the management of legal terminology specific to a jurisdiction, the interpretation of complex legal concepts, and the verification of domain-specific accuracy.

Indubitably, this study enhances the existing knowledge of how to incorporate AI into translation instruction, specifically in the legal field and in the Arab-English context. It delves further into the Jordanian students' opinions and attitudes towards AI technology, specifically regarding ChatGPT, in the unexplored area of AI-assisted translation research. Additionally, it provides empirical evidence to support the pedagogical goal of AI-based tools in enhancing students' learning and efficiency while also facilitating the use of AI as a cognitive aid for legal translation. The pedagogical approach promises that AI should not be seen as a replacement for human translation but rather as an assistive tool.

#### *A. Recommendations*

Based on these findings, the study recommends the following: first, AI tools must be used as tools to enhance learning in legal translation courses, for example, by emphasizing the importance of critically reviewing the output and post-editing skills and by ensuring students understand the ethical implications of AI. Second, tasks that include comparing human and AI translations should be designed to allow students to reflect on the output and develop a better sense of their judgment. Third, clear guidelines should be developed for institutional usage of AI in courses (i.e., data privacy, academic integrity). Fourth, continuing education opportunities should be promoted for instructors to teach with and about AI tools. Fifth, domain-specific modules or legal translation plugins for improved content generation in specific areas should be developed. Finally, to allow users to choose legal systems or document types to help improve context, jurisdiction-aware capabilities should be developed.

#### *B. Suggestions for Future Research*

This case study opens several avenues for further investigation, the first of which is by researching more general demographic studies with postgraduate students, professional translators, and legal professionals to understand how different user groups interact with AI in legal translation. Next, there should also be tool-specific performance testing of different AI models (ChatGPT, DeepL, Google Translate) in different legal domains and languages. Additionally, other research should include longitudinal studies to understand how long-term use of AI in translation influences skill acquisition, accuracy, and reliance on the technology over time. Future research in this area will deepen our understanding of the evolving role of artificial intelligence in legal translation and help ensure that its integration into legal translation is both educational and ethical.

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