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An Evaluation of Artificial Intelligence (AI) Technologies in Islamic Inheritance Law Knowledge: A Comparison of ChatGPT and Google Gemini

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Abstract

The rapid development of artificial intelligence models has sparked debates about the potential of these technologies to replace human labor across various sectors; in some areas, significant reductions in personnel have already been executed, with systems being transferred to AI-based solutions. One of the fields affected by this transformation is law. Today, in countries such as China, Colombia, Argentina, the United Kingdom, and the United States, it is known that artificial intelligence is permitted to be used in judicial processes, albeit in a limited capacity, either as a primary or auxiliary tool. The aim of this study is to comparatively evaluate the reliability and comprehensibility of responses provided by ChatGPT (developed by OpenAI) and Gemini (developed by Google AI) to questions concerning "Islamic Inheritance Law." Both are among the most well-known and widely accessible AI tools for general users. By analyzing the accuracy of information these two AI models offer on the subject of "Islamic Inheritance Law," the study aims to explore the applicability of these technologies in the

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legal field in general and in Islamic law in particular. In this study, questions selected from easy, medium, and hard categories were drawn from exam questions in the Islamic Inheritance Law unit of the Islamic Law I course taught to second-year students at Kocaeli University's Faculty of Theology. These questions were posed to the two AI models, and the resulting answers were evaluated by two experts in Islamic law. The results obtained were analyzed using tools such as SPSS, and a comparative evaluation of the knowledge and interpretive abilities of these AI models regarding Islamic law was conducted in terms of both accuracy and comprehensibility.
Keywords: Islamic Law, Islamic Inheritance Law, Artificial Intelligence (AI), Comparative Evaluation, ChatGPT, Google Gemini, Legal Knowledge Reliability.

Yapay Zekâ (AI) Teknolojilerinin İslam Miras Hukuku Bilgisi Üzerine Bir Değerlendirme: ChatGPT ve Google Gemini Karşılaştırması

Öz

Yapay zeka modellerinin hızla gelişmesi, birçok sektörde bu teknolojilerin insan gücünün yerini alması tartışmalarını gündeme getirmiş; bazı sektörlerde ise personel sayılarında kayda değer azaltmalara gidilerek sistemler yapay zeka temelli çözümlere devredilmiştir. Bu dönüşümden etkilenen alanlardan biri de hukuk olmuştur. Günümüzde Çin, Kolombiya, Arjantin, Birleşik Krallık ve Amerika Birleşik Devletleri gibi bazı ülkelerde, yapay zekanın yargı süreçlerinde sınırlı da olsa asli ya da yardımcı bir araç olarak kullanılmasına izin verildiği bilinmektedir. Bu çalışmanın amacı, en çok bilinen ve genel kullanıcıların ulaşabildiği yapay zeka araçlarından OpenAI tarafından geliştirilen ChatGPT ve Google AI tarafından geliştirilen Gemini'nin "İslam Miras Hukuku" hakkındaki sorulara verdikleri cevapların güvenilirliğini ve anlaşılabilirliğini karşılaştırmalı olarak değerlendirmektir. Çalışma, iki yapay zeka modelinin "İslam Miras Hukuku" hakkındaki verdikleri bilgilerin doğruluğunu analiz ederek bu teknolojilerin genel olarak hukuk ve özelde de İslam hukuku alanındaki uygulama kabiliyetlerini araştırmayı hedeflemektedir. Çalışma Kocaeli Üniversitesi İlahiyat Fakültesi 2. Sınıf öğrencilerine İslam Hukuku I dersinde verilen İslam Miras Hukuku ünitesinin sınav sorularından kolay, orta ve zor kategorideki sorular seçilerek iki yapay zekâ modeline sorulmuş ve elde edilen cevapların, alanda uzman iki İslam hukukçusu tarafından değerlendirilmesi istenmiştir. Elde edilen sonuçlar SPSS gibi araçlarla test ve analiz edilmiş, bu iki yapay zekâ modelinin İslam Hukuku hakkındaki bilgi ve yorum kabiliyetleri test edilerek hem doğruluk hem de anlaşılabilirlik açısından karşılaştırmalı bir değerlendirme yapılmıştır.
Anahtar Kelimeler: İslam Hukuku, İslam Miras Hukuku, Yapay Zekâ (AI), Karşılaştırmalı Değerlendirme, ChatGPT, Google Gemini, Hukuki Bilgi Güvenilirliği.

Introduction

Artificial Intelligence (AI) research has emerged as the product of over 65 years of sustained efforts by scientists and engineers. The fact that the *Artificial Intelligence Index Report 2025*, published by Stanford University, states that there are 900 significant AI models,[1] is noteworthy in that it highlights the astonishing pace of progress achieved in the short period since 2022, when AI models first began to emerge actively and publicly.

Among artificial intelligence models, there exist hundreds of different types. These can be broadly categorized into main groups such as *Large Language Models (LLMs)*, *Visual AI Models*, *Speech and Audio AI Models*, *Domain-Specific Models* (e.g., in finance, healthcare, etc.), and *Robotics and Motion Models*.[2] Today, the success of artificial intelligence stems from increased access to data and the availability of sufficient analytical infrastructure to process and interpret that data. Equipped with vast datasets and large language models (LLMs), AI systems appear to possess the ability for abstract reasoning.[3] According to published reports, OpenAI's O3 version—released in 2025 and designed for tasks requiring deep, detailed, and complex reasoning—has reportedly approached human-level performance in general intelligence testing.[4]

Artificial intelligence tools, whose capabilities in text processing and analysis have significantly advanced, are observed to hold tremendous potential in the field of law—thanks both to the data they contain and the continuous input and training provided by users. These tools are capable of rapidly analyzing extensive legal databases, generating reports, identifying analogous cases to produce precedent-based judgments, and offering predictive insights to judges, prosecutors, and lawyers regarding cases and their possible outcomes.

It appears possible that AI models may yield positive outcomes in the legal field. However, at present, this seems feasible only for certain areas and cases that are not highly intricate. Indeed, when one considers the dynamic nature of law, which evolves

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1 Nestor Maslej et al., *Artificial Intelligence Index Report 2025* (Stanford Institute for Human-Centered Artificial Intelligence, 2025), 47–48.

2 Yuchen Jiang, Xiang Li, Hao Luo, Shen Yin & Okyay Kaynak, "Quo Vadis Artificial Intelligence?" *Discover Artificial Intelligence* 2/1 (March 2022), 4.

3 Anil Ananthaswamy, "How Close Is AI to Human-Level Intelligence?," *Nature* 636/8041 (December 2024), 22–25.

4 The Economic Times (ET), "OpenAI's O3 System Has Reached Human Level on a Test for 'General Intelligence'" (Access 3 January 2025); Jeremy Hsu, "OpenAI's O3 Model Aced a Test of AI Reasoning – but It's Still Not AGI," *New Scientist* (Access 3 January 2025).

according to societal needs; the non-binding character of precedent; the fact that legal interpretations can vary depending on the circumstances of the specific case, social requirements, and normative developments over time; and the flexibility with which abstract norms are applied to the actors in a concrete dispute, it remains uncertain to what extent AI can produce answers that are accurate, consistent with legislation and case law, in line with legal custom, and—most importantly—whether such answers would give rise to legal liability.[5] Although some Western countries have begun to utilize artificial intelligence in both legal practice and judicial processes, entrusting entire litigation procedures and the adjudication of cases solely to AI still appears difficult—if not risky—given the current state of AI capabilities.[6] In its policy document titled *"AI Regulation: A Pro-Innovation Approach"*, the UK government permits the use of artificial intelligence under certain conditions. The document highlights several limitations that prevent AI from serving as a fully autonomous decision-making mechanism. These include deficiencies in language comprehension, the opacity of decision-making processes, concerns regarding the neutrality of AI training and development phases, the exposure of personal data to AI systems, vulnerability to cyberattacks, and uncertainties about accountability and liability in the event of erroneous AI decisions. Accordingly, the document envisions AI as a tool that can assist in decision-making processes, rather than replace them entirely.[7]

The primary purpose of this article is not to speculate on whether artificial intelligence models or virtual assistants might manipulate information in the future. Rather, our aim is to examine whether these AI models are capable of accurately conveying information related to Islamic Inheritance Law—a field that is comparatively specific, complex, and requires not only theoretical knowledge but also analytical reasoning—especially in contrast to other areas of law.

The findings we aim to obtain through this study will reveal how—and to what extent—these AI tools, which possess access to billions of textual data points, are capable of responding accurately to questions posed to them. Ideally, such tools, with access to vast databases and the ability to retrieve information from the internet across various languages, are expected to provide flawless answers concerning the field of

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5 Bogdanovskaya, I. *et al.* "Artificial Intelligence and Law." *Law Journal of the Higher School of Economics* 4 (December 2024), 278–306..

6 Carsten Orwat *et al.*, "Normative Challenges of Risk Regulation of Artificial Intelligence," *NanoEthics* 18/2 (August 2024), 11.

7 Department for Science, Innovation and Technology, *A Pro-Innovation Approach to AI Regulation* (Command Paper CP 815, UK Government, 2023), Access 3 January 2025, https://www.gov.uk/government/publications/ai-regulation-a-pro-innovation-approach/white-paper

inheritance law. However, one of the key objectives of this study is to observe what happens when such questions involve not only factual inquiries but also elements of human reasoning and engagement with different legal paradigms.

It is well understood that AI tools will be able to perform vastly more sophisticated tasks in the future compared to their current capabilities. Nevertheless, by analyzing their present performance, it is possible to anticipate what these technologies may offer humanity in the years ahead. The findings of this study will provide important insights into the extent to which AI models succeed in conveying accurate information related to Islamic Inheritance Law. Furthermore, it will offer a valuable basis for evaluating whether these technologies can be regarded as reliable sources of information in this domain and will contribute meaningfully to the development of informed opinions regarding the legal reliability of AI tools or applications developed for both theoretical and practical objectives.

Literature Review

In recent years, there has been a noticeable increase in studies examining the relationship between artificial intelligence and Islamic law, both in Türkiye and at the international level. A substantial portion of this literature focuses on core issues such as the legal personality, liability, and ethical status of artificial intelligence. In this context, Abdullah Demir addresses how artificial intelligence may be positioned within Islamic law in terms of legal personality and responsibility, discussing its ethical dimensions within the framework of principles of usūl al-fiqh.[8] Similarly, Muhammed Latif Altun analyzes the relationship between artificial intelligence and the concepts of legal capacity (ahliyyah), moral responsibility (taklīf), and legal liability (dhimmah) through classical fiqh categories, offering a conceptual framework by comparing artificial intelligence with traditional legal subjects such as humans, animals, and slaves.[9] In addition, Yücel Oğurlu approaches the issue of artificial intelligence through a purposive interpretation grounded in maqāsid al-sharīʿa and maslaha, examining the applicability of Islamic legal interpretive methods to this emerging technology, with particular attention to questions of legitimacy, value, and normative boundaries.[10]

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8 Abdullah Demir, "Legal Personality, Liability and Ethical Aspects of Artificial Intelligence According to Islamic Law," *Journal of Quranic Studies and Modern Science* 5/9 (2024), 30–41.

9 Muhammed Latif Altun, "A Figural Analysis on Artificial Intelligence," *Dicle Journal of Theology* 26/2 (January 2024), 227–249.

10 Yücel Oğurlu, "An Essay on the Interpretation of Artificial Intelligence Within the Framework of Teleological Interpretation with 'Maqasid' and 'Maslahat' from Procedures of History of Law," *Balıkesir University Law Review* 1/2 (December 2024), 144-164.

The literature also includes empirically oriented studies on the capacity of artificial intelligence to produce and transmit fiqh-related knowledge. Within this framework, the study conducted by Okur and Ekşi comparatively examines the competence of artificial intelligence models such as ChatGPT and Google Gemini in generating knowledge in the field of Islamic property law, thereby highlighting both the potential and the limitations of artificial intelligence in theological and fiqh education.[11] Moreover, studies addressing the interaction between artificial intelligence and legal practice have opened new areas of discussion, particularly with regard to judicial processes and access to evidence. Kaya and Karabay analyze the use of artificial intelligence in accessing evidence from the perspective of international law, drawing attention not only to the procedural efficiencies offered by this technology but also to the risks of manipulation within judicial processes.[12] In addition, the edited volume *Islam and Law in the Age of Artificial Intelligence* provides an interdisciplinary scholarly foundation by addressing artificial intelligence from multiple perspectives, including Islamic law, usūl al-fiqh, digital ijtihād, legal personality, and ethics.[13]

While these studies predominantly concentrate on the ontological position of artificial intelligence, its legal personality, ethical limits, and general theoretical frameworks, the relationship between artificial intelligence and Islamic law is largely examined at a broad and conceptual level. By contrast, studies that investigate artificial intelligence within a specific fiqh domain—particularly in relation to legal reasoning, norm production, or concrete processes of legal evaluation—within a narrowly defined and problem-oriented framework remain relatively limited. Against this background, the present study builds upon the theoretical and conceptual approaches articulated in the existing literature and aims to examine the relationship between artificial intelligence and Islamic law within a specific legal field and a defined methodological perspective, thereby seeking to complement the general discussions in the literature with a more concrete and field-oriented analysis.

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[11] Hüseyin Okur – Ahmet Ekşi, "An Evaluation of Islamic Property Law Knowledge in Artificial Intelligence (AI) Technologies: A Comparison of ChatGPT and Google Gemini," *Journal of Academic Research in Religious Sciences* 24/3 (December 2024), 29–54.

[12] Islam Safa Kaya – Huzeyfe Karabay, "Artificial Intelligence from an International Perspective and Access to Evidence Through Artificial Intelligence," *Kırıkkale Law Review* 4/2 (October 2024), 739–760.

[13] Yıldıray Sipahi (ed.), *Islam and Law in the Age of Artificial Intelligence* (Burdur: Burdur Mehmet Akif Ersoy University, 2022), 9–257.

Materials and Methods

This study utilizes course materials related to Islamic Inheritance Law from the "Islamic Law I" course offered at the Faculty of Theology at Kocaeli University between 2020 and 2024. The questions used in the study were primarily derived from these instructional materials and were previously posed to students. In order to enable a reliable comparison of the accuracy of information transmission by AI models, the questions gathered from the question pool were categorized into three levels of difficulty: easy, intermediate, and advanced. The selected questions aim to assess students' ability to comprehend and analyze foundational knowledge of Islamic Inheritance Law, solve the well-known "40 scenarios" (al-hālāt al-arbaʿūn) related to inheritance, and interpret and propose solutions for certain contemporary issues within the field.

Five open-ended questions were selected from each category. These questions were posed to the latest version of OpenAI's artificial intelligence software, ChatGPT-4o,[14] and to Google Gemini's 1.5 Flash version.[15]

The primary reason for selecting these two models in this study is that both are among the most widely used and publicly accessible AI models today, equipped with advanced language processing capabilities and trained on large-scale datasets. Moreover, ChatGPT has garnered significant attention in the academic community due to its human-like processing and response generation abilities.[16] Current research indicates that ChatGPT possesses a broad knowledge base and can generate rapid, fluent, and comprehensible responses to complex questions.[17] These features make it a preferred tool for addressing academic inquiries that require detailed explanations and logical consistency. Gemini, developed by Google, has the capability to retrieve real-time data from the internet, which makes it particularly effective in scenarios that demand up-to-date information. Its ability to access current data enables it to provide more relevant responses to questions based on recent developments and evolving datasets; this capability was the main reason Gemini was chosen as the second testing tool.

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14 OpenAI, "GPT-4" (Access 25 February 2025).

15 Google Developers Blog, "Gemini 1.5 Flash-8B Is Now Production Ready" (Access 25 February 2025).

16 Muhammed Salim Keezhatta, "Understanding EFL Linguistic Models through Relationship between Natural Language Processing and Artificial Intelligence Applications," *Arab World English Journal* 10/4 (December 2019), 251–262; Imtiaz Ahmed, Mashrafi Kajol, Uzma Hasan, Partha Protim Datta, Ayon Roy, Md. Rokonuzzaman Reza *et al*., "ChatGPT versus Bard: A Comparative Study," *Engineering Reports* 6/11 (2024), e12890.

17 Muhammad Imran – Norah Almusharraf, "Google Gemini as a Next Generation AI Educational Tool: A Review of Emerging Educational Technology," *Smart Learning Environments* 11/1 (May 2024), 4.

Although other open-source LLMs—such as Deepseek, Mistral, Meta, Falcon, Qwen, Grok, and Bloom—are available, their global accessibility, linguistic and contextual competence, stability, and comparability remain more limited compared to ChatGPT and Gemini. For these reasons, ChatGPT and Gemini were selected as the primary models in this study.

The responses provided by the two AI models to the selected easy, intermediate, and advanced-level questions were submitted to two academic experts specializing in Islamic law, who were asked to evaluate and score them. In order to ensure objectivity in the assessment process, the identities of the AI models that generated the responses were concealed. During the evaluation, the experts were instructed to assess each response based on three criteria: accuracy, clarity, and conformity with the principles of Islamic Inheritance Law.

The researchers evaluated the responses using a 5-point Likert scale.[18] The evaluation criteria were as follows:

- **5:** The response is entirely accurate, detailed, and consistent with Islamic Inheritance Law.
- **4:** The response is accurate but contains some omissions.
- **3:** The response is partially correct and includes some incorrect or incomplete information.
- **2:** The response is mostly incorrect, though it contains a small amount of accurate information.
- **1:** The response is entirely incorrect or irrelevant to the question.

Additionally, in order to enable a more nuanced evaluation, the researchers were also given the option to assign intermediate scores.

In evaluating the responses provided by the AI models, only those that received a score below 4 were analyzed in detail. Responses that scored above 4 were considered largely accurate and therefore did not require further commentary. To highlight where the AI models made mistakes, explanatory notes—either brief or extensive depending on the severity of the errors—were provided for answers scoring below 4. If a response contained multiple errors, these were presented in sequence, thereby clarifying the rationale behind the lower score assigned.

To assess whether the inclusion of intermediate scores influenced the results and to verify the accuracy of the correlations, non-parametric correlation tests

[18] Rensis Likert, "A Technique for the Measurement of Attitudes," *Archives of Psychology* 140 (1932), 1–55.

(Spearman's rho) were applied.[19] The data were analyzed using IBM SPSS v25 (IBM, New York, USA).[20] The suitability of data for normal distribution was evaluated using the Shapiro–Wilk test.[21] Parameters that conformed to a normal distribution were compared with the independent-samples t-test,[22] whereas relationships among data that did not meet normality assumptions were examined using Spearman's rho correlation coefficient.[23] Analysis results are presented as mean ± standard deviation and median (minimum–maximum). A significance level of $p < 0.05$ was adopted.

This study has certain limitations, which highlight the need for more comprehensive research in the future.

a) For the open-ended questions, the AI models were instructed to provide responses not exceeding 300 words, in order to align with standard examination practices. This limit ensured that the responses remained comparable and enabled a fair evaluation between the AI models, thereby preventing any form of competitive imbalance. The word limit was also deemed a reasonable criterion by the evaluating scholars who specialize in Islamic law.

b) The evaluation of AI-generated responses was conducted from a specific expert perspective, limited to two associate professors specializing in Islamic law. Future research that includes a broader panel of experts and incorporates diverse academic approaches is expected to enable a more in-depth examination of the reliability and effectiveness of these technologies within the context of Islamic Inheritance Law. Such expanded studies are anticipated to yield more comprehensive insights into the potential role of these technologies in this field.

In this study, the accuracy of the AI-generated responses was systematically evaluated by subject-matter experts based on pre-established criteria. Methodologically, this process functioned as an academic validity and accuracy test of the AI outputs.

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19 Jerrold H. Zar, *Biostatistical Analysis* (New Jersey: Prentice Hall, 2010).

20 IBM, "SPSS Statistics 25.0.0" (Access 24 February 2025).

21 S. S. Shapiro – M. B. Wilk, "An Analysis of Variance Test for Normality (Complete Samples)," *Biometrika* 52/3–4 (December 1965), 591–611.

22 Dieter Rasch – Jürgen Pilz – L. R. Verdooren – Albrecht Gebhardt, *Optimal Experimental Design with R* (New York: Chapman and Hall/CRC, 2011), 38.

23 Kevin A. Hallgren, "Computing Inter-Rater Reliability for Observational Data: An Overview and Tutorial," *Tutorials in Quantitative Methods for Psychology* 8/1 (2012), 23–34.

1. Comparison Results

1.1. Easy-Level Questions Posed to Artificial Intelligence

The questions categorized as easy in the context of Islamic Inheritance Law were designed to assess knowledge of fundamental concepts. Definition-based questions - such as those asking about the term *ʿawl (avl/avliye)*-[24] or inquiries regarding the Qur'anic verses on inheritance generally rely on direct recall and are expected to be easily answered by undergraduate students within the scope of the relevant course. Similarly, topics such as the order of priority for settling the deceased's debts, funeral and burial expenses, and bequests are among the basic elements taught in foundational inheritance law instruction. Because these questions focus on evaluating essential knowledge both theoretically and practically, they are considered suitable for undergraduate-level comprehension and are classified as easy.

Easy-Level Questions	Researcher 1 (Mean ± SD)	Researcher 2 (Mean ± SD)	Word Count (Mean ± SD)
1. Within the framework of the concept of "terikah" (the estate left by the deceased), how are debts and other obligations transferred to the heirs? In the distribution of the estate, in what order are elements such as debts, funeral and burial expenses, and bequests taken into account? What are the rights and responsibilities of the heirs in this process? Explain.	4,6	4,4	211
2. What is meant by the concept of "ʿawl (Avl)" in Islamic Inheritance Law?	5	5	198
3. In the event that a deceased person (murith) bequeaths their entire estate, what provisions does Islamic Inheritance Law establish regarding this situation?	4,8	4,7	232
4. Provide information about the verses in the Qur'an related to inheritance.	4,9	4,8	249

[24] Ali Haydar Efendi, *Teshîlü'l-Ferâiz* (Konya: Tekin Publishing House, 1984), 79; Muhammad Abu Najmi, "Efficacy of the Categories of Heirs in Fulfillment of 'Awl (Increase or Decrease in Inheritance Share); A Comparative Study of the Jurisprudence of Islamic Sects," *Comparative Studies on the Schools of Jurisprudence and Its Principles* 5/1 (March 2022), 264.

5. The death of a deceased person (murith) occurs in three forms: (1) actual death, (2) legal death, and (3) presumed death. Briefly explain these three concepts.	4,8	4,8	231

Table 1: Easy-Level Questions Directed to ChatGPT

Variables	Mean ± Standard Deviation (SD)	Median (Minimum – Maximum)	Shapiro–Wilk Test	Independent Samples t-Test	Spearman's Rho Correlation Coefficient
Researcher 1 Score	4.82 ± 0.13	4.80 (4.60 - 5.00)	W = 0.956, p = 0.777	t(8) = 0.676, p = 0.518	ρ = 0.921, p = 0.026 (strong correlation)
Researcher 2 Score	4.74 ± 0.20	4.80 (4.40 - 5.00)	W = 0.932, p = 0.607	t(8) = 0.676, p = 0.518	ρ = 0.921, p = 0.026 (strong correlation)
Word Count	224.20 ± 17.79	231.00 (198.00 - 249.00)	W = 0.959, p = 0.803	-	-

Table 2: Analysis of Easy-Level Questions Directed to ChatGPT

Normality and Correlation Analysis: The evaluator scores exhibited a high degree of consistency. According to the Shapiro–Wilk test, both the scores and the word counts were normally distributed ($p > 0.05$), supporting the use of parametric tests. The t-test indicated no significant difference between the researchers ($p = 0.518$), while Spearman's rho revealed a strong and significant positive correlation between them ($\rho = 0.921$, $p = 0.026$). Descriptive statistics showed that the scores were high and close to the median, and that the responses averaged 224.20 words, suggesting that ChatGPT provided comprehensive and meticulous explanations. These findings support inter-rater agreement and the reliability of the analyses.

Easy-Level Questions	Researcher 1 (Mean ± SD)	Researcher 2 (Mean ± SD)	Word Count (Mean ± SD)
1. Within the framework of the concept of "terikah" (the estate left by the deceased), how are debts and other obligations transferred to the heirs? In the distribution of the estate, in what order are elements such as debts, funeral and burial expenses, and bequests taken into account? What are the	4	4,2	288

rights and responsibilities of the heirs in this process? Explain.			
2. What is meant by the concept of "ʿawl (Avl)" in Islamic Inheritance Law?	3,3	3,5	282
3. In the event that a deceased person (murith) bequeaths their entire estate, what provisions does Islamic Inheritance Law establish regarding this situation?	4,5	4,6	270
4. Provide information about the verses in the Qur'an related to inheritance.	3,9	4	288
5. The death of a deceased person (murith) occurs in three forms: (1) actual death, (2) legal death, and (3) presumed death. Briefly explain these three concepts.	4,2	4,3	295

Table 3: Analysis of Easy-Level Questions Directed to Google Gemini

Variables	Mean ± Standard Deviation (SD)	Median (Minimum – Maximum)	Shapiro–Wilk Test	Independent Samples t-Test	Spearman's Rho Correlation Coefficient
Researcher 1 Score	3.98 ± 0.44	4.00 (3.30 - 4.50)	W = 0.960, p = 0.811	t(8) = -0.519, p = 0.618	ρ = 1.00, p < 0.001 (strong correlation)
Researcher 2 Score	4.12 ± 0.41	4.20 (3.50 - 4.60)	W = 0.967, p = 0.852	t(8) = -0.519, p = 0.618	ρ = 1.00, p < 0.001 (strong correlation)
Word Count	284.60 ± 9.37	288.00 (270.00 - 295.00)	W = 0.929, p = 0.590	-	-

Table 4: Analysis of Easy-Level Questions Directed to Google Gemini

Normality and Correlation Analysis: A high level of consistency was observed between the evaluations of the researchers. According to the Shapiro–Wilk test, both the scores and word counts were normally distributed ($p > 0.05$), which justified the use of parametric tests. The t-test indicated no significant difference between the researchers ($p = 0.618$), while Spearman's rho revealed a strong and significant positive correlation between them ($\rho = 1.00$, $p < 0.001$). Descriptive statistics showed that the scores were high and close to the median, and that the responses—averaging 284.60 words—

were detailed and carefully composed. These findings support a high level of inter-rater agreement and the reliability of the analyses.

Qualitative Analysis of Responses in Terms of Content Accuracy and Juridical Consistency: It was observed that Google Gemini's average score for Question 2 fell below 4. Although Gemini outlined the general framework of the topic fairly well, it presented a contradictory example in relation to the concept of *ʿawl* (avliye). In Islamic Inheritance Law, *ʿawl* refers to the situation in which the total shares allocated to the Qur'anic heirs (*ashāb al-farāʾid*) exceed the total estate.[25] Gemini, however, provided the following example for *ʿawl*, which does not align with this definition:

> *For example, suppose a deceased person has three children (referring here to male children). According to Islamic Inheritance Law, each child is entitled to one-third of the estate. However, as the number of heirs increases or when other heirs (such as a spouse, mother, father, etc.) are also entitled to inherit, the total shares may exceed one. In such cases, the situation of ʿawl arises, and the shares of all the children are proportionally reduced to resolve the discrepancy.*

However, in this example, the situation described does not constitute a case of *ʿawl* (avliye). For *ʿawl* to occur, all individuals participating in the distribution must be fixed-share heirs (*ashāb al-farāʾid*). In the example provided by Gemini, the male child is classified as a residuary heir (*ʿasaba*), and when a residuary heir is present in an inheritance distribution, *ʿawl* does not arise.

1.2. Intermediate-Level Questions Posed to Artificial Intelligence

The questions categorized as intermediate-level in Islamic Inheritance Law are designed to prompt students to engage in deeper analysis of concepts by building on their foundational knowledge. What distinguishes these questions from basic-level inquiries is that they often involve transitional knowledge related to inheritance calculations. For example, questions concerning partial or complete exclusion from inheritance due to specific conditions (*hajb hirmān*, *hajb nuqsān*) require not only familiarity with basic theory but also a moderate level of understanding. Identifying who qualifies as *ashāb al-farāʾid* is intended to assess the student's command of the subject. Scenarios involving a daughter, mother, and son's daughter, or elementary case-based distributions, require students to apply theoretical knowledge to concrete legal problems. Since these questions assess the ability to think critically and apply knowledge—rather than merely recall information—they are classified as intermediate in difficulty.

[25] Abdüsselam Arı, *Islamic Inheritance Law* (Istanbul: Pınar Publications, 2nd ed., 2018), 163.

Intermediate-Level Questions	Researcher 1 (Mean ± SD)	Researcher 2 (Mean ± SD)	Word Count (Mean ± SD)
1. In an inheritance distribution involving a husband, father, mother, and grandfather, which individual is excluded from the inheritance? Explain the reason.	5	4,9	71
2. In Islamic Inheritance Law, who are the ashāb al-farāʾid (fixed-share heirs)? List them.	5	5	79
3. In Islamic Inheritance Law, what is meant by the concepts of hajb hirmān and hajb nuqsān?	4,9	4,8	90
4. In an inheritance distribution involving a daughter, mother, and son's daughter, and where no residuary heir (*ʿasaba*) is present, how is the inheritance allocated?	4,9	4,9	156
5. Upon examining the relevant textual sources, it is observed that the son is not mentioned among those whose shares are explicitly determined (*ashāb al-farāʾid*). Provide a legal and statistical explanation for this.	5	5	210

Table 5: Intermediate-Level Questions Directed to ChatGPT

Variables	Mean ± Standard Deviation (SD)	Median (Minimum – Maximum)	Shapiro–Wilk Test	Independent Samples t-Test	Spearman's Rho Correlation Coefficient
Researcher 1 Score	4.96 ± 0.05	5.00 (4.90 - 5.00)	W = 0.684, p = 0.006 (not normally distributed)	t(8) = 0.894, p = 0.397	ρ = 0.761, p = 0.135 (strong positive relationship)
Researcher 2 Score	4.92 ± 0.08	4.90 (4.80 - 5.00)	W = 0.881, p = 0.314 (normal distribution)	t(8) = 0.894, p = 0.397	ρ = 0.761, p = 0.135 (strong positive relationship)
Word Count	121.20 ± 59.94	90.00 (71.00 - 210.00)	W = 0.857, p = 0.217 (normal distribution)	-	-

Table 6: Analysis of Intermediate-Level Questions Directed to ChatGPT

Normality and Correlation Analysis: A generally high level of consistency was observed between the researchers' ratings. According to the Shapiro–Wilk test, since Researcher 1's scores did not follow a normal distribution, non-parametric methods were applied in certain analyses; specifically, the Spearman's rho correlation coefficient was employed to examine the relationship between the researchers. The independent-samples t-test indicated no significant difference between the researchers ($p = 0.397$), while Spearman's rho showed a strong yet statistically non-significant relationship ($\rho = 0.761$, $p = 0.135$). Descriptive statistics revealed that both researchers' scores were high and that the median values were close to the maximum, whereas the response word counts exhibited variability. Overall, the findings support the consistency of the evaluations and the reliability of the analyses. Moreover, because none of ChatGPT's answers scored below 4, no additional assessment was performed.

Intermediate-Level Questions	Researcher 1 (Mean ± SD)	Researcher 2 (Mean ± SD)	Word Count (Mean ± SD)
1. In an inheritance distribution involving a husband, father, mother, and grandfather, which individual is excluded from the inheritance? Explain the reason.	4,6	4,5	167
2. In Islamic Inheritance Law, who are the ashāb al-farāʾid (fixed-share heirs)? List them.	2,2	2	210
3. In Islamic Inheritance Law, what is meant by the concepts of hajb hirmān and hajb nuqsān?	4,9	4,8	254
4. In an inheritance distribution involving a daughter, mother, and son's daughter, and where no residuary heir (*ʿasaba*) is present, how is the inheritance allocated?	2	2	268
5. Upon examining the relevant textual sources, it is observed that the son is not mentioned among those whose shares are explicitly determined (*ashāb al-farāʾid*). Provide a legal and statistical explanation for this.	3,1	3,3	273

Table 7: Intermediate-Level Questions Directed to Google Gemini

Variables	Mean ± Standard Deviation (SD)	Median (Minimum – Maximum)	Shapiro–Wilk Test	Independent Samples t-Test	Spearman's Rho Correlation Coefficient
Researcher 1 Score	3.36 ± 1.34	3.10 (2.00 - 4.90)	W = 0.876, p = 0.292 (normal distribution)	t(8) = 0.047, p = 0.963	ρ = 0.975, p = 0.005 (strong positive relationship)
Researcher 2 Score	3.32 ± 1.33	3.30 (2.00 - 4.80)	W = 0.859, p = 0.226 (normal distribution)	t(8) = 0.047, p = 0.963	ρ = 0.975, p = 0.005 (strong positive relationship)
Word Count	234.40 ± 45.11	254.00 (167.00 - 273.00)	W = 0.876, p = 0.292 (normal distribution)	-	-

Table 8: Analysis of Intermediate-Level Questions Directed to Google Gemini

Normality and Correlation Analysis: The analysis results show a generally high degree of consistency in the researchers' evaluations. According to the Shapiro–Wilk test, both the scores and the word counts of the two researchers conform to a normal distribution ($p > 0.05$), indicating that parametric tests are appropriate. The independent-samples t-test revealed no significant difference between the researchers ($p = 0.963$). Spearman's rho correlation coefficient demonstrated a strong and statistically significant positive relationship between them ($\rho = 0.975$, $p = 0.005$). These findings support the high level of agreement between evaluators and the reliability of the analyses. Descriptive statistics indicate that the mean score for both researchers is around 3, with median values that are close to each other. The mean word count is 234.40, while individual responses range from 167 to 273 words, showing variability in response length and content coverage.

Qualitative Analysis of Responses in Terms of Content Accuracy and Juridical Consistency: Among these questions, it was observed that Google Gemini received particularly low scores on Questions 2 and 4. In multiple attempts, Gemini initially refused to answer these questions, citing its role as a text-processing AI model. However, after being reminded of its internet access capability, it proceeded to respond—but the answers contained significant inaccuracies.

In Question 2, the task was to identify who constitutes the *ashāb al-farāʾiḍ* (fixed-share heirs). While Gemini correctly stated that these are individuals whose shares are explicitly mentioned in the Qur'an—thus successfully establishing the general

framework—it failed to accurately list these individuals one by one, leading to notable factual errors.

Gemini listed the *ashāb al-farāʾid* as follows: "Spouse, children: the deceased's sons and daughters, mother, father, grandfather, and grandmother." While some of these individuals are indeed among the fixed-share heirs, the response was superficial and contained errors serious enough to compromise the overall correctness of the answer.

According to Islamic Inheritance Law, *ashāb al-farāʾid* consist of twelve specific heirs: the husband, wife, father, mother, paternal grandfather, paternal grandmother, daughter, son's daughter, full sister, paternal sister, and maternal siblings (both male and female). Gemini's response omitted and misclassified several of these.[26]

For example, not all children are part of the *ashāb al-farāʾid*; only daughters fall into this category, while sons do not. Furthermore, the son's daughter, full sister, paternal sister, and maternal siblings were not mentioned. Similarly, including the grandfather and grandmother without qualification was incorrect. Not every grandfather or grandmother is considered a fixed-share heir: the maternal grandfather or any grandfather linked to the deceased through a female relative (i.e., *fāsid* ascendants) are not part of the *ashāb al-farāʾid*, but instead belong to the category of *dhawu'l-arhām* (distant kindred).[27]

As for the reason Gemini received a low score on Question 4, it pertains to the concept of *radd* (reversion) in Islamic Inheritance Law. *Radd* refers to the redistribution of the remaining portion of the estate—after the fixed-share heirs (*ashāb al-farāʾid*) have received their allotted shares—in proportion to those same heirs, due to the absence of any *ʿasabah* (residuary heirs).[28] The correct solution to the relevant question should be as follows:

[26] Mustafa Ashour, *The Science of Inheritance* (Cairo: Maktabat al-Qur'an al-Karim, 1988), 51; Muhammad Shanat al-Jundi, *al-Miras fi al-Shari'ah al-Islamiyyah* (Cairo: Dar al-Fikr al-Arabi, n.d.), 95–99.

[27] Süleyman Taş, *Feraiz: Islamic Inheritance Law* (Istanbul: Nizamiye Academy Publications, 2022), 59–60; Shahbaz Cheema, "Distribution of Inheritance Under Islamic Law: An Appraisal of Online Inheritance Calculators," *Journal of Islamic Thought and Civilization* 11/1 (June 2021), 119.

[28] Maiza Aissa, "The Provision of Radd in Inheritance Between Islamic Jurisprudence and the Algerian Family Law," *De Jure: Jurnal Hukum Dan Syari'ah* 10/1 (2018), 12–20.

Share	Daughter	Son's Daughter	Mother	Residue
Fraction	1/2	1/6	1/6	1
Share Units (Denominator = 6)	3	1	1	Remaining: 1
Share Units (Adjusted to 5)	3	1	1	-

Figure 1: Inheritance Shares and Radd (Return) Case Example

As shown in Figure 1, in this example the daughter, the son's daughter, and the mother receive shares of 1/2, 1/6, and 1/6 respectively. When these shares are calculated over a common denominator of 6 units, the total amounts to 5 units, leaving 1 unit remaining. Since there is no *ʿasabah* (residuary heir), the surplus is redistributed among the existing heirs in proportion to their original shares. Thus, the estate is reallocated based on a total of 5 units.

In this case, Gemini stated: "Daughters share the inheritance equally with the deceased's sons." This is incorrect. According to Islamic Inheritance Law, the share of daughters is fixed as part of the *ashāb al-farāʾid* when there are no sons. If there is only one daughter, she receives one-half (1/2) of the estate. If there are two or more daughters, they collectively receive two-thirds (2/3) of the estate.[29] Regarding the son's daughter, Gemini states: "The son's daughter inherits through her father and receives a portion of what her father (i.e., the deceased's son) would have inherited. However, if her father is not alive, the grandchild does not have an inheritance right." This statement contains significant errors.

The eligibility of the son's daughter to inherit is not merely dependent on her relationship with her father. Rather, her right to inherit arises specifically when the deceased's son (her father) is no longer living. If the son's daughter survives alongside the deceased's daughter, she is entitled to a fixed share of 1/6, as the son's daughter is also among the *ashāb al-farāʾiḍ* (fixed-share heirs).[30] In addition to providing incorrect information and generalizations, Gemini failed to perform the required mathematical calculations. For this reason, the researchers assigned it a low score.

[29] Alpaslan Alkış, "Basis of the Heritage Provisions in Islamic Law," *Kilis 7 December University Journal of Theology* 8/1 (2021), 357–358.

[30] Mehmet Aziz Yaşar, "The Review and Evaluation on the Refusal Matter in the Islamic Inheritance Law," *Journal of Bingol University Faculty of Theology* 13 (June 2019), 236–239; Alkış, "Basis of the Heritage Provisions in Islamic Law," 358–359.

1.3. Advanced-Level Questions Posed to Artificial Intelligence

The questions selected for this level are designed to assess the analytical thinking and practical application skills of undergraduate students enrolled in Islamic Inheritance Law courses. While some of the questions may appear to require only basic knowledge, in reality they aim to establish connections between Islamic Inheritance Law and other legal domains—thus evaluating the student's mastery of the subject.

One of the questions, which explores the role of the theory of *maslaha* (public interest) in inheritance distribution, is intended to test the student's capacity for deep conceptual analysis and abstract reasoning. Questions involving the calculation of inheritance shares, which require the application of theoretical knowledge to practical cases, aim to assess the student's ability to correctly implement the rules of *farāʾiḍ* (Islamic inheritance shares).

These advanced questions are meant to address the competencies of students at different levels, while ultimately evaluating whether they can at least solve the basic forms of the *40 canonical inheritance scenarios* (*al-hālāt al-arbaʿūn*), which is a foundational goal in Islamic Inheritance Law. Naturally, far more complex problems could also be posed within this framework. Therefore, the primary aim of this question category is to test whether the knowledge of Islamic Inheritance Law has been thoroughly reinforced and internalized by the student.

Advanced-Level Questions	Researcher 1 (Mean ± SD)	Researcher 2 (Mean ± SD)	Word Count (Mean ± SD)
1. In Islamic Inheritance Law, does a difference in religion between the deceased and the heir (the one entitled to inherit) constitute a barrier to inheritance? Explain.	4,7	4,6	186
2. In positive law, it is assumed that there is no difference between male and female heirs in terms of their degree of kinship to the deceased, and thus inheritance should be divided equally, with the principle of public interest (*maslaha*) favoring such equality. However, Islam's understanding of *maslaha* differs on this matter. Explain the Islamic theory of *maslaha* regarding this issue.	4,7	4,8	250
3. According to Islamic Inheritance Law, how is the issue assessed when the deceased is survived by his	4,6	4,5	253

sons, along with the children (sons or daughters) of his predeceased children—that is, his grandchildren? Are there any established methods of resolving this situation?			
4. In the case of a deceased person whose heirs include a husband, two daughters, a father, and a mother, state the share that each is entitled to receive from the estate.	5	5	181
5. A deceased person whose heirs include a wife, a son, a father, and a mother has left behind 24,000 TL. How much of the inheritance does the son receive when the estate is distributed?	2,8	3	269

Table 9: Advanced-Level Questions Directed to ChatGPT

Variables	Mean ± Standard Deviation (SD)	Median (Minimum – Maximum)	Shapiro–Wilk Test	Independent Samples t-Test	pearman's Rho Correlation Coefficient
Researcher 1 Score	4.36 ± 0.88	4.7 (2.8 - 5.0)	W = 0.705, p = 0.011 (not normally distributed)	t(8) = -0.038, p = 0.971	ρ = 0.975, p = 0.005 (strong positive relationship)
Researcher 2 Score	4.38 ± 0.79	4.6 (3.0 - 5.0)	W = 0.777, p = 0.052 (normal distribution)	t(8) = -0.038, p = 0.971	ρ = 0.975, p = 0.005 (strong positive relationship)
Word Count	227.80 ± 41.12	250.0 (181 - 269)	W = 0.824, p = 0.126 (normal distribution)	-	-

Table 10: Analysis of the Advenced-Level Questions Asked on ChatGPT

Normality and Correlation Analysis: The analyses indicate that ChatGPT's responses to the advanced-level questions were found to be consistent in content and that there was a high level of agreement between the evaluators. As some of the data did not follow a normal distribution, non-parametric methods were applied. The t-test showed no significant difference between the scores of the two researchers (p = 0.971), while the Spearman correlation revealed a strong and statistically significant relationship (ρ = 0.975, p = 0.005). Although a notable error was made in Question 5, the average

scores remained above 4, and with an average of 227 words per response, ChatGPT was observed to provide comprehensive and consistent content.

Qualitative Analysis of Responses in Terms of Content Accuracy and Juridical Consistency: In the fifth question from the advanced category, ChatGPT was observed to make a significant error. While the initial steps of the solution progressed correctly, ChatGPT stated that the deceased's wife should receive 1/8 of the estate, citing verse 12 of Sūrat al-Nisā', which was accurate. It then stated that the mother of the deceased would receive 1/6 of the estate, reasoning that the deceased had offspring, and supported this with verse 11 of Sūrat al-Nisā'.

Regarding the father, ChatGPT claimed that he would receive 1/6 of the estate and further added: "The father receives the remainder of the estate as a residuary heir (*ʿasaba*) after the fixed shares are distributed." This latter claim, however, is incorrect, as will be explained shortly. As for the son, ChatGPT stated: "The son, as an independent residuary heir (*bi-nafsihi*), receives the remainder of the estate after the fixed shares are distributed." While this statement is accurate on its own, it contradicts what was previously claimed about the father's role. Subsequently, ChatGPT evaluated the father and son as joint *ʿasabah*, asserting that the remaining estate—after the fixed-share heirs (*ashāb al-farāʾiḍ*) had received their portions—should be distributed between them, and it performed the calculation accordingly.

According to Islamic Inheritance Law, the father is among the *ashāb al-farāʾiḍ* (fixed-share heirs), but he may also act as a *ʿasaba* (residuary heir). However, for the father to qualify as a *ʿasaba*, the deceased must not have a son who is closer in line of succession.[31] That is, if in an inheritance distribution there is a son whose degree of kinship to the deceased is closer, the son disqualifies the father from acting as a residuary heir. Consequently, the father receives only his fixed share as one of the *ashāb al-farāʾiḍ*. In this case, however, ChatGPT erred by allocating the residue jointly to both the father and the son.

Advanced-Level Questions	Researcher 1 (Mean ± SD)	Researcher 2 (Mean ± SD)	Word Count (Mean ± SD)
1. In Islamic Inheritance Law, does a difference in religion between the deceased and the heir (the one	2	2,2	211

[31] Muhammed Çuçak, "Asabah in the Inheritance Law of Islam and to Be a Heiress Through That Way," *Review of the Faculty of Divinity University of Süleyman Demirel* 45 (December 2020), 32–33.

entitled to inherit) constitute a barrier to inheritance? Explain.			
2. In positive law, it is assumed that there is no difference between male and female heirs in terms of their degree of kinship to the deceased, and thus inheritance should be divided equally, with the principle of public interest (*maslaha*) favoring such equality. However, Islam's understanding of *maslaha* differs on this matter. Explain the Islamic theory of *maslaha* regarding this issue.	4,4	4,5	273
3. According to Islamic Inheritance Law, how is the issue assessed when the deceased is survived by his sons, along with the children (sons or daughters) of his predeceased children—that is, his grandchildren? Are there any established methods of resolving this situation?	1,9	2,1	232
4. In the case of a deceased person whose heirs include a husband, two daughters, a father, and a mother, state the share that each is entitled to receive from the estate.	2	2,3	301
5. A deceased person whose heirs include a wife, a son, a father, and a mother has left behind 24,000 TL. How much of the inheritance does the son receive when the estate is distributed?	1,8	1,9	227

Table 11: Advanced-Level Questions Directed to Google Gemini

Variables	Mean ± Standard Deviation (SD)	Median (Minimum – Maximum)	Shapiro–Wilk Test	Independent Samples t-Test	Spearman's Rho Correlation Coefficient
Researcher 1 Score	2.82 ± 1.14	2.00 (1.8 - 4.4)	W = 0.977, p = 0.901 (normal distribution)	t(8) = -0.283, p = 0.785	ρ = 0.975, p = 0.005 (strong positive relationship)
Researcher 2 Score	3.00 ± 1.17	2.30 (1.9 - 4.5)	W = 0.973, p = 0.866 (normal distribution)	t(8) = -0.283, p = 0.785	ρ = 0.975, p = 0.005 (strong positive relationship)

Kelime Sayısı	248.80 ± 34.59	232.00 (211 - 301)	W = 0.960, p = 0.799 (normal distribution)	-	-	

Table 12: Analysis of Advanced-Level Questions Directed to Google Gemini

Normality and Correlation Analysis: The analyses indicate that the responses provided by Google Gemini to the advanced-level questions were evaluated consistently by two independent experts. According to the Shapiro–Wilk normality test results, the scores of Researcher 1 and Researcher 2, as well as the word counts, conform to a normal distribution ($p > 0.05$), confirming the suitability of parametric tests. The independent samples t-test results show no statistically significant difference between the researchers' evaluations ($p = 0.785$), while the Spearman rho correlation confirms a strong positive relationship ($\rho = 0.975$, $p = 0.005$). The mean word count of 248.80 also demonstrates that the responses are generally comprehensive.

The findings indicate that Google Gemini's responses to the advanced-level questions demonstrated content consistency and alignment between the evaluators.

Qualitative Analysis of Responses in Terms of Content Accuracy and Juridical Consistency: While Gemini outlined the general framework of the first question well, it made a significant factual error. It stated that "followers of different religions cannot inherit from one another," referencing hadiths such as "Those of different religions do not inherit from one another" (Abū Dāwūd, Farāʾiḍ, 10; Tirmidhī, Farāʾiḍ, 16), and claimed that the majority of jurists hold that religious difference constitutes a barrier to inheritance. By doing so, Gemini asserted that a non-Muslim cannot inherit from a Muslim relative and vice versa, presenting religious difference as an absolute impediment to inheritance.

This view represents the general consensus in Islamic law. However, some companions—such as Muʿādh ibn Jabal and Muʿāwiya ibn Abī Sufyān—as well as certain later jurists, interpreted these hadiths in conjunction with other sources and concluded that while a non-Muslim cannot inherit from a Muslim relative, a Muslim may inherit from a non-Muslim.[32] According to this opinion—which is also favored by many scholars today—a Muslim may inherit from a non-Muslim parent. The High Council of Religious Affairs of the Republic of Türkiye has also adopted this view.[33] This situation indicates that Gemini's capacity to conduct a comprehensive literature review is limited

[32] Muhammad b. Ahmad ibn Abi Sahl al-Sarakhsī, *al-Mabsût* (Beirut: Dar al-Marifah, 1986), 30/30.

[33] High Council of Religious Affairs, "Can a Muslim Inherit from a Non-Muslim?" (Access 3 May 2025).

and that it may make interpretive errors when processing the initial information it retrieves.

In the third question, the core issue was whether a grandchild can inherit from their grandfather if the grandchild's father (i.e., the grandfather's son) passed away before the grandfather. Gemini responded with the following:

> *If the grandchild's father (the grandfather's son) has died: If the father passed away before the grandfather and the grandchild is alive, the grandchild receives the share that the father would have inherited. This is referred to as succession by representation (halāfiyyah). In other words, the children of a deceased person become heirs in place of their parent. When the grandfather dies, and some of his children are already deceased while their children (i.e., grandchildren) are alive, the share of the deceased child (the grandchild's father) passes to the grandchildren. This is again based on the principle of succession by representation.*

However, according to the established principle in Islamic Inheritance Law, based on the rule that "a nearer relative excludes a more distant one" (*al-aqrab yahjubu al-abʿad*), grandchildren do not inherit when the deceased's children are alive.

As a proposed solution, some Islamic jurists have emphasized the importance of not leaving grandchildren—whose fathers passed away during their grandfather's lifetime—disadvantaged. They argued that in such cases, the grandfather should make a will (*wasiyyah*) in favor of the grandchild. According to this view, the grandfather is advised to bequeath either the share that would have gone to his deceased child or an amount not exceeding one-third of the estate in favor of the grandchildren. Alternatively, the heirs may choose to give the grandchildren the portion that the deceased parent would have received, out of the one-third discretionary portion of the estate. For further proposed solutions on this issue, see the relevant study by Abdurrahman Yazıcı.[34]

Gemini received a low score for the third question due to its significant error in addressing the core premise of the question.

As for the fourth question, the reasons for Gemini's low score can be summarized as follows: In Islamic Inheritance Law, the shares that heirs are entitled to receive are definitively established by scriptural texts (*nass*). Therefore, the scenario presented in the question does not allow for interpretation; it requires a precise and definitive

[34] Abdurrahman Yazıcı, "The Problem of Orphaned Grandchildren in Islamic Inheritance Law and Reflections on Searches for Its Solution," *Journal of Islamic Law Studies* 20 (2012), 107–134.

ruling. Gemini's reference to multiple possible outcomes was therefore incorrect. Despite this, Gemini did attempt to provide a solution—yet that solution also contained several errors.

In the scenario provided in the question, Gemini stated: "Two daughters: If the deceased has no other children, the two daughters share two-thirds of the estate equally. That is, each daughter receives one-third."This statement is partially correct. Indeed, if the deceased has no other children besides the two daughters, then according to verse 11 of Sūrat al-Nisā', the two daughters jointly receive two-thirds (2/3) of the estate.[35] They divide this share equally, meaning each daughter receives one-third (1/3) of the estate. However, Gemini's statement that "each daughter receives one-sixth (1/6) of the estate" is mathematically incorrect and should not be expressed this way. That figure corresponds to 3/6, or one-half, which is inaccurate in this context. Instead, it should be stated as 1/3. In other words, each daughter's share is 1/3, and together the two daughters receive 2/3 of the estate.

Moreover, the share allocated to the father and his right of *ʿasabah* (residuary inheritance) were overlooked. In the absence of a son, the residuary right passes to the father. Thus, after receiving his fixed share as one of the *ashāb al-farāʾiḍ*, the father also receives the remainder of the estate as a *ʿasaba*.[36] Due to these errors, Gemini was unable to provide a correct answer to the question.

In its response to the fifth question—where it received a low score—Google Gemini made more errors than ChatGPT. Some of these errors are as follows: Gemini stated that the deceased's wife would receive one-fourth (1/4) of the estate. According to Gemini, in this scenario, the wife receives one-fourth of 24,000 TL, which equals 6,000 TL. However, under Islamic Inheritance Law, a wife is entitled to one-fourth only if the deceased has no children. Since the deceased's son is alive in this scenario, the wife's share should be one-eighth (1/8) of the estate.

Another mistake made by Gemini was claiming that the son receives half of the estate. In fact, the son is not among the fixed-share heirs (*ashāb al-farāʾiḍ*). In this case, the son inherits as a residuary heir (*ʿasaba bi-nafsihi*), meaning he is entitled to what remains after the fixed shares are distributed. By stating that the son receives half of the estate—i.e., 12,000 TL—Gemini made a clear error.

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[35] Hüseyin Karayaka, "Women's Inheritance Shares in Islamic Law and Today's Turkish Civil Law," *Tokat Journal of Ilmiyat* 12/2 (December 2024), 353.

[36] Hilal Özay, "Features of Islamic Inheritance Law," *The Journal of Islamic Civilization Studies* 3/2 (December 2018), 208.

Discussion and Conclusion

This study aimed to evaluate the level of knowledge and performance in information delivery of two leading AI-based language models—ChatGPT-4o and Google Gemini—in the field of Islamic Inheritance Law. To this end, easy, intermediate, and advanced-level questions were selected from the exam pool of the Islamic Inheritance Law unit taught in the "Islamic Law I" course to second-year students at the Faculty of Theology, Kocaeli University. A comparative assessment was then conducted based on the responses provided by the AI models.

The findings indicate that ChatGPT-4o demonstrated higher accuracy and juridical consistency in both easy and intermediate-level questions, whereas Google Gemini, regardless of question category, exhibited a notably weaker performance, committing significant factual errors even on some fundamental concepts (see Figure 2).

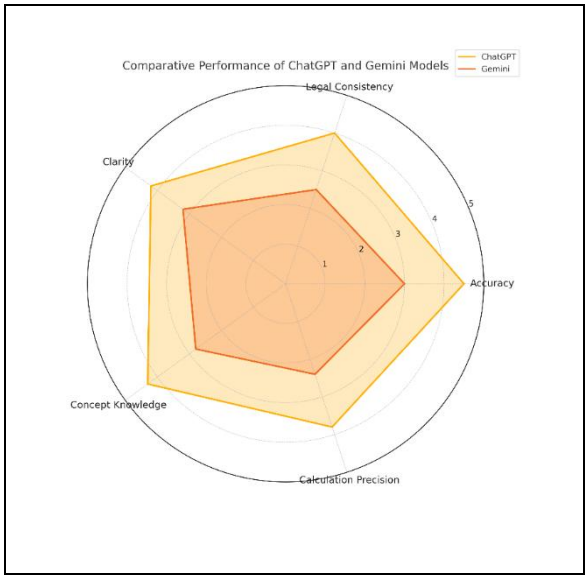

Figure 2: Comparative Radar Chart of ChatGPT and Gemini Models Based on Accuracy, Fiqh Consistency, Clarity, Concept Knowledge, and Calculation Accuracy Criteria

The performance differences between the two AI models are not merely general but also become distinctly apparent across question categories of varying difficulty. When comparing the models' responses to easy, intermediate, and advanced-level questions—as well as to technically detailed prompts such as conceptual definitions and inheritance calculations—ChatGPT was observed to provide more consistent and higher-scoring answers across all categories. In contrast, Gemini demonstrated a

noticeable decline in performance, particularly in inheritance-related questions that involved relatively complex reasoning and calculation (see Figure 3).

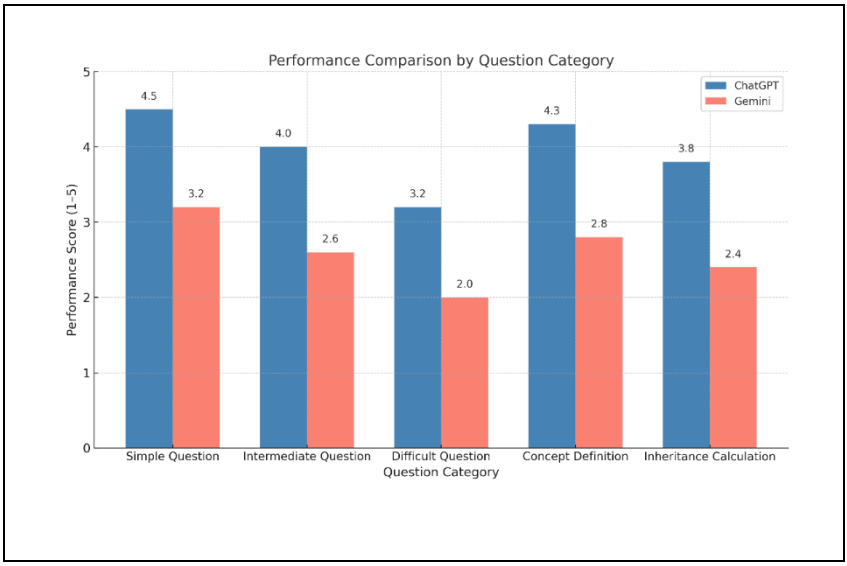

Figure 3: Average Performance Scores of ChatGPT and Gemini Models by Question Category

The scoring table illustrating both models' abilities to answer the questions is visualized in Figure 2. The chart clearly demonstrates that ChatGPT performs notably well across all evaluation points—accuracy, conceptual knowledge, analysis, and problem-solving.

According to the findings obtained from the study, although the field is highly specialized, both AI models exhibit a rapid capacity to comprehend core texts and transfer knowledge from the literature. However, it must be emphasized that the specific features of Islamic Inheritance Law—such as its structure requiring juristic reasoning (istinbāṭ), technical expertise, and fixed or partially variable shares based on scriptural texts—indicate that AI models relying solely on linguistic and statistical approaches cannot provide entirely accurate conclusions. This reveals that in their current form, such models are limited in function.

Indeed, while ChatGPT has demonstrated significant success in providing accurate answers, it has also made methodological errors in some calculations. In addition to Gemini's mistakes in calculations, its deficiencies in defining core legal concepts are clearly evident (see Figure 4).

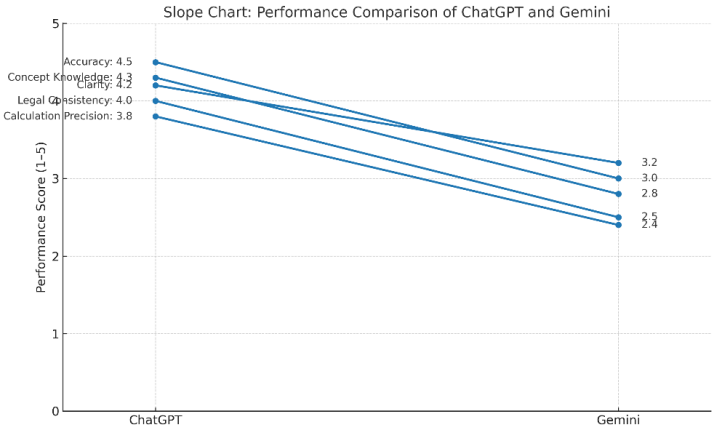

Figure 4: Comparative Slope Graph of ChatGPT and Gemini Models Based on Performance Criteria

The graph in Figure 4 presents a comparative overview of the performance levels of both AI models across the criteria of accuracy, legal consistency, clarity, conceptual knowledge, and computational correctness. While ChatGPT scores higher than Gemini across all criteria, it is evident that neither model delivers flawless results.

One of the most striking findings of the study is that AI models struggle to provide consistent and accurate responses in areas that are both mathematically complex and rooted in Islamic scriptural sources, such as inheritance calculations. This indicates that while current AI models may serve as advisory or supportive tools, they have not yet reached a level where they can independently issue legal rulings or conduct substantive Islamic legal analysis. Moreover, it has been observed that both models lack full sensitivity to the technical terminology specific to Islamic Inheritance Law, with most responses remaining superficial or shaped under the influence of Western legal paradigms.

The findings obtained in this study are proportional to its limitations. The selection of questions based on the undergraduate theology curriculum, the fact that only two academics served as evaluators, and the analysis being based on specific versions of the AI models partially limit the generalizability of the conclusions regarding the models' potential to generate knowledge in Islamic Inheritance Law. Nonetheless, the study offers a valuable opportunity for academic observation by bringing the limitations and potential risks of AI technologies into scholarly discussion within a highly specialized field such as Islamic law.

This research paves the way for future studies to include broader academic juries in evaluation processes, to revise or enhance the level of questions, to utilize more advanced AI models equipped with religious and legal knowledge, and to re-examine how AI models generate and convey data on Islamic Inheritance Law. It also provides a foundation for assessing the potential reliability of AI in future legal studies.

Finally, it can be stated that in their current state, these AI models may serve a supportive role for researchers in technically sensitive and jurisprudentially intricate fields such as Islamic Inheritance Law. However, it is evident that they have not yet reached the capacity to function as independent adjudicators or legal authorities without the oversight of a judge or expert. Therefore, it is essential that these tools be used in a controlled manner in both religious and positive law contexts, and that any data or outcomes derived from them be accredited by qualified experts.

Ethics Declaration

In this study, the responses generated by an AI-based language model were utilized. Short questions were included directly, while longer ones were summarized and evaluated before incorporation into the research. The AI-generated content was analyzed and interpreted by the researcher in accordance with the scientific context and was structured with original contributions. Throughout this process, particular care was taken to avoid any instances of plagiarism or violations of scientific ethics.

Ethical Statement/Etik Beyan: It is declared that scientific and ethical principles have been followed while carying out and writing this study and that all the sources used have been properly cited./Bu çalışmanın hazırlanma sürecinde bilimsel ve etik ilkelere uyulduğu ve yararlanılan tüm çalışmaların kaynakçada belirtildiği beyan olunur.
Competing Interests/Çıkar Çatışması: The author declare that have no competing interests./Yazar, çıkar çatışması olmadığını beyan eder.
Impartiality/Tarafsızlık: The author, who is on the editorial board of the journal, did not intervene in any stage of the article evaluation process and publication, and the refereeing process was completed by adhering to the principles of scientific impartiality./Dergi editör kurulunda yer alan yazar, makale değerlendirme ve yayın sürecinin hiçbir aşamasına müdahil olmamış, hakemleme süreci bilimsel tarafsızlık ilkelerine sadık kalınarak tamamlanmıştır.
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