

Al-Ghazālī on Logic as a Means of Learning

Historical Evidence and Educational Implications

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*Dedicated to Professor Dr. Geger Schoeler
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Abstract

Renowned for his profound scholarship, the philosophical theologian and mystic Abū Ḥāmid al-Ghazālī (d. 505/1111) has significantly influenced Islamic thought and education for centuries. This article presents a novel approach to studying his body of works. It analyzes six of al-Ghazālī's key works on logic in chronological order, offering a fresh perspective on his views on reasoning. Additionally, the study explicitly focuses on al-Ghazālī's concept of "logic as a tool of learning," leading into an exploration of the relevance of his insights for contemporary humanistic education.

Keywords

Al-Ghazālī – logic in classical Islamic thought – Islamic education – Aristotelian philosophy – reason and spirituality – contemporary pedagogy

آراء الغزالي في علم المنطق بوصفه أداةً تعليميةً

الشاهد التاريخي والتأثير التربوي

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المستخلص

كان لأبي حامد الغزالي (توفي 505/1111)، المتكلم والمتصوف الشهير بسعة اهتماماته العلمية، الأثر البالغ في الفكر الإسلامي، ونظريات التربية والتعليم على مدار قرون. يعتمد هذا المقال مقارنةً جديدةً لدراسة أعمال الغزالي، فيحلل ستة من مؤلفاته الرئيسة في علم المنطق. تعالج الدراسة هذه المؤلفات بحسب الترتيب الزمني لظهورها، وتقدم منظوراً جديداً لآراء الغزالي في المنطق. فضلاً عن ذلك، تركز الدراسة على مفهوم الغزالي للمنطق بوصفه أداةً تعليميةً، مما يؤدي إلى استشراف أهمية أفكاره هذه في مجال التعليم الإنساني المعاصر.

الكلمات المفتاحية

الغزالي - المنطق في الفكر الإسلامي - التربية والتعليم في الإسلام - الفلسفة الأرسطية - المنطق والروحانية - أساليب التدريس الحديثة

Debates on logic (*al-mantiq*), its Aristotelian foundations, its place in the curriculum, and its role in the development of the human being were integral components of classical Muslim scholarship. While philosophers such as al-Fārābī (d. 339/950) and Ibn Sīnā (d. 427/1037), for example, stressed the overall significance of logic as an instrument in training students to comprehend correctly and to advance and communicate ideas, al-Ghazālī's views in this regard are more nuanced. Indeed, it seems that al-Ghazālī restricted the use of logic to specific groups of scholars and a few disciplines, while calling it unsuitable for others. Perhaps more importantly, however, he counterbalanced the rational approaches to attaining knowledge that is certain (*al-yaqīn*) with the learner's spiritual training—a blend that still shapes the theory and practice of Islamic learning today.

This paper examines al-Ghazālī's views on logic and spirituality from three angles: First, what did al-Ghazālī say about logic as a means of religious learning in the works he devoted to the discipline and the method of reasoning? Second, if we consider the chronology of these works, will we detect developments in his respective views over time? And finally, in what ways are his pedagogical ideas relevant to humanistic education in the twenty-first century?¹

This paper does not inquire, however, into al-Ghazālī's indebtedness to logical concepts developed by Ibn Sīnā and al-Fārābī. Nor will it seek to contextualize or interpret his ideas through the lens of Arabic works in the Farabian and Avicennan provenance, either before or after al-Ghazālī.² Our

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- 1 An advance draft of the present study served as the basis for the paper I presented at the First International Symposium on Comparative Education, devoted to *Ghazali on Education: Contemporary Practical Applications from an Enduring Legacy*, which took place at the College of Islamic Studies, Hamad Bin Khalifa University, in Doha, Qatar (February 28-29, 2024). While the present article concentrates on the historical and epistemological dimensions of education in several of al-Ghazālī's books on logic, the written version of my Doha paper focuses on how al-Ghazālī's respective views may help us address issues in contemporary humanistic education. The latter article is scheduled to be published in the symposium proceedings, edited by the convener of the Doha Symposium, Dr. Recep Şentürk.
 - 2 For discussions concerning how al-Ghazālī integrated, critiqued, or built upon Farabian and Avicennian concepts in his own theories of knowledge, mysticism, prophecy, and education, and how these ideas were transformed within the broader Islamic intellectual tradition, see Richard Frank's "Al-Ghazālī's Use of Avicenna's Philosophy," in *Revue des études Islamiques* 55-57 (1987-89), 271-284; Jules Janssens' "Al-Ghazzālī's *Mi'yār al-'ilm fi fann al-mantiq*: Sources avicenniennes et farabiennes," in *Archives d'histoire doctrinale et littéraire du moyen âge* 69 (2002), 39-66; Frank Griffel's "Al-Ghazālī's Concept of Prophecy: The Introduction of Avicennan Psychology into Aṣ'arite Theology," in *Arabic Sciences and Philosophy* 14 (2004), 101-144; Ayman Shihadeh's "From al-Ghazālī to al-Rāzī: 6th/12th Century Developments in Muslim Philosophical Theology," in *Arabic Sciences and Philosophy* (2005) 15:141-179; Sebastian Günther's "The Principles of Instruction are the Grounds of our Knowledge: Al-Fārābī's (d. 950) Philosophical and al-Ghazālī's (d. 1111) Spiritual Approaches to Learning,"

focus is on al-Ghazālī's views on logic as a means of religious learning, the evolution of his respective ideas in the works we study here, and the relevance of these for educators today.

1 Introduction

In one of his late works, the intellectual autobiography *al-Munqidh min al-ḍalāl* (*The Deliverer from Error*), al-Ghazālī famously acknowledged that, at one point in his life, sensation (*al-maḥsūsāt*) and intellection (*al-'aqliyyāt*) had no longer been sufficient for his soul to regain its health and equilibrium. Instead, he said, "It was the effect of a light which God Most High cast into my breast. And that light is the key to most knowledge (*wa-dhālika l-nūr miftāh akthar al-ma'ārif*); ... from that light, then, the unveiling of truth must be sought" (*Deliverer* §§ 13, 15).³ Only this "light of the niche of prophecy" (*nūr mishkāt al-nubuwwa*), he continued, empowers humans to learn all "the motions and quiescences, exterior and interior;" beyond the light of prophecy, "there is no light on earth from which illumination can be obtained" (*Deliverer* § 94).

In these lines, al-Ghazālī emphatically defined learning as a spiritual experience of the soul, in which the learner concentrates inwardly and suspends sensation to see phenomena not generally perceived by the intellect (*Deliverer* §§ 14, 111). This kind of Ghazalian prioritization of intuitive learning has provided direction to Muslims for generations since, both in knowledge acquisition and religious devotion. Moreover, since it is expressed in one of al-Ghazālī's late works, it could be understood as eclipsing the discussions of intellective learning and logic that he had advanced in several of his earlier writings.

Such understanding, however, is not adequate even by al-Ghazālī's own standards, which is made clear by three aspects. First, al-Ghazālī also specified in *al-Munqidh* that the "present purpose [in writing this autobiography] is to tell the story of *my own case, not to express disapproval* of anyone who sought a cure in *kalām* [for example]. For healing remedies differ as the sickness differs, and many a remedy helps one sick man and harms another" (*Deliverer* § 24; italics mine). In other words, the decision to take the path of intuitive learning is very

in Osama Abi-Mershed (ed.), *Trajectories of Education in the Arab World: Legacies and Challenges* (London: Routledge 2010, 15-35); and Alexander Treiger's *Inspired Knowledge in Islamic Thought: Al-Ghazālī's Theory of Mystical Cognition and Its Avicennian Foundation* (London: Routledge, 2012).

3 Al-Ghazālī, *al-Munqidh min al-ḍalāl* (ed. Ṣalība 1967); *ibid.*, *Deliverer* (tr. McCarthy 1980). Quotations from McCarthy's translation, used (with minor adjustments) throughout this article, refer to paragraph numbers, while references to the Arabic texts of that work cite page numbers.

personal; it may work out well for some learners but not for others. Second, regarding al-Ghazālī's caution in *al-Munqidh* concerning studying philosophy, physics and metaphysics, and political sciences, it is noteworthy that he saw the study of these sciences as a potential danger to "the uneducated" (*al-jāhil*). However, for the educated and skilled, "the established scholar" (*al-ʿālim al-rāsikh*; *Deliverer* § 59),⁴ studying these ideas was a legitimate task. This remark seems to reflect, to some extent, his own course of studying, which began at the Nizāmiyya madrasa in Nishapur, where he was a young student and teaching assistant under the renowned Imam al-Ḥaramayn al-Juwaynī (d. 478/1085), with whom he studied not only theology but also dialectics, philosophy, and logic.⁵ In short, in al-Ghazālī's view, dealing with philosophical disciplines is possible, but it should be allowed only for those sufficiently trained to deal with the complex issues they encompass. And third, we should also keep in mind that in *al-Munqidh* al-Ghazālī expressly acknowledged the lasting achievements of the Greek philosophers, and Aristotle's in particular, as "it was Aristotle who systematized logic for the philosophers and refined the philosophical sciences, accurately formulating previously imprecise statements and bringing to maturity the crudities of their sciences" (*Deliverer* § 33). Besides, even from a believer's standpoint, there was nothing wrong with studying logic, as:

Nothing in the logical sciences has anything to do with religion by way of negation and affirmation. On the contrary, they are the study of the methods of proofs, of syllogisms, of the conditions governing the premises of apodeictic demonstration, of how these premises are to be combined, of the requisites for a sound definition, and of how the latter is to be drawn up (*Deliverer* § 43).

Against this background, it is intriguing to take a closer look at the role al-Ghazālī assigned to logic in the context of education, and his view of the relation of logic to spiritual aspects of learning and human development. Given that al-Ghazālī dealt at some length with Aristotelian logic in several of his works,⁶ in this study we concentrate on statements he offered in the books

4 Al-Ghazālī, *al-Munqidh*, 89.

5 Al-Subkī, *Tabaqāt* iv, 103 ("al-Ghazālī qadima Naysabūr wa-lāzama Imām al-Ḥaramayn"). Al-Subkī's chapter on al-Ghazālī in this edition is on pp. 102-182. See also Griffel, *Al-Ghazālī's Philosophical Theology*, 21.

6 Beyond the publications included in our bibliography, the following studies of al-Ghazālī's views on logic (given in chronological order) are worth mentioning for further reading: Marmura, Michael E., "Ghazālī and demonstrative science," in *Journal of the History of Philosophy* 3 (1965) 183-204; Brunschvig, Robert, "Pour ou contre la logique grecque chez les théologiens-juristes de l'Islam: Ibn Ḥazm, al-Ghazālī, Ibn Taimiyya," in: *Oriente e occidente nel medioevo. Filosofia e scienze. Atti dei convegni de l'Accademia Nazionale dei Lincei* 13

he dedicated to logic (or in which he dealt with reason and rational reasoning in greater detail). These investigations then constitute the basis from which to address the question of whether—and, if so, in what ways—al-Ghazālī's ideas on logic and spirituality are pertinent to contemporary learning and education.

2 Al-Ghazālī's Works on Logic

The writings in which al-Ghazālī expressly dealt with logic are, in roughly chronological order:

1. *Maqāṣid al-falāsifa: Fī l-mantiq wa-l-ḥikma al-ilāhiyya wa-l-ḥikma al-ṭabīʿiyya* (*The Intentions [or The Teachings] of the Philosophers: On Logic, Divine Wisdom and Natural Wisdom*), an exposition of the philosophical disciplines (and the exact sciences) without any critique of their content. This book was written (probably in Baghdad in about 487/1094, or earlier) as “a background”⁷ to the *Tahāfut al-falāsifa* (*The Incoherence [or: The Inconsistencies] of the Philosophers*), while the latter (composed in 488/1095, when he was thirty-eight years old) presents itself as a profound methodological criticism of the philosophers.⁸ The

(1971), 185-209; ‘Azmi T. al-Sayyed, Ahmad, “Al-Ghazali's views on logic,” PhD diss., University of Edinburgh, 1981; Street, Tony, “Arabic logic,” in *Handbook of the history of logic*, i: *Greek, Indian and Arabic logic*, ed. Dov M. Gabbay, John Woods, Amsterdam: Elsevier, 2004, 523-596; Shihadeh, Ayman, “From al-Ghazālī to al-Rāzī: 6th/12th century developments in Muslim philosophical theology,” in *Arabic Sciences and Philosophy* 15 (2005), 141-179; Becheri, Larabi, “Raisonnement juridique par analogie (qiyās) chez al-Ġazālī. Étude et traduction de *Asās al-qiyās*,” PhD diss., Université Aixen-Provence, 2009; Janssens, Jules, “Al-Ghazālī: The introduction of Peripatetic syllogistic in Islamic law (and *kalām*),” in *Mélanges de l'Institut Dominicain d'Études Orientales* 28 (2010), 219-233; El-Rouayheb, Khaled, *The Development of Arabic Logic (1200-1800)*, Basel: Schwabe Verlag, 2019 (esp. chapter 2, “Prologue: Arabic Logic up to 1200”).

7 Hourani, “A Revised Chronology of Ghazālī's Writings,” 292; Bouyges, *Essai de chronologie des œuvres de al-Ghazali*, 23. See also Beer, *al-Gazzālī's Maqāṣid al-falāsifa*, 24. The date of the *Maqāṣid al-falāsifa*'s origin is a matter of debate in modern scholarship; cf. Griffel, *Al-Ghazālī's Philosophical Theology*, 30, 289 (n. 34), 296 (n. 86); and Rudolph, “Abū Ḥamid al-Ghazālī,” 369-379, with a summary of the different opinions.

8 As Marmura, *The Incoherence of the Philosophers / Tahāfut al-falāsifa: A parallel English-Arabic text*, xvi, put it: “The *Tahāfut* ... marks a high point in the history of medieval Arabic thought because of its intellectual caliber. Although its motivation is religious and theological, it makes its case through closely argued criticisms that are ultimately philosophical. [Being] a logical critique, largely of the emanative metaphysics, causal theory, and psychology of Avicenna (Ibn Sīnā, d. 1037), it is incisive and thorough.” See also Rudolph, “Abū Ḥamid al-Ghazālī,” 371-377.

- Maqāsid al-falāsifa* begins with “An Introduction to ease the path to Logic, and to explain its utility and its divisions.”⁹
2. *Mi’yār al-‘ilm fī fann al-manṭiq* (*The Criterion for Knowledge in the Art of Logic*, also translated as *The Standard Measure of Knowledge in Logic*), offers Muslim jurists and theologians a detailed description of (a somewhat adapted) Aristotelian logic as it was portrayed in several of Ibn Sīnā’s and al-Fārābī’s writings.¹⁰ This book was probably written in 488/1095 when al-Ghazālī was working as the head teacher at the Nizāmiyya madrasa in Baghdad, before he suddenly gave up this post in November of that year on the pretext of going on pilgrimage.
 3. *Mihakk al-naẓar fī l-manṭiq* (*The Touchstone of Inquiry in the Art of Logic*) is another brief introduction to Aristotelian logic. This book was also written in Baghdad in about 488/1095. Apparently, it was composed after a well-developed draft of *Mi’yār al-‘ilm* had already been completed but not yet published.¹¹
 4. *al-Qiṣṭās al-mustaqīm* (*The Just Balance*) is a book that aims to justify the application of Aristotelian logic to the religious sciences. It was apparently written in about 497/1103,¹² while al-Ghazālī resided in Tūs, before he left that city in 499/1106 for Nishapur.¹³ It is the third book of al-Ghazālī’s trilogy on logic, along with *Mi’yār al-‘ilm* and *Mihakk al-naẓar*.
 5. *Asās al-qiyās* (*The Foundations* [or: *Principles*] of *Analogical Reasoning*) is a short treatise and al-Ghazālī’s least-known book on logic. In this work, he aimed to reformulate philosophical logic within a legal-hermeneutical context, avoiding the technical terms he used in other writings.¹⁴ Al-Ghazālī viewed *qiyās* not as a “productive tool of reasoning”

9 Al-Ghazālī, *Maqāsid al-Falāsifa* (ed. Kurdī), 4-8.

10 Janssens, “al-Ghazālī’s *Mi’yār al-‘ilm fī fann al-manṭiq*: Sources avicenniennes et farabiennes,” 39.

11 This is what al-Ghazālī acknowledged in his concluding remark to *Mihakk al-naẓar*, 237. See also Hourani, “A Revised Chronology,” 293; and Rudolph, “Abū Ḥamid al-Ġazālī,” 355. Nonetheless, in *al-Qiṣṭās al-mustaqīm*, when referring to ‘the pair’ *Mihakk al-naẓar* and *Mi’yār al-‘ilm*, al-Ghazālī always mentioned *Mihakk al-naẓar* first and *Mi’yār al-‘ilm* second (although *Mi’yār al-‘ilm* was, as noted above, substantially written before *Mihakk al-naẓar*). Also in *al-Qiṣṭās al-mustaqīm*, al-Ghazālī advised those readers who wished to understand the finer points of the “Just Balance of God,” by which ‘true knowledge’ can be perceived, to consult these two earlier works: “If you want the knotty points of their summaries [concerning the conditions of the balance], you will find them in the *Mihakk*; and if you want the explanation of their details, you will find it in the *Mi’yār*” (tr. McCarthy 309, § 76; see also 312, § 85).

12 Kleinknecht, “Al-Qiṣṭās al-mustaqīm,” 159.

13 Brewster, *Al-Ghazali. The Just Balance* xxi-xxii; Hourani, “A Revised Chronology,” 300.

14 See Saba, *The Foundations of qiyās* 22. I sincerely thank Dr. Saba for kindly providing me with a copy of his Master’s thesis, which includes the key discussion of al-Ghazālī’s

but as a “mode of operation,” helping to apply syllogistic methods to jurisprudence. The book was written in the middle to late period of his career, sometime between *al-Qiṣṭās al-mustaqīm* and the next book in our list, *al-Mustaṣfā min ‘ilm al-uṣūl*, i.e., around 497 to 503 AH (1103 to 1109 CE).¹⁵

6. Finally, *al-Mustaṣfā min ‘ilm al-uṣūl* (*The Quintessence of the Science of the Principles [of Islamic Law]*, also known as *The Choice Essentials of the Science of the Methods [of Jurisprudence]*), is an extensive legal compilation. Its introduction, however, “is entirely dedicated to Aristotelian logic” and “the epistemological fundamentals of the theoretical sciences (*madārik al-ulūm al-naẓariyya*).”¹⁶ Al-Ghazālī wrote it between 499 and 503 (1106 and 1109-10)¹⁷ during the time of his new teaching appointment at the Nizāmiyya madrasa in Nishapur, which Sanjar, the governor of Khorasan, had pressured him to accept in 499/1106.¹⁸

In light of these titles, what did al-Ghazālī say in the works listed above about the use and usefulness of logic for learning, and about the relation of reasoning to spirituality?

book in English translation. My references to al-Ghazālī’s *Asās al-qiyās* are given in Saba’s rendering of this work.

- 15 Brunschvig, “Valeur et fondement” 59; and Saba, *The Foundations of qiyās* 10-13; both authors based this dating on explicit references made by al-Ghazālī in this treatise to others of his works, while most of the recent chronologies of al-Ghazālī’s works pass over this one in silence, or remain indefinite about its date of compilation.
- 16 Rudolph, “Abū Ḥāmid al-Ghazālī,” 357; Rudolph, “Al-Ghazali on Philosophy and Jurisprudence,” 71.
- 17 The colophon of two respective manuscripts gives 503/1109-10 as the date of this book’s completion and the presumed end of al-Ghazālī’s teaching position in Nishapur (cf. Hourani, “A Revised Chronology,” 226; Hourani, “A Revised Chronology,” 291, 301).
- 18 A short exposition of the nature and importance of syllogism is also included in al-Ghazālī’s “Fourth Introduction” to his most extensive *kalām* work, *al-Iqtiṣād fi l-‘itiqād* (*The Balanced Path in Belief*; rendered in Yaqub’s translation of the work as *Moderation in Belief*). Here the author presented the methods of proof he employed in the book. As Yaqub, *Al-Ghazālī’s moderation in belief*, xxvi-xxvii, outlined in his introduction to that book, al-Ghazālī “enumerates three methods of demonstrative proof. Since these are three valid forms of inference, any conclusion inferred via these rules from true premises must also be true. ... Al-Ghazali lists six ‘apprehensions’ through which the truth of a premise may be established. It could be (1) based on sense perception (*al-ḥiss*); (2) based on pure reason (*al-aql al-mahd*); (3) based on widely transmitted reports (*al-mutawātirāt*); (4) validly inferred from other premises, which are themselves established by either sense perception, pure reason, or widely transmitted reports; (5) conveyed in a revelation; or (6) presupposed as something the disputant already accepts. Al-Ghazali explains that each one of these apprehensions has its utility and its limitation. For instance, someone who is not part of a community in which certain reports are widely transmitted cannot be expected to accept premises based on such reports, and someone who does not believe in revelation will not be moved by a premise derived from a revelation.”

2.1 *The Intentions of the Philosophers (Maqāṣid al-falāsifa)*

In the *Maqāṣid*, al-Ghazālī set out his exposition on logic with the fundamental insight “that, even though knowledge may be divided in many ways, it is limited to two broad divisions: conception (*al-taṣawwur*) and affirmation (*al-taṣdīq*).”¹⁹ Conception, he said, is based on correct insight and understanding. This eventually leads to “grasping the essences,” signified by individual expressions through explanation and verification. In contrast, affirmation means to know; for example, that the world was created in time, that obedience will be rewarded, and that disobedience will be punished (*Maqāṣid* 4).

2.1.1 The Utility of Logic

Our author specified further that all knowledge acquired by reasoning is based on a specific previous (primary) knowledge (*‘ilm qad sabaqa*) inherent in the intellect, without inquiry (*ṭalab*) and thinking (*fikr*) (*Maqāṣid* 5-6). Thus the utility of logic lies in the fact that “what is unknown” (*al-majhūl*) is only acquired through “the known” (*al-ma‘lūm*).” However, to get from the unknown to the known and to make it present in the mind, the learner must first identify and follow a path of discovery that is appropriate and corresponds to that particular unknown (*Maqāṣid* 6).

Furthermore, “conceptional knowledge” is acquired through what is called “definition” (*ḥadd*), which helps set forth the precise meaning—or “description” (*rasm*)—of something to identify and explain its nature or essential qualities. In contrast, “affirmative knowledge” is obtained through “evidence-based argumentation” (*ḥujjā*)—including methods such as the valid “logical argument” or “syllogism” (*qiyās*)—“induction” (*istiqrā*), and “paradigm” or “reasoning by analogy” (*tamthīl*)²⁰—in other words, three learning techniques that al-Ghazālī repeatedly dealt with in his other works on logic, as will be shown below.

Based on two rational constructs, specifically (1) the logical argument or syllogism—consisting of two (or more) premises (sing.: *muqaddima*) and a conclusion (*natīja*) drawn from them—and (2) the definition (*ḥadd*), humans manage to discriminate between (a) what is correct and thus leads to certainty in knowledge, and (b) what is incorrect yet similar to the correct. This logical approach provides them with “a scale and standard for all the sciences” (*al-mīzān wa-mi‘yār al-‘ulūm*). Also, logic determines the correct and incorrect

19 For the following passages, I also consulted Beer, Georg, “al-Ġazzālī’s Maḳāsid al-falāsifa,” 23-28 (with a German translation of the section “On Logic” in that work).

20 *Tamthīl* literally means “quotation of examples, exemplification; likening, comparison;” etc. For the term meaning “paradigm” and “analogy” in al-Ghazālī’s *Mi‘yār al-‘ilm*, see Rudolph, “Abū Ḥāmid al-Ġazālī,” 354 and 412; for the same meaning of the term in Ibn Sīna, see Gutas et al., “Ibn Sīna,” 76.

in syllogisms and definitions to help differentiate certain from uncertain knowledge (*Maqāṣid* 6).

2.1.2 Perfecting the Soul

Al-Ghazālī complemented this appraisal of logic with an explicit emphasis on the spiritual foundations of all human existence. He did so with a rhetorical question when he asked: if one acknowledges the utility of logic for distinguishing between knowledge and ignorance, what, then, would the advantage of knowledge be?

He answered the question by stating that the utilities of logic (and all the philosophical and natural sciences) must be seen in the light of eternal happiness in the hereafter. This future happiness, however, was based on the perfecting of the soul (*takmil al-naḥs*) in this world, and the soul's perfection was achieved through embellishment (*taḥliya*) and purification (*tazkiya*). Furthermore, purification concerned the soul's cleansing (*taḥhīr*) of vile morals and its redemption (*taqdīs*) from blameworthy attributes. Embellishment, in turn, meant to engrave on the soul the ornament of the truth (*ḥilyat al-ḥaqq*). Divine truth, indeed all revealed truth and all forms of existence, thus becomes apparent to the human mind in its clear and distinct reality and allows no further ignorance or error (*Maqāṣid* 6-7).

2.2 *The Criterion of Knowledge* (Mi'yār al-'ilm)

The *Mi'yār al-'ilm* is conceived as an introduction to the methods of rational learning and the technical terms that al-Ghazālī used in the *Tahāfut al-falāsifa*. Indeed, several references in the *Mi'yār* describe this text as a study book on logic that supplements the *Tahāfut*. Its objective is to aid the students who have difficulty comprehending the refutation of the philosophers as laid out in the *Tahāfut*.²¹

In the introduction to *Mi'yār al-'ilm*, the author identified the two immediate objectives of his book:

- To provide instruction (*al-tafhīm*) on reflective thinking (*al-fikr*) and analytical study (*al-naẓar*), along with an illumination (*al-tanwīr*) of the methods of deductive reasoning (*masālik al-aqyisa*, with its different types of syllogism). These are considered indispensable means for understanding in the disciplines of the humanities, such as poetics and grammar, but also in religious disciplines and jurisprudence.
- To impart theoretical background knowledge of logic for the

21 Sulaymān Dunyā, in his introduction to the 1961 Cairo edition of the work, viewed *Mi'yār al-'ilm* as the last integral part of the *Tahāfut*; cf. al-Ghazālī, *Mi'yār al-'ilm* 21 and 23.

methodological criticism the author directed against the philosophers in the *Tahāfut al-falāsifa*; he also explained the terms used in that book (*Mi'yār* 59-60).

Within this framework, al-Ghazālī called the intellect (*al-'aql*) a “just balance” (*al-qistās al-mustaqīm*, Q 17:35, 26:182) and “straight standard measure” (*al-mi'yār al-qawīm*), while sensory perception (*al-hiss*) and delusive imagination (*al-wahm*) are labeled as leading people to err (*Mi'yār* 61-67). Three methods of reasoning are elaborated in three discrete sections, entitled:

- Syllogism (*al-qiyās*) (*Mi'yār* 130-160),
- Induction (*al-istiqrā'*; *Mi'yār* 160-165), and
- Paradigm (*al-tamthīl*) (*Mi'yār* 165-177).

It is furthermore stated that *al-tamthīl* is called *qiyās* (“syllogism”) by the philosophers, and *radd al-ghā'ib ilā l-shāhid* (“returning the hidden to the evident”) by the theologians (*Mi'yār* 165).²²

2.2.1 Syllogism

Syllogism (*al-qiyās*) as a deductive scheme of logic efficiently promotes learning, as it facilitates the understanding of letters and words in the soul and putting them in the correct order, thus preparing the soul for the conclusions to be drawn in this learning activity (*Mi'yār* 65). This is illustrated with examples from poetic syllogism. Also, a syllogism grounded in philosophic logic is called analytical, valid, and not subject to doubt. Sophistry, on the other hand, relies on imagination (*al-khayyāl*) and thus leads to invalid conclusions (*Mi'yār* 218).

However, the learner is made aware of the various errors that may occur when using syllogism. These include:

- Making generalizations based on only one particular aspect;
- Failing to examine the necessity of a premise critically;
- Failing to establish the necessary link between antecedent and consequent in a statement;
- Using imaginary premises in syllogistic statements; and
- Ignoring a term's precise meaning (*Mi'yār* 207-242).²³

²² Janssens, “al-Ghazālī's *Mi'yār*,” 48, identified passages in Ibn Sīnā's *al-Ishārāt*, al-Ghazālī's *Maqāsid*, and al-Fārābī's *al-Qiyās al-saghīr* as the sources also for this section.

²³ Janssen, “al-Ghazālī's *Mi'yār*,” 55, noted that these ideas could not be discerned in any of al-Ghazālī's or his predecessors' works; they constitute particularly original contributions to the theory of syllogism and learning.

Al-Ghazālī also specified seven examples of potentially incorrect syllogism. These include syllogistic statements in which the premise(s) and the conclusion(s) are insufficiently distinct (or when two premises are nearly synonymous).²⁴ Other instances concern premises that are false or require substantiation to be applied appropriately (*Mi'yār* 215). This kind of mistake can be avoided only if the student has mastered the rules of logic, as al-Ghazālī confirmed (*Mi'yār* 218-219).

2.2.2 Induction

Induction (*al-istiqrā'*) generally means deriving broader principles or actions from specific instances or observations. In logic and philosophy, induction involves generalizing based on particular observations or evidence. For example, observing that “the sun rises every morning” and concluding that “it will rise again tomorrow” is an inductive reasoning process.²⁵ The problem of induction was also recognized in classical Islamic philosophy and al-Ghazālī was aware of it, as the definition of this concept indicates:

الاستقراء: هو أن تتصفح جزئيات كثيرة داخلية تحت معنى كلي، حتى إذا وجدت حكماً في تلك الجزئيات حكمت على ذلك الكلي به.

Induction refers to examining several particulars that fall under the same general category or term (hyperonym). Once a common judgment has been found for [all] those particulars, conclusions can be drawn [also] concerning the general (*Mi'yār* 160).

Our author then provides the following illustration of how the process of reasoning by induction —starting with specific observations or instances which then lead to forming a general conclusion—could be applied in a legal matter:

24 As is the case in the following instance: (1) *kull khamr 'uqār* (every wine is an intoxicant); (2) *kull 'uqār muskir* (every intoxicant is intoxicating); (3) *kull khamr muskir* (every wine is intoxicating). Consequently, in this example, the two premises have basically the same meaning (*Mi'yār al-'ilm* 211).

25 This example is often used in (and without) reference to the Scottish philosopher David Hume, who famously questioned the justification for inductive reasoning by pointing out that past experiences (like “the sun rising every morning”) do not necessarily guarantee future occurrences (i.e., that “the sun will rise tomorrow”). This skepticism about induction is a central theme in Hume’s *An Enquiry Concerning Human Understanding* (1748), where he challenged the basis of inductive reasoning by questioning the assumption that future events will follow past patterns simply because they always have.

ومثال الاستقراء في الفقه قولنا: الوتر لو كان فرضًا لما أدّى على الراحلة، ...
فَيُقَال: وَلِمَ عَرَفْتُمْ أَنَّ الْفَرْضَ لَا يُؤَدَّى عَلَى الرَّاحِلَةِ؟ قُلْنَا: بِاسْتِقْرَاءِ جَزَائِلَاتِ
الْفَرْضِ مِنَ الرُّوَاتِبِ وَغَيْرِهَا، كَصَلَاةِ الْجَنَازَةِ وَالْمَنْذُورَةِ وَالْقَضَاءِ وَغَيْرِهَا.

An example of induction in jurisprudence is our saying, "If the *witr* prayer [after night has fallen or before the dawn prayer] were obligatory, it would not be permitted to perform it on a riding animal ...". If it were then asked, "How do you know that an obligatory prayer is not permitted to be performed on a riding animal?" we would answer, "By examining (*isriqrā*) numerous instances of obligatory prayers, including regular prayers and others such as funeral prayers, vowed prayers, and make-up prayers, among others" (*Mi'yār* 162).

فَإِذَنْ حَصَلَ مِنْ هَذَا أَنَّ الْاسْتِقْرَاءَ التَّامَّ يَفِيدُ الْعِلْمَ، وَالنَّاقِصَ يَفِيدُ الظَّنَّ.

Thus it follows that comprehensive induction leads to definite knowledge (*al-ilm*), while narrow induction leads to conjecture (*al-zann*) (*Mi'yār* 163).

Al-Ghazālī affirms here that induction is an applicable, non-deductive method of legal reasoning. To students of *The Criterion of Knowledge*, the message is conveyed that examining numerous instances helps form a broader understanding or rule. By distinguishing between complete (or comprehensive) and incomplete (or superficial) induction, the critical role of thorough examination is stressed in achieving definite knowledge. This highlights the need for students to engage deeply with multiple examples to gain robust insights rather than relying on a shallow analysis, which can only result in guesswork. This instruction encourages students to critically assess evidence and ensure it is sufficient before forming judgments; it reinforces the value of evidence-based reasoning. Thus it might inspire teachers to use the principle of induction to structure their lessons by exposing students to several specific instances before guiding them to generalized conclusions.

2.2.3 Paradigm and Exemplification

The chapter of *The Criterion of Knowledge* entitled *al-tamthīl*, "The Paradigm" (*Mi'yār* 165-177) is devoted to the kind of analogy used by jurists (*al-qi'yās al-fiqhī*) and the inference from the visible to the invisible in Islamic theology (*al-istidlāl bi-l-shāhid 'alā l-ghā'ib and radd al-ghā'ib 'alā l-shāhid*).

Both expressions correspond to the Aristotelian "paradigm" (*al-tamthīl*), as Ulrich Rudolph noted, and represent something already demonstrated by

al-Fārābī.²⁶ Furthermore, and importantly, in these passages al-Ghazālī equated the jurists' *al-qiyas* and the theologians' *al-istidlāl* with the philosophers' *al-tamthīl* (lit. "the adducing of a likeness," or "exemplification"), stating that all three can be converted into syllogistic form.²⁷

While our author advised jurists to rely on their traditional analogical arguments instead of adopting syllogisms in their writings, he recommended that theologians use syllogistic methods. Several examples illustrate this. One example concerns the fact that the theologians use analogy to address the question of whether the heavens are created in time rather than being eternal. Al-Ghazālī finds this inconclusive, as the argument assumes that composite things are created in time, which needs explicit proof. He suggests instead a syllogism for a conclusive argument: "The heavens are composite. Everything composite is created in time. Therefore, the heavens are created in time," and concludes that syllogisms are superior to analogies in theological arguments (*Mi'yār* 165-166). Another example concerning a juridical issue raises the question of whether consuming date wine is prohibited. Traditionally, the prohibition is justified by analogy: grape wine (*al-khamr*) is prohibited due to its intoxicating nature, and date wine (*al-nabidh*) is also intoxicating. It is concluded that date wine is also prohibited. This reasoning forms a categorical syllogism similar to the theological *al-istidlāl*: "Every date wine is an intoxicant. Every intoxicant is prohibited. Therefore, every date wine is prohibited" (*Mi'yār* 171-172).²⁸

In this context, al-Ghazālī stressed that paradigms help deepen understanding by illuminating the content of statements and highlighting gaps. Their use facilitates students' deduction of the unknown from the known and thus their grasping of new knowledge.

Several examples from the fields of theology and jurisprudence underpin the usefulness of this method for learning. While in theology, however, the *syllogistic form* of reasoning is suggested to be more effective, in legal decision-making the *analogical argument* is preferable.

The choice of these examples suggests that al-Ghazālī, with his nuanced treatment of the matter, once again had his students at the Nizāmiyya madrasa in mind, as they were deeply engaged in the study of Islamic jurisprudence.

The use of "examples" from Islamic theology and jurisprudence as a pedagogical device is clearly evident throughout the book. It is particularly striking in the author's exemplifications of fourteen types of syllogism (*Mi'yār* 149-181).

26 Rudolph, "Al-Ghazali on Philosophy and Jurisprudence, 77-78."

27 Ibid.

28 See also El-Rouayheb, "Theology and Logic," 413; and Rudolph, "Al-Ghazali on Philosophy and Jurisprudence," 78-79.

More specific pedagogical advice recommends that teachers use only familiar examples for illustration (*Mi'yār* 61). To do otherwise would be akin to addressing students in a language other than their own.

... وَكَمَا لَا يَحْسُنُ إِرْشَادُ الْمُتَعَلِّمِ إِلَّا بِلِغَتِهِ، لَا يَحْسُنُ إِیْصَالُ الْمَعْقُولِ إِلَى فَهْمِهِ إِلَّا بِأَمْثَلَةٍ هِيَ أَثْبَتُ فِي مَعْرِفَتِهِ.

... And just as it is unwise to instruct the learner in a language other than his own, it is unwise to bring the rational [disciplines] to the learner's understanding without using examples that are firmly rooted in his [previously acquired] knowledge [that he is familiar with].

2.2.4 Propositional Logic

Further directions (mainly based on Ibn Sīnā) concern basic features of applied Aristotelian logic. In the section on propositions (that is, verbal expressions that affirm or deny an attribute of a subject and make a judgment), al-Ghazālī addressed what in modern terminology is called “truth-functional propositional logic,” an element of logic that deals with how to produce complex statements based on simpler ones. Respective topics include:

- The “conjunctive statement” (*al-sharṭiyya al-muttaṣila*, also called a hypothetical statement, or proposition; *Mi'yār* 151-156) with its antecedent and consequent. This concerns sentences with an “if” (the antecedent) and a “then” (the consequent), as in a paradigmatic example known from Ibn Sīnā, for instance, that al-Ghazālī quoted: “If the sun has risen, [then] it is day” and “If the sun has risen, [then] it is not night” (*Mi'yār* 154);²⁹
- The “disjunctive statement” (*al-sharṭiyya al-munfaṣila*; *Mi'yār* 156-158), which is a sentence that explicitly or implicitly contains an “or” and in which one or more propositions are true. Importantly, al-Ghazālī observed that in Islamic discursive theology (and in jurisprudence), the disjunctive conditional is called *sabr wa-taqṣīm* (“probing and dividing” or “assessing and re-evaluating” (*Mi'yār* 156). He viewed this method, as Frank Griffel noted, as “a fundamental technique that scholars apply not only in Islamic jurisprudence but in all rational fields of knowledge (*nazarīyyāt*);”³⁰
- The affirmative (or positive) and the negative character of a proposition, signifying either the presence or the absence of an attribute (*Mi'yār* 113);

29 Rescher, “Avicenna on the Logic of ‘Conditional’ Propositions,” 48-49.

30 Griffel, *The Formation of Post-Classical Philosophy in Islam*, 506-517, esp. 506, on the use of this method by al-Ghazālī, Fakhr al-Dīn al-Rāzī (d. 606/1210), and others.

- The question-and-answer scheme and its place within propositions (*Mi'yār* 114-116);
- Equivalence or non-equivalence at the word level between simple “negation” (based on contradictory opposition) and more sophisticated “privation” (i.e., the lack of a quality or form typically required by a thing’s nature).³¹

2.2.5 Intellectual Intuition and Reflection

As in his appraisal of logic in *The Intentions of the Philosophers*, so too in *The Criterion for Knowledge* al-Ghazālī did not limit the educational process to intellection and rational reasoning alone. He did not rule out the possibility and, indeed, the benefit of learning through inferences made without formal proof or sufficient evidence, or drawing conclusions deduced by surmise or guesswork. He emphasized that the one seeking knowledge (*al-ṭālib*) may very well acquire insights based on “intellectual intuition” or “guessing correctly” (*al-ḥads*)³² and “reflection” or “careful consideration” (*al-i'tibār*), and obtain knowledge that cannot be proven by the methods of demonstration

31 Al-Ghazālī also familiarized the reader with a further categorization of propositions: one that discriminates between singular, determinate, and indeterminate. Moreover, he included considerations on the indeterminate character implied in the Arabic definite article “al-” (cf. Janssens, “al-Ghazālī’s *Mi'yār*” 47).

32 Al-Ghazālī’s use of the term *al-ḥads* in the sense of “intellectual intuition” has its background in the epistemology of Ibn Sinā, who used it to determine “the middle term” (*al-ḥadd al-awsaṭ*) of a syllogism (*al-qiyās*; cf. Avicenna’s *De Anima* 249). For example, prophets would “benefit from the power of intuition (*quwwat al-ḥads*) and have the capacity of immediately finding the middle term of a syllogism. This capacity gives a prophet perfect theoretical knowledge without instruction, and solely through intellectual intuition (*ḥads*)” (cf. Griffel, *Al-Ghazālī’s Philosophical Theology* 68). In al-Ghazālī’s works, *al-ḥads* appears to convey the author’s conviction that most of the scholarly disciplines, including the natural sciences, go back to revealed knowledge received by prophets and “the friends of God” (*awliyā’ Allāh*) of earlier civilizations. I thank the anonymous reviewer for pointing out this terminological clarification. For al-Ghazālī’s use of *al-ḥads* and its relation to “inspiration” (*al-ilhām*) and inner knowledge, see Griffel, *Al-Ghazālī’s Philosophical Theology* 101, 199-200; Gutas, *Avicenna and the Aristotelian Tradition* XII-XIII (on the limitation of rendering this term in one word in English, as it rather means “the ability to hit upon, guess correctly, or ‘divine’ the middle term of a syllogism”) and chapter 3.2., “Avicenna’s Studies. Methods of Learning: Guessing Correctly (the Middle Term) (*ḥads*),” (179-201); and Ormsby, *Theodicy in Islamic Thought*, especially chapter 4 (“Creation as ‘Natural Necessity,’” 207-216), which explores how al-Ghazālī approached the concepts of divine power and creation, and how these relate to intuitive insights and inspiration within the broader discourse of theodicy. Treiger, in his *Inspired Knowledge in Islamic Thought*, dedicated an illuminating section to examining connections between al-Ghazālī’s theory of prophecy and Avicenna’s theory of “intuition” (*al-ḥads*) (cf. idem, 74-80).

(*al-burhān*). Such insights may come about when teachers explain their study approaches to their students, or tell them about their experiences so that students can build on them (*Mi'yār* 192):

وَمَنْ مَارَسَ الْعُلُومَ يَحْضُلُ لَهُ مِنْ هَذَا الْجِنْسِ، عَلَى طَرِيقِ الْحَدْسِ وَالْإِعْتِبَارِ،
قَضَايَا كَثِيرَةٌ لَا يُمْكِنُهُ إِقَامَةُ الْبُرْهَانِ عَلَيْهَا، وَلَا يُمْكِنُهُ أَنْ يَشْكَّ فِيهَا، وَلَا يُمْكِنُهُ
أَنْ يُشْرِكَ فِيهَا غَيْرَهُ بِالْتَعْلِيمِ، إِلَّا أَنْ يَدُلَّ الطَّالِبَ عَلَى الطَّرِيقِ الَّذِي سَلَكَهُ
وَاسْتَنْهَجَهُ

The one [i.e., a scholar] who practices the sciences [regularly] acquires—through “intellectual intuition” and “reflection”—various subject matters that cannot be demonstratively proven nor doubted based on this kind [of knowledge]. However, he cannot share this knowledge with others through instruction unless he directs the student (*al-ṭālib*) to the method he had followed and went through [thus sharing the experience he gained in this process].

2.3 *The Touchstone of Inquiry* (Miḥakk al-naẓar)

Miḥakk al-naẓar is another textbook that al-Ghazālī composed at the request of his students at the Nizāmiyya madrasa in Baghdad.³³ The book is a concise yet systematic treatise on logic, instructing chiefly on assessing the pros and cons of an issue to avoid making flawed decisions, particularly in legal matters. With this work, the author, as he expressed in his short preface, wished “to clarify the touchstone of inquiry and contemplation (*tahrīr miḥakk al-naẓar wa-l-iftikār*) and protect [his brethren in faith] from the pitfalls of error in the intricacies of reflection (*al-i'tibār*).” His concise and focused approach, as he acknowledged, concentrating on the essentials of the matter, was aimed at supporting and guiding the readers in their learning process, and facilitating their understanding as much as possible (*Miḥakk* 49-52).

In keeping with the book’s overall educational objective, al-Ghazālī devoted its first part to syllogism (*al-qiyās*) and the second to definition (*ḥadd*) (*Miḥakk* 57-176 and 177-236). While both methods of inquiry and epistemological differentiation are said to be essential foundations of logic, they are, of course, important to all the sciences.

33 See also note 11.

2.3.1 Innovative Knowledge Terminology

In his brief introduction to *Mihakk al-naẓar* (pp. 53-55), al-Ghazālī clarified that there are two categories of perception (*al-idrāk*) on which syllogism (*al-qiyās*) is based. Importantly, however, he also made explicit that he was introducing a different terminology (i.e., one different from the classical Arabic philosophical tradition with its Greek-inspired terminology). Al-Ghazālī acknowledged furthermore that for the terms he used, he had been inspired by the discourse of the Arabic grammarians (*bi-qawl al-nuḥāh*), although without specifying those sources any further. His two categories of perception were:

1. *Al-maʿrifa* (for what is *al-taṣawwur* in rational Arabic philosophy, “conceptualization;” *al-maʿrifa* is usually translated as “cognition”);³⁴ and
2. *Al-ʿilm* (for what philosophically is called *al-taṣdīq*, “assent;” *al-ʿilm* is usually translated as “knowledge”).

For al-Ghazālī, the FIRST CATEGORY OF PERCEPTION—*al-maʿrifa*—signifies “the perception of particulars” (*idrāk al-dhawāt al-mufrada*), in the sense of achieving a sound understanding of an individual subject, as expressed, for example, in the meaning of a single term. Knowledge of particulars (*al-maʿrifa*) can be obtained in two ways:

- Sensation (*al-ḥiss*), i.e., a direct, elementary (*awwalī*) conceptualization; and
- Inquiry or examination (*al-baḥth*), which applies to concepts that are referred to in general, not in detailed terms (*jumalī ghayr mufaṣṣal*), and which require a clear definition (*al-ḥadd*) to be understood.³⁵

The SECOND CATEGORY OF PERCEPTION—*al-ʿilm*—signifies the perception of composites, as it connects individual particulars (*nisbat al-mufradāt baʿḍihā ilā baʿḍ*). Thus an understanding is achieved that clarifies the relation of one

34 Black, “Epistemology in Philosophy” (online); and Treiger, *Inspired Knowledge* 33-34, who writes that “the distinction between *maʿrifa* (cognition) and *ʿilm* (knowledge) is, in al-Ghazālī, a ‘soft’ distinction, where the two terms are used in roughly the same sense and only in certain technical contexts are assigned separate functions. It certainly cannot be assumed that *maʿrifa* in al-Ghazālī is always somehow ‘deeper’ and more ‘mystical’ than *ʿilm*. For this reason, too, *maʿrifa* is not to be translated as ‘gnosis.’ In the great majority of cases, *maʿrifa* and *ʿilm* (and the corresponding verbs *ʿarafa* and *ʿalima*) are virtually interchangeable, and the distinction between them is merely grammatical.” However, as shown above, the *Mihakk al-naẓar* is an occasion where al-Ghazālī does make an explicit distinction between *al-maʿrifa* and *al-ʿilm*, inspired by the Arabic grammatical tradition.

35 As clarified in al-Ghazālī, *Mustasfā* I, 16-17.

composite or concept to another. It follows that *al-maʿrifā* cannot be deemed true or false; these judgments are only valid once two particulars are connected, whether affirmatively or disapprovingly (*Miḥakk* 53-54). Knowledge of composites (*al-ʿilm*) can also be acquired in two ways:

- Directly (*awwalī*); this results in immediate knowledge of the self, for example, in the case of pain, joy, sorrow, depression, etc.³⁶ There is no need for the self to inquire in order to know that it feels sorrow;
- Inquiry or examination; that is, in this case, the application of demonstrative proof (*al-ḥujja*, *al-burhān*) through syllogism (*al-qiyās*).

Consequently, every instance of knowledge acquisition and learning that is based on *ʿilm* (here in the sense of “assent”) must be preceded by “two instances of conceptualization” (*maʿrifatān*) of two respective particulars. For example, to judge whether the statement “The universe is created” is true or false, one must first know—through *maʿrifā*—what is meant by “the universe” and what by “creation.” Only then can one decide whether the statement is true or false and attain knowledge of the composite (*al-ʿilm*).

Still, al-Ghazālī was careful to note that, given this linguistically-based (*al-lughawī*) terminology, the scholars who apply rational inquiry, the *ahl al-naẓar*, use these terms differently in their studies (*Miḥakk* 54).

As he considered logic the basis of understanding in several scientific disciplines, al-Ghazālī emphasized the need for students and scholars to familiarize themselves with the rules of rational inquiry as laid out in this work. These rules would enable them to comprehend the concepts and characteristics of scientific disciplines, such as discursive theology (*al-kalām*) and Islamic jurisprudence (*al-fiqh*), but also logic itself (*al-manṭiq*). Furthermore, he said that students have to accomplish two tasks: first, to comprehend the general content of this book, *The Touchstone of Inquiry*, and second, to familiarize themselves with the distinct terminology it indicates.

Al-Ghazālī made it clear here again that he did not want to simply reiterate one of the terminologies specific to theology and jurisprudence, nor to philosophical logic. Rather, he applied the terms and expressions common to all three disciplines and the terms to which he assigned new meanings (*Miḥakk*

36 The question arises as to whether these ideas anticipate a division of knowledge emerging in later classical Islamic thought (i.e., in the sixth/twelfth century, and in different contexts), categorizing knowledge into (a) “presential knowledge” (*al-ʿilm al-ḥuḍūrī*), i.e., immediate sensory knowledge concerning the spiritual world gained through the vision of the eye of the heart (*ʿayn al-qalb*); and (b) “acquired knowledge” (*al-ʿilm al-ḥuṣūlī*), i.e., knowledge gained by the mind (cf. Baker, Classification 195 on al-Ghazālī’s respective conceptions; and Kaukua, “Suhrawardī’s Knowledge as Presence in Context.”

101-102). Indeed, in *Miḥakk al-naẓar* our author significantly advanced a more consistent and widely comprehensible use of logical terms and expressions in the Islamic sciences. In other words, *Miḥakk al-naẓar* represents yet another significant achievement of this thinker in the attempt to popularize reasonable inquiry and logic in the Islamic religious academic discourses.

2.3.2 Syllogism

Al-Ghazālī presented logic as a conducive basis for learning, teaching, and debate. Any argument unsupported by one form of syllogism or another was ineffective (*Miḥakk* 110). To illustrate this, he offered numerous examples from the religious sciences. One of these concerns the conditional hypothetical syllogism (*qiyās al-talāzum*),³⁷ which is based on two premises (a hypothetical major premise and a categorical minor premise) and a categorical conclusion (either confirming or negating the premises). Al-Ghazālī explained this syllogism with the following example from Islamic jurisprudence (*al-fiqh*):

[First premise:] If the *witr* prayer is performed on a mount without further conditions (*‘alā kull ḥāl*), then this prayer is a supererogatory performance (or a bonus, *nafl*).

[Second premise:] It is known that the *witr* prayer can be performed on a mount without further conditions (*‘alā kull ḥāl*).

[Conclusion:] Thus it is established (*thabata*) that the *witr* prayer is a supererogatory performance (*Miḥakk* 103-104).

Al-Ghazālī also alerted his readers to possible errors that may occur in using syllogisms and their premises, so that they could be avoided (*Miḥakk* 60-62). Such errors are often due to a poorly designed syllogism structure or the weakness of the premises on which it is based. Thus al-Ghazālī recommended, for example, that students learn well logic’s three categories—(1) equivalence (or congruency, *al-muṭābaqa*), (2) inclusion (*al-taḍammun*), and (3) implication (*al-iltizām*)—to linguistically determine meaning in syllogism, and in speech more generally. In this context, al-Ghazālī warned his readers to “Beware of using, in reason-based inquiry (*naẓar al-aql*), linguistic expressions that denote [meaning] by implication,” as this would open up too many possibilities of misunderstanding or “strengthen your opponent.” Instead, he

37 For *qiyās al-talāzum*, deemed a type of syllogism by the logicians, but not by the legal scholars, see the postclassical example of Aḥmad b. ‘Abdallāh Ibn al-Wazīr (d. 985/1577) discussed in Islam and Thiele, “The Chapter on Analogy (*Qiyās*) from the Ḥāshiyat al-Fuṣūl al-lu’lu’iyya of Aḥmad b. ‘Abdallāh Ibn al-Wazīr,” 181, 183.

said, “limit yourself to [linguistic expressions] which denote [meaning] by way of equivalence or inclusion” (*Mihakk* 63-65).³⁸

Significantly, with his advice on the importance of syllogisms for learning and research, al-Ghazālī—and Fakhr al-Dīn al-Rāzī (d. 606/1210) after him—introduced this kind of logic classification (from the Avicennan tradition) into Islamic legal theory and practice, where it was widely used thenceforth in hermeneutical problem-solving.³⁹ The overall educational value of knowing how to use syllogism was highlighted by al-Ghazālī as he stated:

وَكأنَّ طالِبَ القِياسِ والحدِّ طالِبُ الآلةِ التي بها تُقتنصُ العلومُ والمعارفُ كُلُّها.

It is as if he who seeks syllogism and definition is looking for the instrument by which one acquires all the composite knowledge and the particulars of knowledge (*Mihakk* 55).

طالِبُ القِياسِ ينبغي أن يَنْظُرَ في نِظْمِ القِياسِ وفي صِورتِهِ، وفي الأمرِ الذي يَضَعُ الترتيبَ والنِظْمَ فيه، وهو المَقَدِّمات.

He who seeks syllogism must firmly look into its structure and form as well as the subject matter to which he applies the arrangement and construction of syllogism, i.e., the premises (*Mihakk* 60).

2.3.3 Definition

Al-Ghazālī also instructed learners to formulate definitions (sing.: *al-ḥadd*) for subject matters and how to use them in learning. First and foremost, he said, due attention must be paid to the meaning of a word, i.e., whether it is an expression with only one meaning or one with several meanings. If a term is polysemic, combining several possible meanings (*mushtarak*), this expression must be defined from the perspectives of different disciplines. For example, if a term has different meanings in three fields of knowledge, three definitions should be provided (*Mihakk* 205-206, with several examples).

Al-Ghazālī also explained how a student can determine the most appropriate definition from among a pool of meanings. Examples from Islamic jurisprudence illustrate that the focus of study should be on the meaning of an expression, not merely its wording (*Mihakk* 233-234), with detailed instruction

38 For more potential errors in syllogisms, see al-Ghazālī, *Mihakk* 67, 69, 73, 86-89, 137-138; 143-144.

39 Kalbarczyk, *Sprachphilosophie in der islamischen Rechtstheorie* 9-11, and passim, with more details on the different uses of these terms in the classical Arabic intellectual traditions, including Arabic rhetoric.

on the multiple meanings of the legally relevant term *wājib* (lit.: “necessary, incumbent, binding”).

فتعلّم صياغة الحدّ، فإذا ذكِرَ لكَّ اسمٌ، وطُلِبَ حدُّه ... فانظر، فإن كان
مشاركاً ... فاطلب عدّة المعاني التي فيها الاشتراك، فإن كانت ثلاثة ...
فاطلب ثلاثة حدودٍ، لأنّ الحقائق إذا اختلفت ... فلا بدّ من اختلاف
الحدود.

So, learn how to formulate a definition. If the designation [of a subject] is mentioned to you and you are requested to define it, consider whether it is polysemic. ... [If so,] explore the multiplicity of meanings this designation may contain. If there are three meanings, then consider formulating three definitions, since different meanings ... necessarily require different definitions (*Mihakk* 205).

القانون الثاني ... أنّ الحدّ ينبغي أن يكون بصيراً بالفرق بين الصفات
الذاتية، واللازمة، والعرضية.

The second rule: [...] Those who would define something must differentiate between its essential (or inherent, *al-dhātīyya*), concomitant (*al-lāzima*), and accidental (or contingent, *al-ʿaraḍīyya*) attributes (*Mihakk* 182; for al-Ghazālī’s explanation of these terms, see *Mihakk* 73-74).

The terminology al-Ghazālī used in this concise characterization of definitions shows again his familiarity with Ibn Sīna’s and al-Fārābī’s thought (and through them, that of the Greek logicians who followed Aristotle), according to which definitions help human beings to distinguish between things, form concepts, and learn.⁴⁰ This understanding is also apparent in the following example, which circumscribes the application of definitions in educational contexts:

40 Avicenna, *The Metaphysics*, esp. Book Five, Chapters 7: “On making known the proper relationship between definition and the thing defined,” 8: “On definition,” and 9: “On the appropriate relation between definition and its parts;” Janos, *Avicenna on the Ontology of Pure Quiddity*, esp. 217 and 290; Günther, “The Search for Human Perfection and the Philosopher’s Curriculum,” esp. the section on al-Fārābī’s *K. al-Burhān*; and Hallaq, *Ibn Taymiyya Against the Greek Logicians*, 12-29 (chapter 2).

القانون السادس ... أنَّ المعنى الذي لا تركيب فيه البتة لا يمكن حده إلاَّ
بطريق شرح اللفظ أو بطريق الرسم، وأمَّا الحدُّ الحقيقي .. فلا.

The sixth rule: [...] A meaning that is not compound can be defined only by explaining the related expressions or describing [it]. However, it cannot be explained by “proper definition” (*al-ḥadd al-ḥaqīqī*) (*Miḥakk* 196).⁴¹

2.4 *The Just Balance* (al-Qiṣṭās al-mustaqīm)

Al-Qiṣṭās al-mustaqīm is the fifth and last in a series of treatises in which al-Ghazālī defended himself against criticism voiced by the Ismailis in Ṭūs.⁴² Composed in al-Ghazālī’s last decade of life, it takes the form of a dialogue between the author and a (fictitious?) adherent of the Ta’līmiyya, as the members of the Ismailiyya in Khorasan were called at that time. A closer look at this writing reveals, however, that it is a textbook on the art of effective disputation rather than a polemic against the teachings of the Ta’līmiyya—a fact that may have contributed to this work’s wide reception in classical Muslim scholarship, as noted already by Ignaz Goldziher.⁴³

The book’s central argument is that knowledge and learning must be based on rational (syllogistic) conclusions, which follow the rules of logic as defined by rational philosophy and which can also be deduced from the Qur’ān.

The apparent inducement to write this treatise was the claim of the Ismailis that their (“hidden”) imams, whom the Ismailis believed to be infallible, are the only legitimate source of knowledge and authoritative “teaching” (*ta’līm*). Al-Ghazālī refuted this claim in this book (and again in his autobiography),⁴⁴ although he agreed with the fundamental premise that people need authoritative teachers. For him, however, the only and perfect “authoritative teacher” had come to humankind in the person of Muḥammad and his

41 On the difference between “proper definitions” (*al-ḥudūd al-ḥaqīqīyya*) and “descriptive definitions” (*al-ḥudūd al-rasmiyya*), see al-Ghazālī, *Miḥakk al-naẓar* 188. Al-Ghazālī is probably inspired here by Ibn Sīnā’s distinction between “real” and “nominal” definitions as dealt with in the latter’s *al-Ḥudūd wa-l-rusūm*; cf. Goichon, *Lexique* 56-58 (for *al-ḥadd*) and 143-143 (for *al-rasm*).

42 Ed. Victor Chelhot (Beirut 1959, ²1986, ³1991). [Engl. trans.:] Brewster, *Al-Ghazali. The Just Balance*, 1-112) and McCarthy, *Freedom and fulfillment*, 278-332. While McCarthy’s translation offers detailed insights into the terminological complexity of this text, I quote in the following Brewster’s rendering as the more fluent text. See also Hourani, “A Revised Chronology,” 300.

43 Goldziher, *Streitschrift des Ġazālī gegen die Bāṭiniyya-Sekte* 31. See also Kleinknecht, “Al-Qiṣṭās al-mustaqīm,” 159.

44 Brewster, *The Just Balance* xix-xx; Rudolph, Abū Ḥāmid al-Ġazālī, 356.

teachings, and there was no need among Muslims for “hidden imams” and, as he saw it, logically inconsistent Ismaili endeavors to characterize these imams’ teachings as authoritative.⁴⁵

2.4.1 Innovative Logic Terminology

Looking at al-Ghazālī’s method of portrayal in *al-Qiṣṭās al-mustaqīm*, we note that he frequently used logical argumentation, and syllogism in particular. This distinguishes him from earlier Ash‘ari theologians in the defense of (“orthodox”) Islamic faith, as the classical Muslim social historian Ibn Khaldūn (d. 808/1406) remarked.⁴⁶

Given this fact, it is somewhat surprising, at first glance, that al-Ghazālī did not use the Arabic term for logic (*al-mantiq*) even once in this work. Instead, he introduced the Qur’ānic terms for—and the image of—“the balance” (*al-qiṣṭās* and *al-mīzān*, pl. *mawāzīn*; twenty-three times in the Qur’ān) to promote the concept of correctly “weighing” arguments and assessing ideas based on strict and coherent logical principles. Compared to his earlier work on logic written in Baghdad, a few examples of significant terminological changes include:

Terms used in Baghdad	General meaning	Terms used later in Ṭūs
<i>‘ilm/fann al-mantiq</i>	the science/art of logic	<i>‘ilm al-mīzān</i> (knowledge of the balance)
<i>al-qiyās</i>	syllogism, <i>apodeixis</i>	<i>al-mīzān</i> (the balance)
<i>al-muqaddima / al-muqaddimāt</i>	premise(s), <i>prothesis</i>	<i>al-aṣl</i> (origin, cause, reason)

Furthermore, while the Arabic Aristotelian philosophical tradition speaks of Aristotle as “The first teacher” and al-Fārābī as “The second teacher,” al-Ghazālī reminded his readers that:

فالله هو المعلم الأول والثاني جبريل والثالث الرسول، والخلق كلهم يتعلمون
من الرسول، ما لهم طريق في المعرفة سواه.

45 See also Brewster, *The Just Balance* xix.

46 Ibn Khaldūn wrote, “In time, the science of logic spread in Islam. People studied it. They made a distinction between it and the philosophical sciences, in that logic was merely a norm and yardstick for arguments and served to probe the arguments of the (philosophical sciences) as well as (those of) all other (disciplines). [...] The first (scholar) to write in accordance with the new theological approach was al-Ghazzālī. He was followed by the imam Ibn al-Khaṭīb. A large number of scholars followed in their steps and adhered to their tradition.” Cf. Ibn Khaldūn, *Muqaddimah* (tr. Rosenthal i: 51-52 and 146); iii: 51. See also Brewster, *The Just Balance* 128 (n. 16).

God, Exalted Be He, is “the first teacher” (*al-muʿallim al-awwal*), [the archangel] Gabriel “the second,” and the Messenger of God “the third;” all Creation learns from the Messenger: there is no method [of learning] other than that (*Qisṭās* 43).

2.4.2 Metaphorical Imagery

At the end of his book, then, al-Ghazālī acknowledged—and apologized to his readers for—his techniques of (a) dressing well-known terms in a new garb, by “altering and changing the meaning of terms” (*fī-l-asāmī ... al-taghrīr wa-l-tabdīl*); and (b) “evoking images and using metaphors” (*al-takhyīl wa-l-tamthīl*; *Qisṭās* 101) to communicate ideas that are “complex and analytical” (*al-ʿaqd wa-l-tahlīl*).⁴⁷ While these methods of communication are well-known from several disciplines of classical Arabic-Islamic learning, including philosophical poetics and Qurʾānic exegesis, al-Ghazālī made his intention in this regard explicit in the concluding remarks of the book:

I beg my sincere (friends) to accept my excuses as they read these accounts, in so far as I have introduced complications or analyses, in so far as I have introduced changes or modifications in the names, and in so far as I have clothed these accounts with figurative meanings and images. Beneath all this is my true aim, a secret which will be clear to those who have insight (*Qisṭās* 101, tr. Brewster 111).

By relying on the image of “the balance” (a God-given instrument in the Qurʾān and a metaphor for reasonable prophetic argumentation), al-Ghazālī engaged here, first and foremost, those in his audience who are well-versed in Islam’s revealed scripture, where the balance occurs both to illustrate God’s omnipotence (Q 2:258) and as a criterion of guidance (Q 34:24), to mention only two aspects. However, “the balance” as an instrument for ensuring equal weight distribution and, figuratively, keeping things upright and steady is also well known in profane contexts of everyday life. Thus using its image appears to be a powerful means of instruction to a more common public in the complex matter of logical reasoning. In addition, and no less importantly, this communication strategy may have also had an instant appeal to those otherwise averse to abstract thinking—including, in particular, the Ashʿari (“orthodox”) theologians. It may have helped prompt them to perceive reasoning from a new perspective and accept it as a valuable tool for problem-solving, something they eventually did.

47 See also Kleinknecht, “Al-Qisṭās al-mustaqīm,” 160.

Notably, the above-quoted passage is followed by al-Ghazālī's warning not to change the order of instructions he gave in this book, as that would jeopardize "the balancing" of rational learning with the traditional religious teachings of Islam. Expressed differently, this would mean to ensure that that "which can be intellectually learned" (*al-ma'qūlāt*) is brought into balance and on a level with that "which is conveyed through tradition" (*al-manqūlāt*). To this effect, al-Ghazālī stated:

Beware lest you change this structure and try to extract these meanings from their clothing. I have taught you how to measure *that which is intelligible* by reference to *that which is transmitted* so that it may be the quicker accepted.

Beware also of making *that which is intelligible* the basis and *that which is transmitted* into *that which follows and comes after*. That is odious and detestable. God has commanded you to put aside all that which is odious and to dispute in the best manner.

Beware of differing from this command, for you will perish and cause others to perish, you will go astray and lead others astray (*Qisṭās* 101, tr. Brewster 111-112; italics mine).

2.5 *The Foundations of Analogical Reasoning (Asās al-qiyās)*

Islamic jurisprudence (*fiqh*) deals with the interpretation of the Islamic law (*sharī'a*) derived from the Qur'ān, the sayings and actions of the Prophet Muhammad (*ḥadīth*), consensus (*ijmā'*), and analogical reasoning (*qiyās*). In *The Foundations of Analogical Reasoning*, al-Ghazālī made a significant contribution to Islamic jurisprudence on several levels. He offered a reformulation of *al-qiyās* within a legal-hermeneutical framework, endeavoring to harmonize rational analysis with the divine sources of law, and underscored that the "correct" application of *al-qiyās* remains faithful to the spirit of the *sharī'a* while allowing for reasoned elaboration.

A core argument in this book, however, is that the legal application of *al-qiyās* is distinct from its philosophical usage. Al-Ghazālī presented this view in answer to questions raised by a student—actual or fictitious—as to what *al-qiyās* is, why people differ on its nature and use, and how it relates to "authoritative instruction" (*al-tawqīf*).⁴⁸ Al-Ghazālī expressed this as follows:

48 By *al-tawqīf*, al-Ghazālī "seems to mean something akin to revelation. His usage of authoritative instruction aligns with the definition found in the *Tāj al-'arūs*, "In the Law, authoritative instruction means an unequivocal, revealed text (*al-tawqīf fi al-shar' ka-l-naṣṣ*)" [cf. "tawqīf" in *Tāj al-'arūs*]. In his recurring claim, for instance, that "Law is either derived from authoritative instruction or *qiyās*," it seems as though al-Ghazālī is using the term "authoritative instruction" specifically to mean the necessary knowledge

Know that it is invalid to hold that *qiyās* operates within the Law if *qiyās* is understood as a kind of concept that is opposed to authoritative instruction [*al-tawqīf*, a term that refers to the divine revelation and its role as the ultimate source of Islamic law], such that it could be said: “the Law is derived either from *qiyās* or authoritative instruction.” God forbid that this be so! The Law, [in fact,] is entirely authoritative instruction. ... What sky would cover us and what earth support us if we founded the Law by means of our own opinion and our reason? (*Asās*, 33, tr. Saba, *The Foundations* 65).

Near the end of the book, in the chapter “On explaining the meaning of the word *qiyās* in a manner that does not oppose it to authoritative instruction” (*Asās* 103-104), al-Ghazālī revisited the issue by stating that the term *al-qiyās* involves multiple meanings. According to one understanding, it was determined as purely independent reasoning, opposing authoritative instruction. This view was to be rejected, as “this is what ... the *Zāhirīs* and the *Ismāʿīlīs* invoke to slander us,” al-Ghazālī concluded. The more nuanced and suitable view he advocates, however, acknowledges the vital role of *al-qiyās* in Islamic law under the strict condition that its application and outcomes remain within the framework of authoritative instruction. Thus employing *al-qiyās* in legal (and theological) matters must always follow—and never oppose—revelation.

This understanding is also evident in the two categories of legal rulings that al-Ghazālī used to clarify his point:

1. Static ritual and decreed juridical rulings whose meanings cannot be rationally understood (e.g., throwing pebbles during Hajj);
2. Rationally understandable judgments with explicit purposes (e.g., using stones for cleanliness or charitable spending to reduce poverty).

Both kinds of judgment are based on authoritative instruction (*al-tawqīf*), but only the rationally understandable judgment (no. 2) involves a clear and rational intention; it alone can be reached through the process of *qiyās*.⁴⁹ Furthermore, since authoritative instruction would often refer to purely

contained within revealed texts, and “*qiyās*” as a proxy for acquired knowledge obtained from these texts through intellectual reasoning. Such authoritative instruction is contained entirely within revelation, whereas *qiyās* requires human intervention. Such duality finds echoes in debates from earlier centuries regarding the formulation and elaboration of Islamic law, as Saba, *The Foundations* 27-28, pointed out, with reference to *Asās*, 103 and *tawqīf* in *Tāj al-ʿarūs*.

49 Al-Ghazālī, *Asās* 104; see also Saba, *The Foundations*, 69-70.

authoritative acts without a clearly understood intention,⁵⁰ *al-qiyās* can make rulings derived from authoritative instruction “rationally understandable” (*Asās* 103-104; *Foundations* 69-71).

In other words, al-Ghazālī did not refute *al-qiyās* as long as it operated within the framework of authoritative instruction. As long as the primacy of authoritative instruction (as contained in the revealed texts on which the *sharīʿa* is based) is acknowledged, *al-qiyās* is acceptable and valuable. Taking this into account, *al-qiyās* is defined to be a form of reasoning that:

- a. falls under the broader category of authoritative instruction and
- b. is used within the framework of authoritative instruction as a specific method of deriving rulings of the Law.

Given that *al-qiyās* is recognized by all four main Sunni schools of law as a jurisprudential source, al-Ghazālī specified that there is “juridical *qiyās*” (*al-qiyās al-sharīʿī*), denoting “analogical reasoning,” and “rational *qiyās*” (*al-qiyās al-ʿaqlī*), signifying “syllogistic reasoning.”⁵¹ He also introduced the term *aṣl* (lit.: “root”) for “premise” in place of the conventional philosophical term *muqaddima*, for example, thus aligning logical principles with legal discourses. This alignment served him to offer a broader, more inclusive conceptualization of *al-qiyās*; one that bridges the gap between philosophical and legal terminology.

Al-Ghazālī’s account of *al-qiyās* in this book on Islamic jurisprudence underscores the implications of analogical reasoning (*al-qiyās*) not only in matters of *fiqh* but also for broader contexts of learning and education. By legitimizing analogical reasoning in legal issues, al-Ghazālī encouraged a comprehensive, critical, and logic-based way of learning in Islamic law and, by extension, in other fields of scholarship where rational understanding is crucial.

2.6 *The Quintessence* (al-*Mustaṣfā*)

Last on our list is *al-Mustaṣfā*, a handbook on legal theory that exerted tremendous influence not only on the field of later *uṣūl al-fiqh* studies but also on the classification of the sciences in Islam. Ibn Rushd (d. 598/1198),

⁵⁰ Al-Ghazālī’s “rectification” of the (mis)understandings of *al-qiyās* aimed to show that, first, “the correct use of *qiyās* ... is deeply rooted in orthodoxy” (Porcasi, “On the Islamic Judicial Logic,” 72) and second, it is relevant to scholars beyond Islamic jurisprudence (Hallaq, “Logic, Formal Arguments and Formalization of Arguments,” 315).

⁵¹ Saba, *The Foundation* 25.

for example, is credited with having written an epitome of al-Ghazālī's book, entitled *Mukhtaṣar al-Mustaṣfā* (*Abridgment of The Quintessence*).⁵²

This work was compiled by Al-Ghazālī in response to a request from his students at the Nizamiyya madrasa in Nishapur. While a general indication of such "requests" was conventional in works of those times, in this case the author was more specific, as he stated that he had put the book together in his "spare time between writing and lecturing on the scriptural sciences" (*al-'ulūm al-shar'īyya*).⁵³ He also specified his goal as a writer, teacher, and educationalist, saying he wished to provide a text that "meticulously combine[s] compilation and investigation ... in a manner that appeals to understanding." Indeed, he said, this book was intended to take "a middle road between being insufficient [and too brief] and tedious [by giving too much information]." It should be unlike his extensive compendium *Tahdhīb al-uṣūl* (*Refining the Principles [of Law]*),⁵⁴ which he saw as being "too exhausting and lengthy." However, it should also be different from *al-Mankhul fī 'ilm al-uṣūl* (*The Sifted from the Science of the Principles [of Islamic Law]*), which he characterized as "too brief and concise."⁵⁵

Remarkably, the main text of this book on legal theory is prefixed by an introduction dedicated to logic. The significance of this exposition was characterized by al-Ghazālī as follows:

وليسست هذه المقدمة [المنطقيّة] من جملة علم الأصول، ولا من مقدماته الخاصّة به، بل هي مقدّمة العلوم كلّها، ومن لا يُحيطُ بها فلا ثقة له بعلومه.

This [logical] introduction is neither part of the knowledge of the principles [of law] nor its specific premises. Instead, it is the [indispensable] premise for all the sciences. He who has no full grasp of it, his knowledge of any science is doubtful.⁵⁶

Likewise, the educational benefits of *al-Mustaṣfā* and this book's broader implications for learning are made explicit. Thus the author clarified that, with this compilation, "the reader can at once become aware of all the aims of this science [of legal principles] and benefit from the incorporation of all the

52 Ibn Rushd, *al-Ḍarūrī fī uṣūl al-fiqh* (Beirut 1994). See also Bou Akl's *Averroès: Le Philosophe Et La Loi*, which contains a summary of al-Ghazālī's *al-Mustaṣfā*.

53 Al-Ghazālī, *al-Mustaṣfā* 5. Al-Ghazālī repeated this acknowledgment in his autobiography, *al-Munqidh* (cf. Hourani, "The Chronology," 226; Hourani, "A Revised Chronology," 291, 301).

54 Hourani, "A Revised Chronology," 292.

55 Al-Ghazālī, *al-Mustaṣfā* 5; tr. Ḥammād, *Juristic Doctrine* ii, 305.

56 Al-Ghazālī, *al-Mustaṣfā* 15.

areas of thought within it; for [generally speaking,] every science in which the student *cannot* get to its crucial points and foundations at the outset leaves him no chance of attaining its inner secrets and aspirations.”⁵⁷

While statements like this advocate a systematic and reasonable approach to learning, in which the student proceeds from the fundamentals of a discipline to its more intricate topics, the entire learning process must, for al-Ghazālī, nonetheless take place under the umbrella of and in furtherance of faith in God and individual spirituality. This is evident in the first sentences of this book, where the author asserted two central points: first, that there is an agreement between reason and revelation; and second, that this world is “a station of transit,” not “an abode of everlasting residence.” Only when learners accept this ultimate insight will they see that knowledge is “the most profitable and prosperous part” of their obedience to God.⁵⁸

Thus al-Ghazālī appealed to readers—students and educators alike—not to disconnect knowledge acquisition and learning from how things have conventionally been done or are thought to have been done in the past. Only an integrative approach to learning and teaching and one that gives equal credence to, and links, “the intellect” (or reason, *al-ʿaql*) with “the revealed knowledge” (*al-samʿ*) would provide the legitimate foundation for current religious practices and human development. He specified this by saying:

وأشرف العلوم ما ازدوج فيه العقل والسمع، واضطحَب فيه الرأي والشرع.

The noblest science is the one in which reason (*al-ʿaql*) and revealed knowledge (*al-samʿ*, lit.: “the aurally received”) are joined together and in which individual opinion and sacred law escort one another (*al-Mustasfā* 4).

This, in turn, would also mean that reason and revealed knowledge do not merely complement each other; rather, if we interpret al-Ghazālī correctly, they serve as each other’s correctives; and neither the sole use of the intellect nor the exclusive reliance on revealed knowledge is adequate.

No less importantly, learners must begin their training with a close study of the basic propositions of a subject matter before moving to specific and more complex issues. Al-Ghazālī encouraged this approach by saying:

فكل علم لا يستولي الطالب في ابتداء نظره على مجاميعه ولا مبانيه، فلا مطمع له في الظفر بأسراره ومبانيه.

57 Al-Ghazālī, *al-Mustasfā* 5; tr. Ḥammād, *Juristic Doctrine* ii, 305 (slightly adjusted).

58 Al-Ghazālī, *al-Mustasfā* 4; tr. Ḥammād, *Juristic Doctrine* ii, 302.

So, if the student does not grasp the universal rules and established foundations at the beginning of his examination of a given science, he can in no way hope to gain knowledge of the inner secrets and ultimate aims of that science (*al-Mustasfā* 5).

On the macro level, advanced students and scholars must know how to distinguish the virtues of life and existence from the ways people interact in this world. On the micro level, they must study the properties that an object necessarily must have or possibly could have. Al-Ghazālī affirmed in this regard:

أَنَّ الْحَادِّ يَنْبَغِي أَنْ يَكُونَ بَصِيرًا بِالْفَرْقِ بَيْنَ الصِّفَاتِ الدَّائِمَةِ، وَاللَّازِمَةِ، وَالْعَرَضِيَّةِ.

He who defines [a concept] must distinguish between its essential, concomitant, and accidental properties.⁵⁹

Again, the components of al-Ghazali's conception of education, as indicated in this legal compendium, are deeply rooted in Aristotelian logic. This is also apparent in the definition of *al-burhān* ("demonstrative proof," "conclusive argument;" Greek: *apodeixis*) that he gave students and scholars of jurisprudence and theology to use as a tool for reasoning and establishing proof. He said:

وَالْبُرْهَانُ عِبَارَةٌ عَنْ مَقْدَمَتَيْنِ مَعْلُومَتَيْنِ تُؤَلَّفُ تَأْلِيفًا مَخْصُوصًا بِشَرْطٍ مَخْصُوصٍ، فَيَتَوَلَّدُ مِنْهُمَا نَتِيجَةٌ.

[Demonstrative] proof (*al-burhān*) consists of two known premises which are arranged according to a specific form [i.e., the two components of syllogism as known in Aristotelian logic] and under a specific condition so that, from the two, a result can be deduced.⁶⁰

While *al-burhān* in the Qur'ān signifies a "clear light" coming from God (Q 4:174) and "evidence" of the Lord (Q 12:24), in Islamic law it refers to the quality of certitude, based on an argument of authority. This argument can be either a

59 Al-Ghazālī, *al-Mustasfā* 20.

60 Al-Ghazālī, *al-Mustasfā* 57. In Islamic law, *al-burhān* "refers to the quality of certitude (based upon an argument of authority, which can be either a scriptural text or the eye-witnessing of an obvious fact) which is proper to reasoning 'in two terms,' in order to prove the radical distinction between or the identity of two comparable 'things'" (cf. Gardet, "Al-Burhān," *El2*).

scriptural or otherwise canonical text, or the eye-witnessing of an obvious fact. Thus proper reasoning needs to be conducted “in two terms” in order “to prove the radical distinction between or the identity of two comparable ‘things’ and to conclude: ‘certainly,’ ‘it is so.’”⁶¹

However, according to al-Ghazālī, most theologians and jurists of his time were unfamiliar with the rules of deriving conclusions from evidence and reasoning as rooted in logic. Or they took the method of gaining knowledge by inference too lightly. This was evident, he said, since:

وأكثرُ قِيَاسَاتِ الْمُتَكَلِّمِينَ وَالْفُقَهَاءِ مَبْنِيَّةٌ عَلَى مَقَدِّمَاتٍ مَشْهُورَةٍ يُسَلِّمُونَهَا
بِمَجْرَدِ الشُّهُورَةِ. . . . فَلِذَلِكَ تَرَى أَفِيستَهُمْ تُنتِجُ نَتَائِجَ مُتَنَاقِضَةً

Most syllogisms of theologians and legal scholars are based on generally known premises, which are accepted merely because they are well-known (i.e., they confirm them with common sense). For that reason, you find that their analogies lead to contradictory conclusions.⁶²

To show a way out of this situation, al-Ghazālī emphasized in the first pages of this book (as pointed out above) the need for study material to be accessible and structured in a way that allows students to move from elementary to more complex ideas. Along these lines, he draws the reader’s attention to the purpose and methods of knowing, as well as the sequence of extracting (legal) rules from the sources. Four steps, or “poles” (*aqtāb*, sing. *quṭb*), that have educational value are identified in this respect:

1. Examining the rules (*al-ḥukm*);
2. Examining sources and their classifications (*al-adilla*);
3. Examining the method of deducing rules from the sources (*ṭarīq al-istithmār*); and
4. Probing the professional qualification of the scholar who conducts empirical research (*al-mustathmir*) and extracts the rules mentioned above.⁶³

With these directions, al-Ghazālī set the general tone for the *al-Mustaṣfā*. At the same time, he produced a short list of crucial pedagogical advice: (1) Students need to determine and (2) familiarize themselves with the approach they

61 Gardet, “Al-Burhān,” *Elz*.

62 Al-Ghazālī, *al-Mustaṣfā* 72.

63 Al-Ghazālī, *al-Mustaṣfā* 10-11; tr. Ḥammād, *Juristic Doctrine* ii, 315.

choose to take in learning; only then may they move on to the sources they study and scrutinize them. This is followed by (3) a re-examination and adjustment of their study methods.

In the long run, however, the success of any study or research activity will (4) depend on the academic training and professional experience of the student or scholar.

3 Conclusion

In his autobiography, *al-Munqidh min al-ḍalāl*, and several other works that al-Ghazālī wrote at a mature age, this classical Muslim thinker attached great significance to the spiritual experience and intuitive aspects of learning. Al-Ghazālī's concept of knowledge acquisition and education, as evident in these writings, displays his firm belief in divine omnipotence and adherence to the Ash'ari theoretical school, with its "specific doctrines relating to the nature of the divine attributes and to theodicy." To such doctrine, al-Ghazālī "contributed little that was new, except, perhaps, a certain stylistic lucidity and verve in re-expressing them," as Michael Marmura once observed; not, however, without highlighting the chief contribution al-Ghazālī made in "defining the Ash'arite position in relation to the metaphysical and the other sciences expounded by the philosophers of medieval Islam"—something that was critically needed in fourth and fifth (10th and 11th) century Islam.⁶⁴ Yet, as Nabil Nofal put it, "al-Ghazali's philosophy was more an expression of the spirit of the age in which he lived than a response to its challenges; his thinking on education, as indeed his philosophy, favored continuity and stability over change and innovation."⁶⁵

Al-Ghazālī's appraisal of logic—specifically, Aristotelian logic as a formal discipline—and its culmination, demonstration, along with his integration of demonstrative logic into ("orthodox") Ash'arite theology, have come to be appreciated as significant constituents of al-Ghazālī's enduring legacy as a scholar and religious reformer. By designating these rational approaches and tools of knowledge acquisition as "doctrinally neutral," he rendered logic and (syllogistic) demonstration relevant to religious Muslim scholars,⁶⁶ he popularized them among the theologians and, to a lesser extent, the jurisconsults, and made them more widely available to the oral and written discourses of students and scholars in the Islamic religious disciplines.

64 Marmura, "Ghazālī's attitude to the secular sciences and logic," 100.

65 Nofal, "Al-Ghazālī," 524.

66 Marmura, "Ghazālī's attitude," 105.

From today's educational perspective, using logic in teaching is invaluable in getting students interested in their study subjects and engaged in scholarly discussion. Moreover, logic and demonstration encourage students to think critically and understand how scientific knowledge differs from other sorts of cognition. These points are especially relevant in the contemporary pedagogical context, with the large amounts of information to be "digested" and evaluated by students, and thus the absolute need for teachers to choose subject matters wisely, reduce them to the essentials, and employ effective teaching methods in communicating them. Against this background, several of al-Ghazālī's key ideas on learning are particularly appealing in the current context of education:

First and foremost, al-Ghazālī propounded various reason-based techniques for knowledge acquisition that support grasping individual ideas and dealing with complex concepts. These include **definition** (*al-ḥadd*) as a way of specifying an expression's meaning or conceptional content. Nevertheless, we are also told that one must see that one term may have acquired different meanings in different disciplines, which leads to other definitions and, in turn, applications of these terms (*Miḥakk* 205-206).

Another beneficial practice is **description** (*al-rasm*), which supports teaching—and learning—about an object or idea indirectly: Objects and truths other than those at the center of the teaching and learning process can help mediate, illustrate, and exemplify the central object or idea of instruction. This kind of "mediated learning," however, requires ample professional competence on the part of the teacher in communicating with students, developing their potential, and structuring the new information they are expected to assimilate.

Using an existing text or another supplementary "proof" of information (*al-ḥujja*), **evidence-based argumentation** is a teaching strategy that helps students obtain "affirmative knowledge," i.e., knowledge one can agree with and accept as valid. In evidence-based instruction, the respective data, findings, expert opinions, anecdotes, and other indicative examples support the communication of ideas and strengthen conclusions.

The **syllogism** (*al-qiyās*), as a form of deductive argument, facilitates moving from the general to the specific. In teaching, syllogisms help summarize complex ideas and arrive at reasonable conclusions. Although conceptually and terminologically complex at first glance, this kind of reasoning, when simplified, helps instruct even young students to think, speak, and communicate "logically." It may teach students to behave reasonably, analyze everyday situations, engage in problem-solving, and come to sensible solutions. In other words, this kind of logical thinking trains young and more advanced students alike in critical assessment and decision-making. This may extend to

familiarizing students with the rules of interpersonal ethics and building up their ethical competencies.

Induction (*al-istiqrāʿ*), or, more generally, investigation and examination, often go beyond direct observation. In learning, these concepts concern studying matters of the past, evaluating occurrences in the present, and drawing conclusions for the future. With *al-istiqrāʿ* meaning induction or inductive argument, we must recall here that some Western thinkers in the history of philosophy were skeptical about induction and even called it “unjustifiable and dispensable.”⁶⁷ Al-Ghazālī mentioned *al-istiqrāʿ* together with other ways of rational learning and seems to have prioritized the word’s primary meanings in Arabic: investigation and examination. From this perspective, al-Ghazālī appears to have encouraged students to use the method of induction in learning (when dealing with theological matters, to a lesser extent when dealing with legal matters). He advised them to engage deeply with a variety of examples and instances rather than relying on limited or superficial observations of a matter. However, only a “comprehensive” inductive approach leads to definite knowledge (*al-ʿilm*) as opposed to mere conjecture (*al-ẓann*) (*Miʿyār* 163). Such evidence-based inquiry and reason of a subject may result in uncovering and learning about the true (or universal) nature of ideas and things, as observations of particular cases lead to the formulation of general principles or conclusions.

In contemporary pedagogy, induction and investigation are applied to physically and mentally engage students in active learning. They are considered helpful in teaching students how to derive broader principles from specific observations and form abstract concepts from particular examples. They also motivate learners to practice self-directed studying and, to some extent, take responsibility for their learning outcomes. These points accentuate the practical advantages of using induction and investigation as systematic processes of inquiry and exploration in today’s schooling contexts.

The **paradigm** (*al-tamthīl*) refers to a model or example used to illustrate a general principle or to serve as a standard for comparison. As such, the paradigm is closely related to the concept of induction, as the paradigm, too, involves reasoning from particular examples to general principles. It uses specific instances to illustrate broader rules or concepts. In education, paradigms help explain complex ideas and make them more accessible so that learners grasp the underlying logic.

Exemplification basically means comparing two or more things or ideas based on evidence to reach conclusions. In logic, it is related (and has been since Aristotle) to inference in the sense of carrying forward logical conclusions

67 Salmon, “Problem of induction,” 746.

from their premises. *In education*, it is a way to infer new knowledge from that which one already knows or believes to know, which often results in the formulation of novel abstractions.⁶⁸ The technique of analogy is an old yet powerful concept.⁶⁹ At the same time—on a side note—it also underlies the new, generative powers of artificial intelligence, including chatbots like ChatGPT (“Generative Pre-Trained Transformer”), which apply so-called “analogy features” to simplify complex ideas and respond to questions.

Second, we must bear in mind how al-Ghazālī framed his instructions. As was noted before, there is a statement in his autobiography which says that al-Ghazālī wanted “to tell the story of [his own] case” while not expressing disapproval of anyone who takes a different direction in learning and religious doctrine.⁷⁰ This account seems to indicate two objectives: first, communicating one’s own life and learning experience, as it builds trust and opens up the interlocutor’s heart and mind; and second, refraining from imposing one’s own views and from disapproving of other people’s values and traditions, in order to facilitate one’s acceptance as a writer, mentor, and educator. Also, **storytelling** in an educational context is seen to help teachers establish a personal connection with the students. An educator-learner interaction in which the teacher eases the sensemaking process on the student’s part by sharing individual experiences promotes the exchange and assimilation of expert knowledge.

Third, al-Ghazālī also offered specific directions to students and teachers, as listed in the following examples.

68 Gentner, “Reasoning and Learning by Analogy,” 32-34; Richland and McDonough, *Learning by Analogy*, 28-43.

69 In appreciation of the overall importance that al-Ghazālī assigned to logic in several of his works, and in his *Mī‘yar al-‘ilm* in particular, a 2019 study of that book carried out at the National University of Malaysia suggested that *Mī‘yar al-‘ilm* “should be a fundamental source of learning logic” and thinking methods for Muslim high school and university students (cf. Towpek and Salleh, “The Objectives and References of *Mī‘yar al-‘ilm*,” 72).

70 This somewhat “lenient” stance in *The Deliverer from Error*, written at a late stage of al-Ghazālī’s life (between 499 and 504 / 1108 and 1110, after he had gone through a profound spiritual and intellectual crisis), stands in contrast to his sharp criticism of certain Aristotelian philosophical doctrines that al-Ghazālī identified as fundamentally incompatible with Islamic teachings in his earlier, seminal work, *Tahāfut al-Falāsifa* (*The Incoherence of the Philosophers*, completed in 488/1095). See also note 8 in this paper. On al-Ghazālī’s *fatwā* against Aristotelian philosophy, see Griffel, *The Formation*, 112-122 (“The Legal Background of al-Ghazālī’s *fatwā* on the last page of his *Tahāfut al-falāsifa*”), and 152-159 (“Was al-Ghazālī’s *fatwā* Ever Applied?”). Griffel concluded here that this *fatwā* “proved to be too big a pill for Muslim jurists to swallow” and offers reasons why this might have been the case (cf. *ibid.*, esp. 154).

Students are advised to:

- Draw general conclusions only from meaningful and reliable evidence;
- Always examine data critically;
- Connect related bits of information to form a consistent overall picture;
- Combine the learning of given subject matters (learning content) with an exploration of their structure and forms; this aids in understanding the relation of premises to conclusions, for instance (*Miḥakk* 60); and
- Express study results and findings clearly and plausibly (*Mi'yār* 207-242).

Teachers are counseled to:

- Begin instruction by teaching individual pieces of information (the particulars) before moving on to broader, universal phenomena (the composites). This is a safe way to prompt students to distinguish between true and false (*Miḥakk* 53-55);
- Back up the instruction of facts and ideas with suitable examples;
- Illustrate with facts and ideas that the students can relate to or already know in some way. This recommendation relates to the deep-rooted principle that students can best acquire “what is unknown” through “what is known.” Along the same lines, teachers are encouraged to:
- Communicate with their students in no other language than their own (*Mi'yār al-'ilm* 61);
- Use unambiguous diction to avoid misunderstandings on the students' parts (*Miḥakk* 63-64);
- Include metaphors in instruction since these are a powerful means of advancing the students' immediate and lasting understanding. Metaphors evoke vivid images and allow us to see subject matters differently. They help in creative problem-solving and ease the understanding of complex ideas (*Qistās* 101); and
- Point out possible errors that may occur in learning. These include (a) generalizations based on too little evidence, (b) the failure to examine all aspects of an issue thoroughly and critically, and (c) neglecting to look for the link between the cause and effect of an issue (or the antecedent and consequent in a statement) (*Mi'yār* 207-242).

Al-Ghazālī, as a writer and teacher, also requested that his readers not change the order of instructions he had provided in his *al-Qistās al-mustaqīm*. In a contemporary context, this could translate into the advice to:

- Consistently follow a well-thought-out study plan. This helps students navigate the learning universe, aids them in accessing and assessing

the information taught, and eases their way to the intended learning outcomes (*Qisṭās* 101).

For both students and scholars, it is necessary to:

- Familiarize themselves with the rules of rational inquiry: Logic is considered the conducive basis of understanding in several scientific disciplines, including theology and law, and
- Acquaint themselves with the terminology distinct to a given study area before reviewing the concepts of the respective discipline (*Mihakk* 53-55).

Fourth, al-Ghazālī argued that intellectual knowledge acquisition must be based on rational thought, even in religious education. This is particularly evident in his lengthy introduction to logic that precedes his influential handbook on legal theory, *al-Mustasfā min ‘ilm al-uṣūl* (*The Quintessence of the Science of the Principles [of Islamic Law]*). Moreover, applying logic in learning contexts is advisable and legitimate since its use is guarded by the respective “similar” instructions on using the intellect and learning given in the Qurʾān. This insight is of overall relevance to Muslim education. By using the Qurʾānic expression *al-qisṭās al-mustaqīm* (Q 17:35, 26:182) in the title,⁷¹ al-Ghazālī programmatically promoted an approach to learning that “**balances**” the **use of philosophical logic with** the frequent statements on the use of the intellect and reasoning evident in **Islam’s sacred scripture** (e.g., *Qisṭās* 43-44; tr. Brester 6-7).

From this perspective, I view this book as an attempt by al-Ghazālī to do nothing less than ‘Qurʾānicizing’—and thus Islamicizing—Aristotelian logic. Or, to use the words of Josef van Ess regarding *al-Qisṭās al-mustaqīm*, al-Ghazālī “adopted Aristotelian logic instead of the traditional system of signs and analogies deeply rooted in the heritage of generations. Like many other decisions of [al-Ghazālī’s, this was] revolutionary without being entirely new.”⁷²

This development in al-Ghazālī’s view on logic as a tool of learning and studying is also evident and reinforced, again from a different perspective, in *The Foundations of Analogical Reasoning* (*Asās al-qiyās*). This work’s central theme is the delicate balance between *al-qiyās* and authoritative instruction (*al-tawqīf*), reason, and revelation. It once again demonstrates his commitment

71 The Quranic term *al-Qisṭās al-mustaqīm* is translated by Abdel Haleem as “accurate scales” and “correct scales” and in *The Study Quran* as “straight balance” and “right balance,” meaning “to measure honestly, rather than cheating people when trading goods and currency by using a balance that falsely overstates or understates the weight of what has been placed upon it” (cf. *The Study Quran*, on Q 17:35).

72 Ess, “The Logical Structure of Islamic Theology,” 47.

to (orthodox) Islamic teachings while integrating rational methods into them. This approach is educationally significant, as it exposes how classical Muslim scholarship embraced and promoted rational thought within the boundaries of religious doctrine.

One might ask at this point how successful al-Ghazālī's novel ideas in applying logic in the Islamic religious sciences actually were. A provisional answer to this is that they appear to have received a mixed reception among Muslim scholars of later generations. Josef van Ess, for example, in a 1979 study, observed that the theologians, the *mutakallimūn*, approved of them, "although with hesitation," and his reforms in the use of logic seem "to have been of no influence in *uṣūl al-fiqh*."⁷³ And prominent scholars such as Ibn al-Ṣalāh al-Shahrazūrī (d. 643/1245), Ibn Taymiyya (d. 728/1327), and Jalāl al-Dīn al-Suyūṭī (d. 911/1505) voiced explicit criticism of al-Ghazālī, calling the use of syllogism and (Aristotelian) logic unnecessary while appealing for a return to the insights and scientific methods of the early times of Islam.⁷⁴ However, the candid criticism expressed by scholars of later times against al-Ghazālī's ideas on the use and usefulness of logic (*al-manṭiq*) could also be read in a different way; namely, that al-Ghazālī's endorsement of logic as a means of learning was decisive, if not formative, for the religious sciences of later classical and post-classical Muslim scholarship, for whom logic had become instrumental and a part of their regular study and expert practice.⁷⁵

Fifth, regarding the chronological sequence of al-Ghazālī's approaches to logic and reasoning, we note a shift in his educational thought. In several earlier works written while he was teaching at the Nizāmiyya madrasa in Baghdad (i.e., *Maqāsid al-falāsifa*, *Mi'yār al-'ilm*, and *Miḥakk al-naẓar*), al-Ghazālī's main objective was to familiarize his religiously oriented audience with the concepts and the tools of rational learning so that these could be introduced to and used in the religious disciplines. However, during the last decade of his life, al-Ghazālī was more concerned with promoting the idea of balancing rational learning with the traditional religious teachings of Islam (as is evident in *al-Qiṣṣ al-mustaqīm*, *Asās al-qiyās*, and *al-Mustasfā*). This

73 Ibid., 49.

74 Ibid., 49-50. See also Porcasi, "On the Islamic Judicial Logic," 108-110.

75 The use of efflorescence in the rational sciences among Muslim scholarship of the Ottoman Empire has been extensively documented and studied by El-Rouayheb, *Islamic Intellectual History*, with two more references to al-Ghazālī and Fakhr al-Dīn al-Rāzī (606/1209). Their endorsements of logic seem to have initiated a more general trend in the Islamic world; one that accorded increased importance to the rational and instrumental sciences (see *ibid.* 117). Explicit references to al-Ghazālī's view on logic in some works of later Muslim scholars are part of El-Rouayheb's "Sunni Muslim Scholars on the Status of Logic." However, more research is undoubtedly needed to clarify how and to what extent al-Ghazālī's respective views influenced later Muslim scholarship.

apparently meant for him to acknowledge and implement, in the discourse of religious scholarship, the concept that that “which can be intellectually learned” (*al-ma‘qūlāt*) is as significant to learning and human development as that “which is conveyed through tradition” (*al-manqūlāt*). This subtle though essential **modification in approaching logic** was probably due to al-Ghazālī’s own life experience; that is, the spiritual crisis he had undergone in the year 488/1095, and the new prominence that “evaluating the moral value of human actions” afterward gained in his oeuvre.⁷⁶ However, it may have—perhaps even more—to do with al-Ghazālī’s determination to integrate several principles of logic and reasoning permanently in the curriculum of Ash‘ari (“orthodox”) Muslim scholarship—an effort that would prove successful.

Finally, alongside reflective thinking, analytical study, and deductive reasoning, al-Ghazālī used the word “illuminating” or “enlightening” (*al-tanwīr*) in *The Criterion of Knowledge* to describe how teachers explain the use of deductive reasoning in learning. As it appears in this particular passage, this expression may mean nothing more than comprehensively instructing learners to draw logical conclusions from given premises. However, given al-Ghazālī’s careful choice of words throughout his scholarly oeuvre, one wonders whether there is not a more profound sense behind this expression.

While for Plato, it was “the power of reason” that can “illuminate and give us knowledge through our access to the forms in the immaterial realm,”⁷⁷ for al-Ghazālī, it “was the effect of a light which God Most High cast into [his] breast” that, as he confirmed in his autobiography, “is the key to most knowledge; ... from that light, then, the unveiling of truth must be sought” (*Deliverer* §§ 13, 15).

Indeed, looking closely at al-Ghazālī’s writings, especially his mystical works, we see that they are “replete with Neoplatonic light symbols.” These **light symbols** seem to have helped him “span a bridge between orthodox religious beliefs and philosophy” (as several contemporary al-Ghazālī researchers have indicated) while at the same time profoundly grounding his thought in Qur’ānic verses, hadith epigrams, and literary parables.⁷⁸ Particularly significant for education is al-Ghazālī’s idea that *learning by reasoning in combination with*

76 Griffel, *al-Ghazālī’s Philosophical Theology* 43.

77 As Plato demonstrated in the *Meno*, “where Socrates shows that a slave boy with no apparent knowledge of Pythagoras’s theorem nevertheless knows the theorem after being led through a series of simple logical steps. This would not be possible, contends Plato, if the slave boy did not already possess the geometrical ideas of line, square, right-angled triangle and basic powers of reasoning (Plato, *Meno*, 82 b-85b),” as Ozoliņš, “Aquinas, Education and the Theory of Illumination,” 968, put it.

78 Lazarus-Yafeh, *Studies in Al-Ghazzali*, 264-268 (“Symbolism of Light in Al-Ghazzālī’s Writings”).

illumination leads to the purification and perfection of the soul. It cleanses the soul of vile morals and ignorance and makes Divine truth apparent to the human mind in its clear and distinct reality.

This inseparable connection of the numerous vital aspects of intellectual learning with the respective spiritual components of human existence (*Maqāṣid* 6-7) is perhaps one of the hallmarks of al-Ghazālī's educational legacy, and one that we can carefully build on in contemporary education. However, al-Ghazālī also made it clear that the ability to combine rational and spiritual learning must be acquired by students in an educational process and taught by teachers familiar with these important learning components. This is a task for all of us as educators today.

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