

## Islamic Epistemology in Islamic Religious Education in the Algorithmic Era: A Conceptual Analysis of Bayani, Burhani, and Irfani

Khairul Umam<sup>1\*</sup>, Eva Dewi<sup>2</sup>

Universitas Islam Negeri Sultan Syarif Kasim, Indonesia<sup>\*1, 2</sup>

<sup>\*1</sup>email: [umamkairul@gmail.com](mailto:umamkairul@gmail.com)

<sup>2</sup>email: [evadewi@uin-suska.ac.id](mailto:evadewi@uin-suska.ac.id)

**Abstract:** The algorithm era shifts the authority of truth in the ecosystem of religious knowledge from the verified Islamic scientific tradition to the logic of machine engagement, so that the crisis faced by Islamic Religious Education is not merely technical but also epistemological. This study aims to reconstruct Islamic epistemology through the framework of bayani, burhani, and irfani as a solution to the epistemic crisis of Islamic Religious Education in the algorithm era. The method used is library research with a critical comparative analysis approach through three stages: content analysis, systematic comparison of Islamic and Western epistemologies, and integrative synthesis. The findings show that the epistemic crisis of Islamic Religious Education operates through an interlocking system of filter bubbles, black box AI, and shifts in religious epistemic authority. Systematic comparison reveals that the failure of Western epistemology is inherently structural, while Islamic epistemology has potential structural advantages through the hierarchical integration of bayani as a normative compass, burhani as an instrument of critical verification, and irfani as a guardian of spiritual meaning that cannot be replicated by machines. This hierarchical model reconstruction implies the transformation of Islamic Religious Education in three dimensions simultaneously: curricular, pedagogical, and evaluative.

**Keywords:** Islamic Epistemology; Epistemic Crisis; Algorithmic Era; Bayani Burhani Irfani; PAI.

**Abstrak:** Era algoritma menggeser otoritas kebenaran dalam ekosistem pengetahuan keagamaan dari tradisi keilmuan Islam yang terverifikasi menuju logika engagement mesin, sehingga krisis yang dihadapi PAI bukan sekadar teknis melainkan bersifat epistemologis. Penelitian ini bertujuan merekonstruksi epistemologi Islam melalui kerangka bayani, burhani dan irfani

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sebagai solusi atas krisis epistemik PAI di era algoritma. Metode yang digunakan adalah *library research* dengan pendekatan analisis kritis komparatif melalui tiga tahap yaitu *content analysis*, komparasi sistematis epistemologi Islam dan Barat, serta sintesis integratif. Temuan menunjukkan bahwa krisis epistemik PAI bekerja melalui sistem yang saling mengunci antara *filter bubble*, *black box* AI dan pergeseran otoritas epistemik keagamaan. Komparasi sistematis mengungkap bahwa kegagalan epistemologi Barat bersifat struktural inheren, sementara epistemologi Islam memiliki keunggulan struktural potensial melalui integrasi hierarkis bayani sebagai kompas normatif, burhani sebagai instrumen verifikasi kritis dan irfani sebagai penjaga makna spiritual yang tidak dapat direplikasi mesin. Rekonstruksi model hierarkis ini mengimplikasikan transformasi PAI pada tiga dimensi secara simultan yaitu kurikuler, pedagogis dan evaluatif.

**Kata Kunci:** Epistemologi Islam; Krisis Epistemik; Era Algoritma; Bayani Burhani Irfani; PAI.

## A. Introduction

Every time someone opens social media today, a machine works behind the scenes to determine what information is worth seeing, hearing, and believing—not based on standards of truth, but on the logic of engagement. Within such an ecosystem, sensational religious information spreads much more easily than verified knowledge. The boundary between valid knowledge and information that merely appears to be valid is becoming increasingly blurred as artificial intelligence is capable of generating highly realistic content that may nevertheless be misleading (Farooq & de Vreese, 2026).

This shift is not merely a matter of information literacy; it touches upon the most fundamental epistemological question: who or what has the authority to determine truth? Consequently, today's students are growing up within an information ecosystem that is fundamentally different from that of previous generations. Short-video platforms confine them within homogeneous information spaces through recommendation mechanisms that continuously reinforce what they already believe, thereby weakening their capacity for critical thinking and making polarization of religious beliefs increasingly likely (Gao et al., 2023). Artificial intelligence systems that operate as

*black boxes* make it difficult for students to distinguish between religious information derived from authentic Islamic scholarly traditions and information generated by machines based on search trends (Widyarini et al., 2026).

This condition is not merely a pedagogical challenge; it is a symptom of an epistemological crisis that reaches the very roots of how Islamic knowledge is produced, validated, and transmitted. Responses that have been proposed to address this challenge have largely remained at the technical level, focusing on improving digital literacy, integrating technology, and updating curricula. Scholars have investigated why generative AI produces knowledge that cannot be traditionally verified and have found that Western epistemological frameworks lack the conceptual tools to address this issue because they provide insufficient space for evaluating the moral and spiritual direction of machine-generated knowledge (Russo et al., 2024). Islamic Religious Education (PAI), meanwhile, is deeply concerned with precisely these ethical and spiritual questions because knowledge in Islam is never value-neutral; rather, it is always connected to a moral orientation derived from revelation (Wahyu & Amril, 2025).

The Islamic intellectual tradition has, in fact, long provided a response to this issue. The legacy of Islamic epistemology, which integrates revelation, reason, and spiritual intuition as three hierarchical sources of knowledge, is not merely a historical heritage; it constitutes a framework structurally capable of addressing the shortcomings of Western epistemology in the digital era (Putri et al., 2023). However, this epistemological richness has not yet been systematically reconstructed as a response to the algorithmic crisis currently confronting Islamic Religious Education. As a result, students face this crisis without an adequate epistemological foundation (Erdiyani et al., 2025).

Several previous studies have approached this issue, but each leaves significant gaps. Studies on the evolution of epistemology and its implications for contemporary education have been conducted without integrating these issues with the context of Islamic Religious Education and the algorithmic crisis (Ibnu Malik et al., 2025). Studies of epistemology in higher education from a decolonial perspective have also emerged without addressing the distinctive dimensions of Islamic epistemology (Omodan, 2025).

The integration of *bayani*, *burhani*, and *irfani* in Islamic Religious Education has been examined, but existing studies remain largely descriptive and conceptual, without analyzing the internal tensions among these three pillars (Asrofi et al., 2024).

Studies comparing Islamic and Western epistemology in the context of artificial intelligence have also addressed this issue, but without conducting a systematic comparison based on structured analytical units (Habibah & Fuad, 2026). This mapping reveals a major research gap: no study has yet reconstructed the *bayani*, *burhani*, and *irfani* framework as a solution to the epistemic crisis in Islamic Religious Education through a systematic comparison with Western epistemology while simultaneously analyzing the internal tensions among its three pillars.

The scientific novelty of this study lies in two aspects. First, it conducts a systematic comparison between Islamic and Western epistemology using analytical units established prior to data collection, thereby ensuring a more objective assessment. Second, it reconstructs a hierarchical model of *bayani*, *burhani*, and *irfani* that examines their internal tensions and provides mechanisms for resolving them.

Based on these gaps, this study addresses four research questions: (1) What are the manifestations and epistemological roots of the crisis in Islamic Religious Education in the algorithmic era? (2) Where do the structural limitations of Western epistemology lie, and what are the comparative advantages of Islamic epistemology? (3) How can a hierarchical model of *bayani*, *burhani*, and *irfani* be reconstructed as a solution to this crisis? and (4) What are the implications of this reconstruction for transforming the paradigm of Islamic Religious Education? This study aims to answer these four questions through a systematic critical-comparative analysis.

## **B. Research Methods**

This study employs a *library research* method using a critical and comparative analytical approach. In library research, comparative analysis is used to understand differences in approaches across the literature, identify variations in definitions, and assess the consistency of research findings (Sari et al., 2026). This technique enables researchers to examine how a concept is understood across different contexts and how such understandings influence theoretical development.

The primary data sources consist of classical and contemporary works on Islamic epistemology, while the secondary sources include relevant reputable international journal articles addressing epistemology, artificial intelligence, and Islamic education, with priority given to publications from the past five years. The sources were identified through Google Scholar, DOAJ, and SINTA using the keywords “Islamic epistemology,” “bayani burhani irfani,” “epistemic crisis,” and “Islamic education digital era.” The inclusion criteria comprised reputable journal articles published between 2019 and 2026, as well as studies on artificial intelligence that directly discuss its epistemological implications. Sources that had not undergone a peer-review process were excluded from the study.

The data analysis technique employed *content analysis*, which was used to identify emerging patterns and themes within the qualitative data (Setiawati, 2024), as well as comparative analysis. Comparative analysis was employed to examine similarities and differences between two objects (Nuryami et al., 2024), particularly to compare Islamic and Western epistemological frameworks in responding to the challenges of the algorithmic era. Operationally, the three stages of analysis were conducted sequentially. In the first stage, each source was coded according to the themes of the manifestations of the epistemic crisis, the limitations of Western epistemology, and the functions of each of the *bayani*, *burhani*, and *irfani* pillars. In the second stage, five units of comparison were established prior to data collection to ensure that the comparison was not selective. In the third stage, the findings were synthesized to formulate a hierarchical model along with a mapping of its internal tensions.

Data validity was maintained through source triangulation. Source triangulation was conducted by examining data from various sources to enhance data credibility through the process of checking and comparing information obtained throughout the study (L. Hakim et al., 2026). This process involved integrating classical Islamic literature, contemporary epistemological studies, and empirical research on the impact of algorithms on knowledge.

### C. Results and Discussion

#### *The Epistemic Crisis of Islamic Religious Education in the Algorithmic Era*

The crisis confronting Islamic Religious Education (PAI) in the algorithmic era is epistemological in nature because what has shifted is not merely the medium through which information is transmitted, but the very authority of truth itself. Thus far, responses to digital challenges in PAI have largely focused on pedagogical reform and improving digital literacy, whereas the underlying issue is much more fundamental.

Algorithms do not merely distribute religious information; they determine which information is considered relevant, important, and true based on the logic of engagement rather than on valid standards of Islamic scholarship. When machines determine what is considered true for students, what is threatened is not merely the accuracy of information but the entire epistemological foundation that underpins religious knowledge (Serafini, 2023).

This crisis operates through three mutually reinforcing manifestations. First, the algorithmic *filter bubble* systematically confines students within homogeneous information spaces, causing their capacity to critically evaluate religious knowledge to deteriorate without their awareness. Platform recommendation mechanisms continuously reinforce what users already believe rather than presenting information whose truth needs to be critically examined (Gao et al., 2023). Second, AI systems operating as *black boxes* prevent students from tracing the epistemological basis of the information they receive. Within the Islamic intellectual tradition, this condition is analogous to the loss of the capacity for *tabayyun*, because the sources of information cannot be adequately verified (Shin et al., 2022). Third, religious epistemic authority shifts from verified scholarly traditions toward the popularity of digital content. Trust in religious sources is no longer assessed primarily on the basis of depth of knowledge and scholarly chains of transmission (*sanad*), but increasingly on the basis of follower counts and the attractiveness of content presentation (Salsabila & Hamama, 2025).

These three manifestations of the crisis are not independent phenomena; rather, they constitute an interconnected epistemic system. The *filter bubble* ensures that students are exposed primarily to sources within the same information ecosystem, the

AI *black box* prevents them from verifying the origins of those sources, and the shift in authority ensures that they no longer perceive verification as necessary.

It is this mutually reinforcing system that makes the algorithmic crisis structural and prevents it from being resolved merely by updating teaching methods (Prihantoro et al., 2026). Previous studies have tended to view this issue primarily as a matter of competency or pedagogy. The optimization of 4C competencies, for example, has been regarded as a key solution to addressing the challenges of PAI in the twenty-first century. However, a competency-based approach does not address the fundamental question of where and how students should assess the validity of the religious knowledge they receive (Safitri et al., 2025).

Other studies that are more closely related to this issue have demonstrated that hoaxes and the digital literacy crisis are rooted in ontological and epistemological problems within PAI. Nevertheless, the mechanisms underlying this crisis have not yet been systematically mapped, meaning that the proposed solutions remain largely normative (Nurhavsyakh et al., 2025). This study advances beyond these two strands of research by identifying the crisis mechanism as systemic and mutually reinforcing—a finding that can only be achieved through content analysis that simultaneously maps the relationships among the three manifestations of the crisis. Thus, the epistemic crisis of PAI in the algorithmic era originates from a shift in the authority of truth operating through an interconnected system, rather than from isolated technical or competency-related problems. The vulnerability of PAI students is more structural than that found in other fields because religious knowledge directly intersects with dimensions of faith that are not easily falsifiable. Algorithmic confirmation of pre-existing beliefs may actually deepen students' epistemic resistance to the process of verification itself.

### ***Limitations of Western Epistemology and Islamic Epistemology***

Western epistemology fails to adequately respond to the algorithmic crisis not because its methodology is inherently weak, but because its structure lacks sufficient conceptual space to evaluate the moral and spiritual direction of machine-generated knowledge. This limitation is inherent and cannot be fully resolved from within the framework itself. Epistemological traditions built upon rationalism and empiricism are

highly effective in verifying facts that can be logically or empirically tested. However, they lack the conceptual tools to address the most crucial question in PAI: whether such knowledge leads toward goodness and truth derived from revelation. When AI generates knowledge through probabilistic mechanisms that cannot be logically falsified or empirically tested in conventional ways, Western epistemology encounters an impasse that cannot be overcome solely from within its own system (Koskinen, 2024).

A systematic comparison using five comparison units established prior to the analysis provides a clear picture of where the structural differences between the two epistemological frameworks lie, as presented in Table 1.

**Table 1. Systematic Comparison of Western and Islamic Epistemology**

| Dimension                      | Western Epistemology                                                               | Islamic Epistemology                                                                                                       |
|--------------------------------|------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------|
| <b>Sources of Knowledge</b>    | Reason and empirical data alone                                                    | Revelation, reason, and hierarchical spiritual intuition                                                                   |
| <b>Verification Mechanisms</b> | Logical and empirical falsification; inadequate in situations of epistemic opacity | <i>Tabayyun</i> , <i>burhani</i> reasoning, and communal authority; applicable even when sources are not fully transparent |
| <b>Value Dimension</b>         | Value-free; knowledge is separated from ethics                                     | Value-laden; knowledge is connected to the moral orientation of revelation                                                 |
| <b>Response to Algorithms</b>  | Limited primarily to technical and logical verification                            | Simultaneously addresses technical, ethical, and spiritual dimensions                                                      |
| <b>Main Limitation</b>         | Inadequate in addressing transcendental value dimensions; structurally inherent    | Difficult to standardize and requires further operationalization                                                           |

The difference between Western and Islamic epistemology in responding to the algorithmic crisis is not merely methodological but architectural. Structurally, Western epistemology does not provide sufficient space for the dimension of transcendental values, whereas Islamic epistemology structurally accommodates this dimension through the integration of revelation, reason, and spiritual intuition. This difference has direct implications for the capacity of Islamic Religious Education (PAI) to address the algorithmic ecosystem. When religious information cannot be traced to its origins, a rational-empirical framework lacks an adequate basis for evaluating it. Islamic scholarly tradition, by contrast, has long positioned epistemic caution as a moral responsibility of

information recipients, well before the emergence of the problem of algorithmic transparency. Its foundations are therefore highly relevant in today's environment, which is characterized by numerous unverifiable sources. The connection between ethics and AI epistemology remains insufficiently addressed in Western scholarship and has become an urgent need (Russo et al., 2024). The comparative findings of this study demonstrate that Islamic epistemology has structurally incorporated this connection long before the emergence of the algorithmic era.

Previous studies comparing Islamic and Western epistemology have tended to stop at the assertion that Islamic epistemology is more holistic, without systematically mapping the specific dimensions in which the differences occur or explaining why these differences are structural rather than methodological. Philosophical and ethical comparisons between Islamic and Western epistemology in the context of artificial intelligence have indeed demonstrated the advantages of Islamic epistemology, but without systematic comparisons using structured analytical units, these advantages remain largely argumentative claims (Habibah & Fuad, 2026).

This study goes further by presenting a comparison based on five units established prior to the analysis, ensuring that the findings constitute verifiable results rather than apologetic claims. Accordingly, the limitations of Western epistemology are structurally inherent in its treatment of transcendental values, whereas the advantages of Islamic epistemology are structurally potential and require concrete operationalization to become actual advantages.

### **Hierarchical Model of *Bayani*, *Burhani*, and *Irfani***

The *bayani*, *burhani*, and *irfani* framework should be understood and operationalized as a hierarchical system rather than as three equal pillars. Previous studies that have integrated these three pillars have generally treated them as equivalent entities. This constitutes a significant weakness because no mechanism has been established for resolving situations in which the three pillars conflict, even though such conflicts are real and concrete within the digital ecosystem.

The model developed in this study establishes the position of each pillar according to its distinct epistemological function, which cannot be substituted for one another.

*Bayani* occupies the highest position as the normative compass because revelation provides direction and ethical boundaries for all epistemic activities, including determining which digital information may be accepted as valid knowledge. The principle of *tabayyun*, rooted in the *bayani* tradition, has proven effective in filtering digital information through the Qur'anic normative values of caution, prohibition of unfounded assumptions, and the obligation to verify information before accepting and disseminating it (Meerangani et al., 2025).

*Burhani* operates in the middle position as an instrument of critical verification within the normative framework established by *bayani*. It analyzes the logical and ethical validity of algorithmic information without exceeding the value orientation established by revelation. *Burhani* has been shown to help students critically evaluate algorithmic information, thereby preventing the acceptance of emotional and unverified information (Asrofi et al., 2024).

*Irfani* complements the other two at the final stage as a dimension of deepening spiritual meaning. It ensures that knowledge becomes meaningful for students' inner lives, a dimension that, in principle, cannot be replicated by any machine (Abdelnour, 2025).

This hierarchical model is tested through two internal tensions that have largely been overlooked. The first tension emerges when *burhani* reasoning produces a logically sound conclusion that conflicts with *bayani* norms. In the digital context, this occurs when algorithmically generated content appears logically coherent but contradicts Islamic values. The hierarchical model resolves this tension by establishing that *bayani* has the authority to determine the boundaries within which *burhani* operates. This does not eliminate critical reasoning; rather, it ensures that critical reasoning functions in a direction that does not contradict the value orientation established by revelation (Wahyu & Amril, 2025).

The second tension concerns the risk of *irfani* being used to justify the acceptance of factually incorrect information in the name of genuine spiritual feelings. This constitutes a dangerous vulnerability within the ecosystem of digital religious disinformation. The hierarchical model closes this gap by emphasizing that authentic

*irfani* cannot operate without first passing through the *bayani* filter and *burhani* verification (Erdiyani et al., 2025).

The hierarchical model of *bayani*, *burhani*, and *irfani* provides an internal conflict-resolution mechanism that is absent from an egalitarian model, making it functional within a digital ecosystem characterized by epistemic tensions. Previous studies have proposed integrating the three pillars to strengthen digital knowledge resilience but have not established a hierarchy or analyzed their internal tensions. Consequently, the resulting models lack the capacity to resolve conflicts (Putri et al., 2023).

Other studies have proposed integrative epistemology as a contemporary holistic framework but have again treated the three pillars as equal without providing a resolution mechanism (Sya'adah et al., 2025). This study addresses this gap by demonstrating that hierarchy is not a limitation but rather a mechanism that enables the integration of the three pillars to function effectively amid the tensions of the algorithmic ecosystem. Thus, reconstructing *bayani*, *burhani*, and *irfani* as a hierarchical model constitutes a functional epistemic solution because it provides a mechanism for resolving internal conflicts that is absent from previous studies.

### **Implications for the Transformation of Islamic Religious Education**

The reconstruction of Islamic epistemology implies that the transformation of PAI must simultaneously operate across three dimensions: curricular, pedagogical, and evaluative. Changes that address only one or two of these dimensions will not produce a meaningful paradigm shift because the three dimensions are mutually interconnected. An epistemological curriculum will not be implemented if teachers lack epistemological competence, and teacher competence will not develop if the assessment system continues to measure content memorization.

The predominantly transmissive nature of PAI today produces students who memorize religious content but lack the ability to verify, evaluate, and interpret the religious information they receive from machines on a daily basis. At the curricular level, PAI competency standards need to be reconstructed to explicitly incorporate three epistemological competencies: digital *tabayyun* as the operationalization of *bayani*;

critical thinking toward algorithmic information as the operationalization of *burhani*; and awareness of spiritual meaning when selecting and evaluating knowledge as the operationalization of *irfani*.

The *Problem-Based Learning* approach has proven to be an effective concrete vehicle for integrating these three competencies within authentic learning practices (Amirudin et al., 2025). At the pedagogical level, teachers must transform from content transmitters into facilitators of epistemic processes who guide students in independently developing the ability to verify and interpret religious information. Tabayyun-based digital literacy needs to become a core competency systematically developed in every PAI learning session rather than merely an additional topic (H. Al Hakim & Susilo, 2026). The root of the problem lies in how PAI teacher competence has traditionally been conceptualized. Mastery of subject matter and teaching proficiency have been treated as the primary benchmarks, while the ability to guide students in developing epistemic judgments concerning religious information has not been incorporated as a required competency. Consequently, teachers face the demands of transformation without adequate preparation to implement it. At the evaluative level, which is often the least addressed but arguably the most decisive, the assessment system must be capable of measuring epistemological competencies concretely rather than merely assessing content mastery.

As long as PAI assessment instruments continue to measure memorization, there will be no systemic pressure encouraging teachers and students to genuinely develop *tabayyun*, *burhani*, and *irfani* competencies in their real digital lives (Sabrina et al., 2025). The evaluative dimension is the key element that has been missing from discussions of PAI transformation. Without assessment instruments capable of measuring epistemological competencies, curricular and pedagogical changes lose their driving force because there are no new indicators of success capable of redirecting the orientations of teachers and students.

Previous studies have identified the need for pedagogical reconstruction of PAI in the digital era and have integrated spiritual ethics with digital literacy, but they have not operationalized these ideas into three transformation dimensions that must operate

simultaneously (Miftahussurur, 2026). Other studies have shown that reconstructing PAI epistemology requires the integration of digital neuroethics but have not identified the evaluative dimension as the key factor determining the success of the entire transformation (Sabrina et al., 2025).

This study addresses this gap by demonstrating that the three dimensions of transformation will produce a meaningful paradigm shift only when they operate simultaneously, with the evaluative dimension serving as the systemic driver that has been most neglected. Thus, transforming PAI requires a simultaneous shift across all three dimensions, with the evaluative dimension serving as the key determinant of whether the transformation genuinely takes place or merely constitutes a cosmetic renewal.

#### **D. Conclusion**

Islamic epistemology, through the hierarchical reconstruction of *bayani*, *burhani*, and *irfani*, has proven capable of serving as a functional solution to the epistemic crisis in Islamic Religious Education (PAI) in the algorithmic era. It is not merely a philosophical alternative, but rather an epistemological framework that structurally provides space to address failures inherent in Western epistemology. The most important finding of this study is that the superiority of Islamic epistemology is structurally potential, meaning that it is real at the architectural level but will only become actual when it is seriously operationalized across three dimensions of PAI transformation that operate simultaneously.

The hierarchical model developed in this study positions *bayani* as the normative compass, *burhani* as the critical verifier, and *irfani* as the guardian of spiritual meaning. This model fills a gap that has not been adequately addressed by previous studies, which tend to treat the three pillars as equal entities without providing a mechanism for resolving conflicts among them. This is what makes the reconstruction more than merely a re-synthesis of existing ideas; rather, it constitutes an epistemological contribution with concrete implications for the development of contemporary PAI curricula, pedagogy, and assessment systems.

Nevertheless, this study remains limited to the conceptual and theoretical level. Therefore, empirical testing of the hierarchical model of *bayani*, *burhani*, and *irfani* in PAI learning constitutes an important agenda for future research and is highly recommended.

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