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Integrating Artificial Intelligence into Islamic Cultural History Education: Teachers' Strategies and Pedagogical Adaptation at MAN 2 Klaten, Indonesia

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Abstract

Objective: This study aims to describe teachers' strategies for integrating generative artificial intelligence (AI) into Islamic Cultural History (ICH) education at MAN 2 Klaten, Indonesia, focusing on material delivery, learning activities, and assessment practices. **Theoretical framework:** The study draws on pedagogical adaptation and critical AI literacy, emphasizing teachers' professional judgment, the responsible use of technology, and the verification of AI-generated information within Islamic history education. **Literature review:** Existing discussions highlight generative AI's potential to support personalized learning, instructional design, and assessment. However, concerns remain regarding historical accuracy, cognitive dependency, and the preservation of teachers' authority in guiding religious and historical knowledge. Contextual studies of AI integration in ICH classrooms remain important for understanding these challenges. **Methods:** This qualitative research employed a single-case study design at MAN 2 Klaten. Data were collected through in-depth interviews with an ICH teacher and analyzed using the interactive model of Miles, Huberman, and Saldaña, encompassing data condensation, data display, and conclusion drawing with verification. **Results:** The findings indicate that teachers integrate ChatGPT, Gemini, Canva, and Kahoot to develop summaries, concept maps, introductory questions, higher-order thinking ICHlls (HOTS) questions, assessment rubrics, and feedback. AI functions as a learning partner rather than a substitute for teachers' scholarly authority. AI-generated outputs require cross-verification before classroom use. **Implications:** These findings underscore the need to strengthen teachers' critical AI literacy, establish ethical guidelines for AI use in madrasahs, and design learning activities that promote historical understanding, critical thinking, and responsible technology use. **Novelty:** This study identifies a layered verification pattern—AI, textbooks, and classroom discussion—as a pedagogical strategy for maintaining historical validity while reducing students' cognitive dependency on generative AI. This approach offers a context-sensitive contribution to responsible AI integration in Islamic history education.

Keywords: teacher strategies, generative artificial intelligence, islamic cultural history, layered verification, ai literacy

INTRODUCTION

Digital transformation in the world of education has entered a new chapter since the emergence of generative AI technologies such as ChatGPT and Gemini that are able to

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generate text, summarize information, and answer questions instantly. This development encourages a shift in the role of teachers from a single source of information to a facilitator who manages, validates, and directs the use of technology to be in harmony with learning goals [1]. In the context of Islamic religious education, a number of studies have confirmed that AI is beginning to be adopted in various aspects of learning, ranging from the preparation of materials, interactive media, to evaluation [2], [3], [4]. However, the acceptance of new technology by teachers is not uniform; [5] shows that the process of adopting generative AI by educators in Indonesia is still in the early stages of innovation diffusion [6], which is characterized by variations in readiness, digital competence, and prudence in its use.

The History of Islamic Culture (ICH) is a subject that has distinctive epistemic characteristics compared to other subjects in madrassas because it requires the accuracy of historical facts, chronology of events, and interpretation of Islamic civilization values [7], [8]. Unfortunately, ICH learning is often stuck in a lecture and memorization approach that makes students less enthusiastic, so various efforts to innovate methods continue to be sought, for example strengthening character education through historical narratives and the use of question cards [9]. In the midst of these efforts, the presence of generative AI offers its own opportunities as well as challenges: on the one hand, AI can help teachers simplify chronology-dense material and create assessment variations [10], [11], but on the other hand, it has the potential to pose a risk of historical information distortion due to the tendency of AI to produce answers that are not always accurate (hallucination phenomenon), as well as trigger students' cognitive dependence which reduces critical thinking ICHlls [12], [13].

Studies on the use of AI in Islamic religious education have so far been dominated by literature studies or brief training that are descriptive-general, without exploring in depth how teachers' concrete strategies operationalize AI in a complete learning cycle [14], [15], [16], [17]. On the other hand, research on AI in assessments focuses a lot on the elementary school level and general subjects, while research on ICH learning problems and innovations [18], [19], has not touched the dimension of AI use at all. There is a clear research gap: there has been no empirical research that specifically examines the strategies of ICH teachers in utilizing AI as a whole, including the delivery of materials, learning activities, and assessments as well as examining how teachers manage the risks of historical information accuracy and students' dependence on the technology. This gap is the basis for the urgency of this study, considering that ICH is the subject most vulnerable to the risk of historical distortion if AI is used without an adequate verification strategy.

Based on this description, this study aims to describe and analyze in depth how ICH teachers at MAN 2 Klaten use AI in (1) material delivery, (2) learning activities, and (3) ICH learning assessment, including information verification strategies, control of AI use, and efforts to maintain active student involvement. This research is expected to make a theoretical contribution to the development of the Technological Pedagogical Content Knowledge (TPACK) framework on historical-religious content, as well as a practical contribution in the form of a model of AI utilization strategies that can be replicated by ICH teachers in other madrasas.

The novelty of this study lies in its comprehensive empirical investigation of how ICH teachers integrate generative AI across the entire learning cycle, encompassing material delivery, classroom activities, and learning assessment. Unlike previous studies that primarily emphasize general AI adoption or theoretical perspectives, this research examines practical pedagogical strategies, historical information verification, teacher supervision, and students' critical engagement. Furthermore, it highlights the balance between technological innovation and the preservation of historical accuracy and Islamic educational values. These findings contribute to contextualizing the TPACK framework and developing an applicable AI integration model for Islamic historical education in Indonesian madrasas [18], [19].

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LITERATURE REVIEW

Characteristics of Learning the History of Islamic Culture at Madrasah Aliyah

ICH is a subject that teaches the chronology of events, figures, and values of Islamic civilization as a means of internalizing students' Islamic character and identity emphasized that the ICH curriculum at Madrasah Aliyah is designed in stages, starting from the Mecca-Medina period to Islamic dynasties, so that it requires a chronological understanding that is collapsed. However, a number of problematic studies show that ICH learning often runs monotonous due to the dominance of lecture methods and the lack of media variety [20],[21]. Innovation efforts have been made, including strengthening character education based on historical narratives [22], the implementation of question cards [23], and reorienting the implementation of the Independent Curriculum at ICH. However, all of these efforts still dwell on conventional learning methods and have not touched on the potential use of generative AI technology as a pedagogical instrument.

Artificial Intelligence in Education: Concepts and Developments

AI in education has experienced significant growth since the 2010s, with widespread applications ranging from intelligent tutor systems to generative language models. The adoption of new technologies by teachers can be explained through the theory of innovation diffusion, which places the speed of technology adoption at five stages: knowledge, persuasion, decision, implementation, and confirmation. applied this framework to analyze the adoption of generative AI by Indonesian educators and found that compatibility factors with learning needs as well as ease of use are the main determinants of accelerating adoption. In a more specific realm, learning style-based adaptive recommendation systems became one of the early precedents of how AI can be personalized for the diverse needs of learners [24].

TPACK as a Framework for Technology Integration by Teachers

Technological Pedagogical Content Knowledge (TPACK) developed by Koehler and Mishra explains that effective technology integration requires a combination of three knowledge domains: content knowledge, pedagogical knowledge, and technological knowledge, along with the interaction between the three. Harris, Mishra, and Koehler added that curriculum-based technology integration requires teachers to design learning activities that combine curricular objectives with available technology [25]. TPACK's applied research in Indonesia is largely focused on science and language subjects [26], [27], However, its application to historical-religious narrative-based subjects such as ICH is still rarely studied, even though the characteristics of ICH content that are narrative-chronological demand a different pattern of technological integration from the exact subjects.

The Utilization of AI in Islamic Religious Education: A Past Study

A number of studies have examined the use of AI in Islamic religious education in general. Sarinda, Martina, Noviani, and Hilmin and Andriani emphasized the potential of AI as a medium of learning communication, while Zulfahmi examined the application of AI-based applications such as Muslim Pro. Ramadhan highlights the phenomenon of AI chatbots and their impact on religious education [28], while Mambu et al. relate the use of AI to the challenges of teaching teachers in the digital era. Anwar reported the results of training on the use of AI for IRE teachers in Kediri City, and Tanjung and Suteki discussed the conceptual role of artificial intelligence in Islamic religious education. Umam and Jannah explore the intersection of AI and Islamic studies from the perspective of challenges and opportunities [29]. However, the majority of these studies use descriptive-normative

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literature study or training methods, so they have not empirically described how teachers' strategies to operationalize AI in daily learning practices in certain subjects, especially ICH.

AI in Learning Assessment

In the realm of assessment, Hanis and Wahyudin found that the majority of new elementary school teachers "sometimes" utilize AI in the preparation of formative and summative assessments, indicating that the use of AI in assessments is still in the exploratory stage. Oktavianus, Naibaho, and Rantung show that AI can automatically evaluate students' answers and provide instant feedback, while Fuad et al [30]. developed an AI-based system to detect plagiarism as a form of academic integrity control. These studies affirm the great potential of AI in assessment efficiency, but have not explored much about how teachers validate AI outputs before they are used, a crucial aspect considering that generative AI outputs are not always accurate.

Cognitive Risk: The Dependency and Accuracy of AI Information

Several studies warn of the risks of using generative AI on students' critical thinking ICHlls. Rizaldi, Kurniawan, and Fadhilah and Rizaldi, Sasalia, and Pancarita found that the use of ChatGPT can encourage or inhibit critical thinking depending on the teacher's mentoring pattern [31]. Robbani, Atmantika, and Bhavani noted the opportunities and challenges of using ChatGPT among Arabic language students, including the risk of overdependence and decreased reading habits of primary sources. The risk of information accuracy (hallucination) is of particular concern for historical fact-based subjects such as ICH, because chronological errors or interpretations of events can have an impact on distorting students' understanding of Islam.

Research Position and Novelty

The synthesis of previous studies shows four groups of literature that run separately: (1) the study of AI in IRE which is biblical-normative, (2) the study of AI in assessment in general subjects and elementary school levels, (3) the study of problems and innovations of the ICH method that has not touched on AI, and (4) the study of the cognitive risk of AI in non-historical subjects. This study positions itself at the meeting point of the four clusters by presenting an empirical case study of the strategies of ICH teachers in MAN 2 Klaten that integrates AI in the entire learning cycle, as well as revealing the risk control mechanisms applied by teachers. The novelty of this research lies in the identification of the pattern of layered verification strategies as a pedagogical response to the epistemic characteristics of ICH that demand historical accuracy, a contribution that has not been found in the AI literature in Islamic education and the TPACK literature which has been more oriented to the exact subject.

METHODOLOGY

This study uses a qualitative approach with a single case study design as developed by Yin and Creswell and Poth [32], which allows an in-depth exploration of a contemporary phenomenon in a real context. The case studied is the practice of using AI by teachers of ICH subjects at MAN 2 Klaten. The key informant of the research was selected purposively, namely a ICH teacher who actively and reflexively uses AI in learning, with the consideration that the informant has direct and representative experience to answer the focus of the research.

The research data was collected through two main techniques: (1) in-depth semi-structured interviews with ICH teachers, who explored the experience of AI implementation ranging from planning, material delivery, learning activities, to assessment; and (2) descriptions of the learning process in the classroom delivered directly by the informant as supporting

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contextual data. It should be emphasized as a methodological limitation that the observation data in this study was sourced from the informant's narrative about their classroom practices, not from independent participatory observations by the researcher, so that the findings were descriptive-contextual in a single case and were not intended to be generalized to all ICH teachers in MAN 2 Klaten or other madrasah.

The data analysis follows the interactive model of Miles, Huberman, and Saldaña [33] which consists of three stages: data condensation by reducing and categorizing interview transcripts according to three research focuses (materials, activities, assessments) and three cross-focus themes (information verification, control of AI use, active involvement of students); data presentation (data display) in the form of thematic narratives; and conclusion drawing which is carried out by linking findings to the TPACK framework and innovation diffusion theory. The validity of the data is sought through theoretical triangulation [34], which is comparing the findings with various previous research results, as well as member checking on the key points of the interview results to informants.

The research methodology was systematically designed to explore the integration of artificial intelligence in Islamic Cultural History (ICH) learning at MAN 2 Klaten. It encompasses the research approach, data collection techniques, analytical procedures, validation strategies, and theoretical interpretation. These interconnected stages provide a structured framework for examining teachers' experiences and AI implementation in classroom learning.

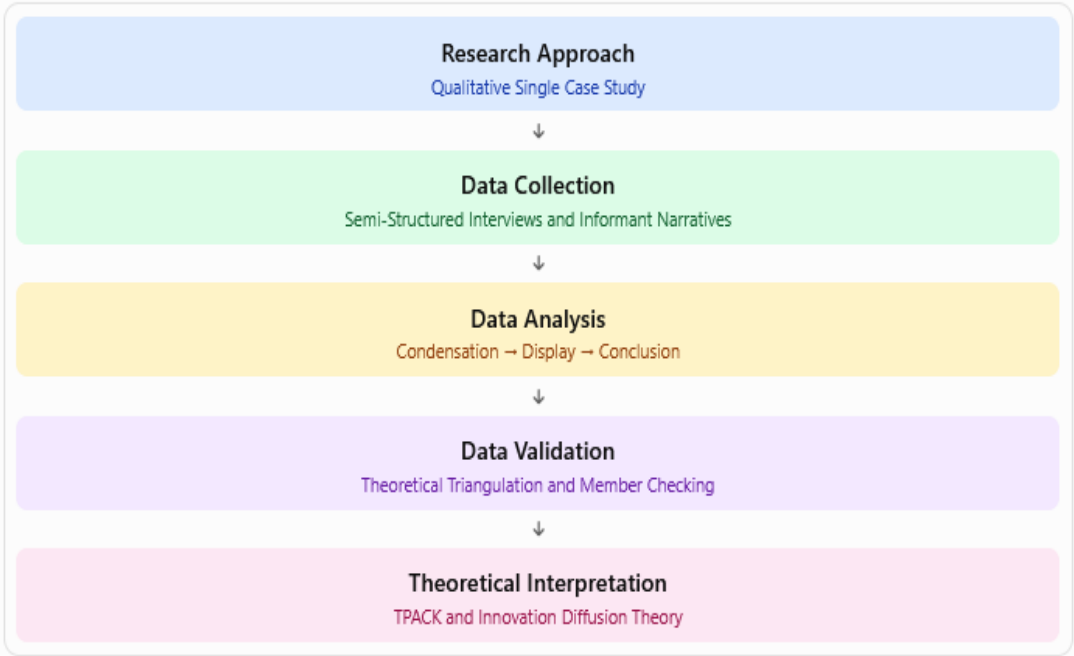


Figure 1. Five-Stage Research Methodology for Analyzing AI Integration in ICH Learning

Figure 1 illustrates five interconnected methodological stages. First, a qualitative single case study approach establishes the research design. Second, data are collected through semi-structured interviews and informant narratives. Third, the data are analyzed through condensation, display, and conclusion drawing. Fourth, data credibility is strengthened through theoretical triangulation and member checking. Finally, the findings are interpreted using the TPACK framework and innovation diffusion theory. This methodological structure supports an in-depth understanding of AI integration in ICH learning at MAN 2 Klaten.

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RESULTS AND DISCUSSION

Informant Profiles and Context of AI Utilization

The selection of research informants for Islamic Cultural History (ICH) subjects at MAN 2 Klaten, initialed as Mrs. Niha, presented a significant empirical articulation regarding the transformation of digital pedagogy in madrasah. The learning practices she developed no longer place technology as a peripheral tool, but convergently integrate four main platforms: ChatGPT and Gemini for text processing and idea heuristics [35], Canva for interactive media visualization, and Kahoot as a gamification-based evaluation instrument. This cross-functional integration proves the presence of a paradigm shift from conventional history learning that tends to be textual and rote learning to an instructional ecosystem that is dynamic, visual, and centered on active student involvement [36].

Theoretically, this multi-platform utilization pattern confirms the achievement of the advanced technology adoption phase in the framework of Innovation Diffusion from Rogers. Mrs. Niha has passed the single-tool experimentation phase and has successfully consolidated various artificial intelligence instruments and digital media into a single instructional flow. The functional interconnectedness between generative AI as an adaptive historical narrative builder, Canva as a visual translator of historical facts, and Kahoot as a participatory measure of knowledge retention reflects the level of compatibility and complexity of innovation that has been carefully internalized in teacher learning design [37].

This critical description of the informant's profile emphasizes that the success of the integration of AI in religious education is not determined solely by the availability of technological tools, but rather by the literacy of teachers' digital pedagogical knowledge (TPACK). The novelty of the practice shown by Mrs. Niha lies in its ability to maintain the relevance and depth of ICH material in the midst of the flow of AI automation. The use of this new generation of AI platform does not reduce the historical-spiritual values of ICH subjects, but rather functions and redefines them into material that is more contextual, interesting, and relevant to the cognitive characteristics of Generation Z in the madrasah environment.

Strategies for Utilizing AI in the Delivery of ICH Materials

The strategy of utilizing Artificial Intelligence (AI) in the delivery of Islamic Cultural History (ICH) material by Mrs. Niha explicitly articulates digital pedagogy that does not only focus on technical efficiency, but also on reconstructing the way students construct historical knowledge. The use of AI is systematically articulated to overcome classic problems of ICH learning such as materials that are too narrative-dense, the dominance of linear lecture methods, and low visual appeal by transforming historical material into interactive, visual, and contextual cognitive presentations.

Technically-pedagogically, this material delivery strategy is operationalized through a combination of three main steps: 1. Narrative-Cognitive Restructuring: AI is operated to streamline complex chronological flows (such as leadership genealogy, political conflict dynamics, and civilizational development) into a systematic concept map and timeline. This helps to lower the cognitive load of learners when understanding complex historical events. 2. Convergence of Interactive Visual Media: A framework of material and key points compiled by generative AI is integrated directly into Canva's design platform to produce visual presentation media, historical infographics, and narrative comics [38]. This cross-platform transforms the delivery of material from a passive text to a responsive visual learning experience for the digital generation learners. 3. Critical Thinking Stimulation (HOTS Facilitation): When delivering the material, Mrs. Niha uses AI to formulate trigger questions and contextual analogies. Historical material is not presented as a record of the dead past, but is linked to contemporary social phenomena such as correlating the diplomatic

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strategy of the Madina Charter or the scientific progress of the Abbasid era with current issues of nationality and technology.

Theoretically, this strategy emphasizes the fulfillment of the domain of Technological Pedagogical Content Knowledge (TPCK/TPACK). AI is not replaced by the position of the teacher, but functions as a cognitive partner that bridges the substance of ICH material that is full of values and facts with the cognitive characteristics of modern students. Thus, the delivery of ICH material transforms from a mere transfer of textual knowledge (transfer of knowledge) to a reflective and meaningful process of historical reasoning.

Integration of AI in Student Learning Activities

The results of the study show that the integration of artificial intelligence by Mapel ICH teachers has been internalized since the initial pre-instructional phase, namely at the stage of needs analysis and curricular planning. AI is not only positioned as an assistive instrument when delivering material in the classroom, but is used tactically to restructure the narrative of the material to be more systematic, compile essential summaries, map concepts (mind mapping), reduce the complexity of theological-historical ideas, and formulate high-reasoning triggering questions [39]. As a concrete illustration of the Abbasid Dynasty material, AI is operated to map the chronology of the development of the dynasty in a sequential and structured manner, which is then used as the main framework (skeletal framework) in the delivery of the material. This pattern shows the operationalization of the Technological Content Knowledge (TCK) domain within the framework of TPACK, where technology is used precisely to represent and restructure the content of knowledge to make it easier to digest.

The novelty of this TCK finding lies in the character of its specific use for religious disciplines and the history of civilization. If the majority of previous TPACK research was dominated by the domain of exact science or linguistics, this study proves how AI is operated specifically to tidy up narrative-chronological structures that are a unique pedagogical need in civilization-based history learning. The flexibility of generative language models in processing dense historical facts into logical and interconnected storylines helps to overcome the constraints of students' cognitive load, without sacrificing the completeness of facts and the depth of historical substance taught.

The use of AI in this planning phase is then continuously transformed into the development of interactive visual learning media through the Canva platform. This cross-platform integration has succeeded in transforming the articulation of Islamic Cultural History (ICH) material, which was previously considered rigid and relied on conventional lecture methods as widely criticized in the literature on ICH learning problems [40], into a dynamic and participatory visual presentation. Thus, the use of AI serves as an epistemic-pedagogical bridge that connects the need to simplify chronologically dense historical content with the demands of instructional media variations that are relevant to the cognitive characteristics of digital generation students.

Utilization of AI in ICH Learning Assessment

The use of artificial intelligence in the field of Islamic Cultural History (ICH) learning evaluation shows a significant diversification of instruments, including the preparation of multiple-choice questions, descriptions, interactive Kahoot quizzes, grids, assessment rubrics, and the formulation of analytical feedback. This technological accommodation not only simplifies teachers' administrative tasks, but also improves the quality of assessment through the design of stimulus oriented to Higher Order Thinking ICHlls (HOTS). For example, in Abbasid Dynasty materials, AI is instructed to produce analysis level questions that require students to evaluate the factors of past scientific progress and correlate them contextually

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with the dynamics of modern science. The restructuring ability of this high-reasoning instrument confirms the findings of Oktavianus, Naibaho, and Rantung regarding the positive contribution of AI in enriching the variation and cognitive weight of learning assessments.

The fundamental finding that is the crucial point of this research is the affirmation of the position of teachers who do not place AI as a sole decision-maker, but purely as a cognitive assistant. Teachers consistently carry out manual verification and validation procedures for each question item before it is implemented in the classroom. This methodological practice has given birth to a redefinition of the role of educators as AI output validators (AI-output validators). Teachers act as epistemic curators who filter the accuracy of historical substance, the appropriateness of difficulty levels, and the alignment of learning achievement indicators, thereby preventing disinformation or inaccuracy of religious materials in students' worksheets.

The articulation of the role of AI-output validators provides a new conceptual contribution that complements and expands the literature on technology integration in education. If the research of Hanis and Wahyudin identifies that the use of AI in assessments by teachers is still at the experimental level and sporadic, then the case at MAN 2 Klaten proves a much more mature level of adoption (advanced adoption) through the explicit integration of quality control procedures. The active involvement of teachers in validating generative outputs is a pragmatic answer to academic concerns regarding the crisis of assessment integrity and the risk of cognitive plagiarism as expressed by Fuad et al, while confirming that the control of scientific authority and pedagogical ethics remains fully in the hands of educators.

Information Verification, Usage Control, and Active Engagement of Students

The first dimension of the evaluation framework developed by teachers focuses on students' conceptual understanding. Evaluation in this dimension does not only measure the memory of memorization of historical facts, but emphasizes the ability of students to reconstruct the narrative structure of Islamic Cultural History (ICH) [41]. Indicators of success can be seen when students are able to map historical chronology sequentially, identify qualitative cause-and-effect relationships, and connect the relationship between the context of their time, the role of figures, and the accompanying theological-social concepts. For example, when studying the material on the Da'wah Strategy of the Prophet of the Madina Period, students not only memorize the year of the Hudaibiyah Agreement, but are able to use AI-generated visual diagrams to analyze how the agreement tactically became a stepping stone for diplomacy that triggered the Fathu Makkah event.

The second dimension emphasizes operational efficiency and instructional and assessment efficiency for educators. The use of AI platforms such as ChatGPT and Gemini has been proven to transform teachers' administrative workloads into more productive pedagogical activities. This efficiency is measured by the acceleration of the time for the preparation of grids and question items, the diversification of question form variations, the reliability of Higher Order Thinking ICHlls (HOTS) oriented question preparation, and the availability of alternative analytical assessment rubrics. As a concrete example, teachers can instruct AI to generate a stimulus of C5-level case-based questions (Evaluation), such as: "Analyze the decisions of the Madina Charter from a modern human rights perspective and determine which principles are most relevant to address current social conflicts." These formulations of high-reasoning questions can be efficiently generated to test students' critical thinking without taking up excessive planning time.

The third dimension is a crucial point that identifies operational constraints and epistemic risks (risks and cognitive constraints) from the penetration of artificial intelligence [42]. Teachers carefully map various technical and methodological threats, such as the potential for historical data fabrication (AI hallucination), the encouragement of plagiarism through copy-paste practices, decreased involvement in independent thinking (cognitive offloading), to infrastructure limitations and digital literacy disparities. A real example of this risk occurs

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when generative language models produce false narratives that state that certain characters are present in historical events that are chronologically impossible. Without strict control, learners tend to copy these automated answers into their worksheets without going through the process of testing the validity of the source.

The three-dimensional evaluation framework of understanding, efficiency, and risk is implicitly an articulation of reflective professional judgment that teachers build based on practical experience in the field. This critical awareness of teachers about the limitations of AI is very much in line with academic anxiety documented in the current literature regarding the dangers of AI hallucination phenomena in historical-religious content that demands high precision. The integration of these three dimensions proves that teachers do not view AI as a flawless magical instrument, but rather a medium that requires continuous methodological curation.

Table 1 Evaluation Matrix for AI Integration in ICH Learning

Evaluation Dimensions	Sub-Categories / Subject Matter	Key Indicators / Practice Description	Concrete Examples / Pedagogical Applications
Cognitive Comprehension	Narrative Construction	Historical chronological mapping and identification of causality and causality.	Reconstruction of the timeline of religious historical events.
	Contextual Linkage	Synthesis between the context of the times, the role of figures, and theological-social concepts.	Analysis of the psycho-social conditions of the people of Madina in the prophetic era.
	Da'wah Strategy Study	Tactical analysis of diplomacy and the use of visual media.	Visualization of the relationship between the Hudaibiyah Agreement and *the Fathu of Makkah* via AI diagram.
Operational Efficiency	Workload Transformation	Optimizing teachers' administrative time becomes a productive pedagogical activity.	The use of ChatGPT and Gemini platforms for mapping ideas and materials.
	Quality of Teacher Assessment	Accelerate the preparation of grids, diversification of questions, HOTS instruments, and analytical rubrics.	Designing assessment rubrics based on critical analysis in a precise manner.
	Case Study Stimulus	Formulation of advanced cognition-based high-reasoning questions.	Preparation of C5 level questions (Evaluation) regarding the Madina Charter from a human rights perspective.
Risks and Constraints	Methodological Technical Threats	Mitigating historical data fabrication and *copy-paste* practices.	Prevention of the dissemination of historical information without verification.
	Digital Cognitive Impact	Anticipating *cognitive offloading* (decrease in independent thinking) and literacy disparity.	Facing limited access to infrastructure and digital literacy gaps.
	AI as you want	Identify anachronistic narratives and chronological impossibilities.	The confusion of historical figures that are not in line with the times in the AI automatic draft.
Critical-Reflective Adoption	Teachers' Professional Attitudes	Reject technophobia and uncritical *acceptance*.	The application *of* reflective professional judgment in material curation.

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	Risk Mitigation Mechanism	The implementation of multi-stage validation before being presented to students.	Cross-verify AI data with authoritative textbooks and primary literature.
	Theoretical Framework	Confirm the maturity of the adoption of technological innovations.	Application of Rogers Innovation Diffusion Theory (Confirmation Stage; AI as *a Cognitive Partner*).

Table 1 presents a comprehensive evaluation matrix for integrating artificial intelligence into Islamic Cultural History (ICH) learning. It encompasses five dimensions: cognitive comprehension, operational efficiency, risks and constraints, and critical-reflective adoption, emphasizing the relationship between technological innovation and pedagogical effectiveness. AI supports historical narrative construction, contextual analysis, and the examination of da'wah strategies through interactive learning activities. It also enhances teachers' administrative efficiency, assessment design, and the development of higher-order thinking ICHlls. However, potential risks, including historical inaccuracies, cognitive offloading, and unequal digital access, require systematic attention. Therefore, teachers must maintain professional judgment through critical evaluation, authoritative source verification, and reflective adoption, positioning AI as a cognitive partner rather than a replacement for human intelligence.

Visual Representation of AI Integration in ICH Learning

The following figures illustrate the practical implementation of artificial intelligence in Islamic Cultural History (ICH) learning. They highlight how AI-supported platforms facilitate historical exploration, contextual understanding, interactive visualization, and the development of students' analytical competencies. Through digital tools such as ChatGPT, Gemini, Canva, and other educational applications, teachers can transform historical materials into engaging and accessible learning experiences. These visual representations also demonstrate the relationship between technological innovation, pedagogical strategies, and students' active participation. Furthermore, they emphasize the importance of teacher supervision, historical accuracy, and critical reflection in ensuring that AI integration strengthens meaningful learning outcomes.



Figure 1. Students Actively Engage in Interactive Classroom Learning

Figure 1. The classroom observation illustrates students' active engagement in a structured learning environment. Wearing matching blue uniforms, students concentrate attentively on their assigned tasks while the teacher facilitates instruction from the front whiteboard. This learning atmosphere demonstrates effective classroom management, student participation, and teacher guidance. Furthermore, the observation highlights how conventional instructional practices can be integrated with technological approaches to support meaningful learning experiences, encourage collaboration, maintain academic discipline, and strengthen students' engagement throughout the teaching and learning process.

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The epistemological implications of this framework boil down to the birth of critical-reflective adoption. Instead of taking a technophobic attitude or instead of uncritical acceptance, teachers choose a middle ground in the form of mitigation mechanisms through the necessity of cross-verification and authoritative textbook-based manual validation. In the perspective of Rogers' Innovation Diffusion theory, his decision to validate every AI output before it is presented in the classroom reflects the maturity of the confirmation stage. Teachers consciously affirm the position of AI not as a substitute for the educator's scientific authority, but as a cognitive partner whose effectiveness remains under the control of human evaluation.

Novelty and Research Contribution

Based on the above findings, this study makes a significant conceptual contribution in confirming and expanding the framework of Technological Pedagogical Content Knowledge (TPACK) and the literature on the integration of Artificial Intelligence (AI) in Islamic Religious Education (IRE) [43]. The main empirical novelty of this study lies in proving the holistic integration of AI throughout the instructional cycle starting from material planning, narrative delivery, activity design, to assessment, especially in the subject of Islamic Cultural History (ICH). This finding precisely bridges the divide (GAP) in the previous literature, where the study of AI in IRE tends to be normative-speculative, while research on ICH learning problems generally still focuses on conventional approaches that have not touched the potential of generative technology.

Methodologically-epistemicly, this study succeeded in identifying the "multi-layered verification strategy" as a mechanism for defending the quality of content developed by teachers. The triangular pattern that combines AI drafts, authoritative textbook confirmation, and dialogical validation through class discussions is a specific novelty finding. This mechanism has been proven to be effective in maintaining the factual-historical accuracy of religious narratives while mitigating the risk of cognitive offloading of students. This novelty complements previous technology integration studies that often ignore the potential for hallucinations or narrative bias in AI outputs in high-precision disciplines.

Furthermore, this study enriches the digital pedagogical literature by introducing a redefinition of the role of teachers as AI-output validators and formulating a three-dimensional reflective evaluation framework. Teachers are no longer passively placed as technology users, but as epistemic curators who critically screen and test the feasibility of questions and learning materials. The construction of a three-dimensional evaluation framework that synthesizes indicators of concept understanding, operational efficiency, and risk mitigation is an important theoretical contribution that is ready to be operationalized as a basis for formal evaluation instruments for future AI-based ICH learning development research.

Research Implications

Practically, these findings present an urgent policy direction for madrasah managers in responding to the penetration of artificial intelligence (Artificial Intelligence) in Islamic Cultural History (ICH) learning. Madrasas need to reformulate internal regulations through the preparation of ethical guidelines for the use of AI that explicitly require a cross-verification mechanism for historical-religious narratives. These practical implications require the implementation of critical AI literacy training on an ongoing basis for educators to have independent ICHlls in identifying AI hallucinations, narrative biases, and historical data fabrication. In addition, educators are encouraged to re-engineer assessment designs by integrating primary-secondary source comparison tasks, so that the use of AI in the classroom serves as a trigger for high-level cognitive analysis (HOTS) while preventing passive epistemic dependence on learners.

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Theoretically, this study makes a conceptual contribution in the form of enrichment to the Technological Pedagogical Content Knowledge (TPACK) framework. These findings confirm that mastery of technology, teaching methodologies, and substantial materials is no longer adequate when faced with generative characteristics of AI that risk producing false but seemingly convincing information. Therefore, this study recommends expanding the TPACK structure by adding the dimension of Epistemic Verification. This new dimension focuses on methodological validation, tracing of source authority, and ethical-factual filtering, which are very crucial applied to high-accuracy disciplines such as history, Qur'an-Hadith studies, and Islamic religious science in general.

Synthesis and Critical Analysis

The empirical insights derived from MAN 2 Klaten demonstrate a transformative shift in teaching Islamic Cultural History (ICH), moving beyond traditional memorization toward a technologically augmented, critically curated learning environment. By strategically embedding generative artificial intelligence tools—such as ChatGPT, Gemini, Canva, and Kahoot—into instructional planning, classroom engagement, and educational assessment, the educator effectively bridges the gap between digital innovation and historical rigor. This synthesis highlights how technological adoption does not diminish the teacher's scholarly role; rather, it elevates the educator into an epistemic curator and AI-output validator who safeguards historical accuracy against algorithmic hallucinations, potential bias, and information distortion.

At the core of this pedagogical integration is the implementation of a robust, multi-layered verification strategy. By establishing a systematic triangulated workflow—linking AI-generated drafts, authoritative textbook cross-checking, and interactive classroom dialogues—the pedagogical model mitigates the risks of cognitive offloading and passive student dependency. Learners are transformed from passive recipients of historical narratives into active critical evaluators capable of probing chronological nuances, cause-and-effect relationships, and contemporary relevance, such as drawing parallels between early Islamic diplomatic treaties and modern human rights frameworks. In this manner, technology empowers students to engage thoughtfully with complex historical dynamics and diverse global perspectives.

Furthermore, these empirical findings offer a vital conceptual extension to the Technological Pedagogical Content Knowledge (TPACK) framework within faith-based and historical disciplines. Conventional TPACK models often emphasize technical fluency and general instructional design; however, the unique epistemic demands of ICH necessitate an explicit "Epistemic Verification" dimension. This dimension mandates ongoing factual scrutiny, ethical moderation, pedagogical reflection, and rigorous source authentication when processing digital outputs. Ultimately, the study confirms that generative AI functions optimally not as an autonomous authority, but as a responsive cognitive partner under human pedagogical control. This balanced synergy establishes a sustainable, highly replicable model for modern madrasahs navigating complex digital transformations, ensuring that technological integration enhances critical thinking, historical empathy, and digital literacy while firmly preserving foundational Islamic values, contextual relevance, and rigorous historical integrity across diverse modern educational settings

CONCLUSION

This study concludes that ICH teachers at MAN 2 Klaten utilize AI in an integrated manner in three main areas of learning. In the delivery of materials, AI is used from the needs analysis and planning stages to compile summaries, concept maps, historical chronology, and triggering questions, as well as develop interactive media. In learning activities, AI is positioned as a learning partner whose output is mandatory compared with textbooks and other historical sources through the design of verification tasks, thus maintaining the critical

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thinking process of students. In assessment, AI helps to prepare multiple-choice questions, descriptions, HOTS, interactive quizzes, grids, rubrics, and feedback, with teachers acting as the main validator before the instrument is used. Overall, the teacher's strategy is characterized by an integrative approach but still centered on the authority and professional responsibility of the teacher (human-centered), with the pattern of the "layered verification" strategy as the main novelty of this research in maintaining historical validity while preventing students' cognitive dependence on AI. This study has limitations in the form of a single case study design with one key informant so that the findings cannot be generalized widely. Further research is suggested to expand the number of informants, involve direct participatory observation, and develop quantitative evaluation instruments to measure the effectiveness of the layered verification pattern on students' learning outcomes in ICH subjects in a more measurable manner.

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Authors Contributions

Robbi Zidni Fawwaz conceptualized the study, conducted interviews, analyzed the data, and drafted the manuscript. Badrus Zaman contributed to the theoretical framework, methodological refinement, interpretation of findings, critical revision, and final manuscript approval. Both authors approved the submitted version.

Conflict of Interest

The authors declare that they have no competing financial, professional, or personal interests that could have influenced the research design, data collection, analysis, interpretation, or presentation of findings reported in this article.

Use of Artificial Intelligence (AI)

Generative artificial intelligence tools were used to support language refinement and manuscript preparation. The authors independently verified the content, reviewed all revisions, and accept full responsibility for the accuracy, originality, integrity, and final published version.

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