

THE INTEGRATION OF TURATS AND DIGITAL TECHNOLOGY IN ISLAMIC RELIGIOUS EDUCATION: DEVELOPING A LEARNING MODEL TO STRENGTHEN STUDENTS' ISLAMIC CRITICAL REASONING

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Abstract

This study aims to develop and test the effectiveness of the Turats-Digital Integration Model for Strengthening Islamic Critical Reasoning (ITD-NKK), an Islamic Religious Education (PAI) learning model that combines classical turats studies with the use of digital technology to address the need for strengthening students' Islamic critical reasoning amid the rapid flow of digital religious information whose validity is not always accountable. The study employs a Research and Development (R&D) approach using the 4D model (Define, Design, Develop, Disseminate) combined with a quasi-experimental non-equivalent control group design. Trial subjects were students from two parallel classes at the secondary education level, serving as the experimental and control groups respectively. Data collection instruments included expert validation sheets, student and teacher response questionnaires, Islamic critical reasoning tests (pre-test and post-test), and learning implementation observation guidelines. Quantitative data were analyzed using an independent sample t-test and N-Gain calculation, while qualitative data were analyzed descriptively and interpretively. The findings indicate that the ITD-NKK model is valid, practical, and effective for implementation, with a significant increase in Islamic critical reasoning among experimental group students compared to the control group. The model offers a learning flow that combines turats text reading with digital verification activities, structured online forum discussions, and contextual analysis assignments supported by digital applications. The implications of this study affirm that integrating turats and digital technology can be an effective strategy to equip students with Islamic critical thinking skills grounded in authoritative sources, rather than mere passive consumption of digital religious information.

Keywords : *Turats; Digital Technology; Islamic Critical Thinking; Islamic Religious Education; Research and Development*

Abstrak

Penelitian ini bertujuan untuk mengembangkan dan menguji keefektifan Model Integrasi Turats-Digital untuk Penguatan Berpikir Kritis Islam (ITD-NKK), sebuah model pembelajaran Pendidikan Agama Islam (PAI) yang menggabungkan studi turats klasik dengan pemanfaatan teknologi digital guna menjawab kebutuhan penguatan kemampuan berpikir kritis Islam siswa di tengah arus informasi keagamaan digital yang begitu pesat, yang validitasnya tidak selalu dapat dipertanggungjawabkan. Penelitian ini menggunakan pendekatan Penelitian dan Pengembangan (R&D) dengan model 4D (Define, Design, Develop, Disseminate) yang dikombinasikan dengan desain kuasi-eksperimental kelompok kontrol tidak setara. Subjek uji coba adalah siswa dari dua kelas paralel di tingkat pendidikan menengah, yang masing-masing berfungsi sebagai kelompok eksperimen dan kelompok kontrol. Instrumen pengumpulan data meliputi lembar validasi ahli, kuesioner tanggapan

siswa dan guru, tes penalaran kritis Islam (pra-tes dan pasca-tes), serta pedoman observasi implementasi pembelajaran. Data kuantitatif dianalisis menggunakan uji-t sampel independen dan perhitungan N-Gain, sedangkan data kualitatif dianalisis secara deskriptif dan interpretatif. Temuan penelitian menunjukkan bahwa model ITD-NKK valid, praktis, dan efektif untuk diterapkan, dengan peningkatan yang signifikan dalam penalaran kritis Islam di kalangan siswa kelompok eksperimen dibandingkan dengan kelompok kontrol. Model ini menawarkan alur pembelajaran yang memadukan pembacaan teks turats dengan kegiatan verifikasi digital, diskusi forum daring yang terstruktur, serta tugas analisis kontekstual yang didukung oleh aplikasi digital. Implikasi dari penelitian ini menegaskan bahwa integrasi turats dan teknologi digital dapat menjadi strategi yang efektif untuk membekali siswa dengan keterampilan berpikir kritis Islam yang berlandaskan pada sumber-sumber otoritatif, alih-alih sekadar mengonsumsi informasi keagamaan digital secara pasif.

Kata Kunci: *Turats; Teknologi Digital; Berpikir Kritis Islam; Pendidikan Agama Islam; Penelitian dan Pengembangan*

INTRODUCTION

The development of digital technology has fundamentally transformed the way students access religious information. In the past, the authority of Islamic scholarship was grounded in a clear teacher–student transmission chain through sanad (chains of transmission). Today, however, students are able to access thousands of religious contents within seconds through search engines, social media, and online video platforms, often without adequate mechanisms for verifying scholarly authority. This phenomenon has given rise to what may be described as a religious information flood, in which students are confronted with a plurality of conflicting religious truth claims, delivered with equal confidence by both credible sources and those lacking sufficient scholarly foundation.

This condition creates a particular vulnerability for students of Islamic Religious Education (Pendidikan Agama Islam / PAI), who ideally should be equipped with the ability to filter, analyze, and evaluate the religious claims they encounter rather than accept them passively. Unfortunately, PAI instructional practices in many educational institutions remain dominated by a one-way knowledge transmission approach, in which students are positioned as passive recipients of teachers' explanations and are not systematically trained to engage in critical reasoning regarding religious sources and arguments. Consequently, when students leave the classroom and confront the overwhelming flow of digital religious information, they often lack the methodological foundation necessary to assess the validity and authority of the sources they encounter.

On the other hand, the study of turats—the classical Islamic intellectual heritage preserved in traditional Islamic texts—actually contains methodological traditions that are highly relevant for cultivating critical reasoning. These include ta'līl (the search for legal reasoning), ikhtilāf (the dialectics of scholarly

disagreement), and *tarjih* (the comparison and selection of stronger opinions). In essence, these traditions represent an early form of critical literacy, in which learners are trained not to accept a single opinion absolutely, but rather to understand its argumentative basis, context, and comparison with alternative views before arriving at a conclusion. However, this methodological potential is rarely made explicit and intentionally integrated into contemporary PAI instructional design. As a result, the rich tradition of critical thinking embedded in classical turats has not been optimally utilized to respond to the challenges of contemporary digital literacy.

Studies on the integration of technology in PAI learning have thus far tended to focus on the technical aspects of utilizing applications or digital platforms as tools for content delivery, without deeply addressing how such technologies may function as instruments for cultivating Islamic critical reasoning rooted in the methodology of turats itself. Conversely, studies on the revitalization of turats generally focus on preserving traditional teaching methods without considering how digital technology may strengthen—rather than replace—the critical reasoning process that lies at the core of the tradition. It is precisely this gap at the intersection of the two traditions of inquiry that the present study seeks to address.

Al-Faruqi (1982), through his concept of the Islamization of Knowledge, emphasized the importance of a creative synthesis between the heritage of classical Islamic scholarship and modern methodological tools, without placing either in a subordinate position. This idea becomes particularly relevant when viewed in the context of the encounter between turats and digital technology: turats should not be displaced in the name of modernization, nor should digital technology be rejected in the name of authenticity. Rather, the two can be synthesized so that the methodological strength of turats in cultivating critical reasoning may be reinforced through digital tools that facilitate verification, comparison, and discussion.

The concept of Higher Order Religious Thinking (HORT) also serves as an important foundation for this study, affirming that religious learning should not stop at the level of memorization and passive reception, but should instead encourage the abilities of analysis, evaluation, and synthesis of religious arguments. When integrated with the framework of Technological Pedagogical Content Knowledge (TPACK), which emphasizes alignment among content, pedagogy, and technology, HORT can be translated into a learning design that explicitly employs digital technology as a means of training students to verify sources, compare arguments, and construct religious conclusions independently while remaining grounded in sound Islamic scholarly methodology.

Another phenomenon that reinforces the urgency of this study is the finding of various surveys on religious digital literacy showing that the majority of young Muslims access religious information for the first time through digital platforms rather than directly through teachers or *kiai*. Yet, they are often not equipped with sufficient ability to trace the authority and validity of those sources. This condition creates vulnerability to the spread of religious understandings that are incorrect,

superficial, or even inclined toward exclusivist and intolerant interpretations, because students are not trained to carry out *tabayyun* (verification/clarification) and *tarjīh* (selection of the strongest opinion) methodologically before accepting a religious claim as truth.

Based on this background, the present study is formulated to answer three main questions: (1) what is the valid design of the Turats–Digital Integration Model for Strengthening Islamic Critical Reasoning (ITD-NKK) for PAI learning; (2) how practical is the ITD-NKK model in instructional implementation; and (3) how effective is the ITD-NKK model in improving students' Islamic critical reasoning compared with conventional learning. The objective of this study is to produce a PAI learning model that is valid, practical, and effective in strengthening students' Islamic critical reasoning through the integration of turats and digital technology, while also contributing theoretically to the development of PAI instructional design that is responsive to the challenges of contemporary digital literacy.

The significance of this study may be viewed from three dimensions. From an academic perspective, this study enriches the discourse on PAI instructional design by offering a model that specifically brings together the critical thinking methodology embedded in the turats tradition and contemporary digital technological tools. From a practical-pedagogical perspective, the ITD-NKK model provides operational guidance that can be adopted by PAI teachers to cultivate students' critical reasoning without requiring a comprehensive restructuring of the curriculum. From a socio-religious perspective, this study contributes to efforts to equip young Muslims with the ability to critically and responsibly filter digital religious information, thereby reducing vulnerability to the spread of incorrect or superficial religious understandings in digital spaces.

Studies on the relationship between religion and new media also provide an additional perspective relevant to this study. Campbell (2010) argues that the presence of digital technology in religious life cannot be understood simply as either a threat or a blessing, but rather as a complex field of negotiation between traditional religious authority and new forms of authority emerging in digital spaces. This perspective is relevant for understanding why both a defensively anti-digital approach and an uncritical acceptance of digital technology risk failing to equip students with the ability to navigate the contested field of digital religious authority in a healthy and informed manner.

In addition, studies on the myth of the digital native generation (Kirschner & De Bruyckere, 2017) remind us that students' technical fluency in using digital devices does not automatically translate into critical thinking skills in evaluating the content they consume. The mistaken assumption that young people naturally possess adequate digital literacy often becomes one of the reasons why critical digital religious literacy has not yet become an explicit priority in the design of the

PAI curriculum, even though it is precisely at this point that deliberate pedagogical intervention is most urgently needed.

METHOD

This study employed a Research and Development (R&D) approach using the 4D development model (Define, Design, Develop, Disseminate) proposed by Thiagarajan, selected for its suitability to the development of instructional tools within formal educational settings. The Define stage involved a needs analysis through a review of Islamic Religious Education (PAI) curriculum documents, interviews with teachers, and preliminary observations of students' Islamic critical reasoning abilities and their patterns of consuming digital religious information. The Design stage produced the initial draft of the ITD-NKK model and its supporting components, including the learning flow, turats-digital integrated teaching modules, and instruments for assessing Islamic critical reasoning. The Develop stage involved expert validation of the model and limited-scale trials, followed by a field trial using a quasi-experimental design. The Disseminate stage was carried out on a limited basis by presenting the results to the PAI Subject Teachers' Forum (Musyawarah Guru Mata Pelajaran / MGMP) as an initial step toward wider model dissemination.

To examine the effectiveness of the model, this study employed a quasi-experimental non-equivalent control group design, involving an experimental group that implemented the ITD-NKK model and a control group that received conventional PAI instruction without structured digital integration. Both groups were given a pre-test before the treatment and a post-test after the treatment to measure improvement in Islamic critical reasoning. The research participants were secondary-level students divided into two parallel classes with relatively equivalent academic characteristics based on the results of an initial placement test. The experimental group consisted of 34 students, while the control group consisted of 33 students, with proportional distributions of gender and levels of access to digital devices across both groups.

The data collection instruments in this study consisted of four types. First, expert validation sheets were used to assess the feasibility of the model in terms of Islamic content, instructional design, and the use of digital technology. These were reviewed by three expert validators: a PAI curriculum expert, an educational technology expert, and an experienced PAI teacher practitioner. Second, student and teacher response questionnaires were administered to measure the practicality of the model, using a Likert scale ranging from 1 to 5. Third, an Islamic critical reasoning test in the form of case-based essay questions was used to assess four indicators: the ability to identify religious claims, trace sources and authority, compare differing arguments, and construct balanced conclusions. This test underwent prior content validity and reliability testing before use. Fourth, learning implementation observation guidelines were employed to document the process of implementing the model in the experimental class, including the use of digital devices in verification and discussion activities.

Data analysis was conducted using a mixed-methods approach. Expert validation data and practicality response data were analyzed quantitatively and descriptively by calculating mean scores and converting them into feasibility categories based on interval scales. Pre-test and post-test data were analyzed through prerequisite tests, namely the Shapiro-Wilk normality test and Levene's Test of homogeneity, followed by an independent sample t-test to examine differences in mean scores between the experimental and control groups. In addition, a normalized N-Gain calculation was used to determine the magnitude of improvement in Islamic critical reasoning in each group. Qualitative data obtained from observations and interviews were analyzed descriptively and interpretatively following the stages of data reduction, data display, and conclusion drawing, as developed by Miles and Huberman.

To ensure data quality, several control procedures were implemented. The Islamic critical reasoning test instrument was first piloted on a group outside the research participants in order to calculate its reliability coefficient using Cronbach's Alpha, with the criterion that the instrument was considered reliable if the coefficient exceeded 0.70. The content validity of the instrument was examined by two educational assessment experts and one Islamic studies expert using the Content Validity Ratio (CVR) technique. To reduce scoring bias in the essay-based test, two independent raters were employed using an analytical scoring rubric, and inter-rater agreement was calculated using Cohen's Kappa coefficient.

The overall research procedure was conducted over the course of one academic semester and was divided into three phases. The preparation phase, which involved the development and validation of the model and all research instruments, lasted for the first month. The field trial implementation phase, which included the administration of the pre-test, the implementation of the ITD-NKK model in the experimental group and conventional instruction in the control group over twelve meetings, as well as the administration of the post-test, lasted for three months. The analysis and reporting phase, which included data processing, interpretation of findings, and the preparation of the final research report, was conducted in the final month. All research participants provided informed consent to participate, and the control group was given the opportunity to take part in additional sessions using the ITD-NKK model after the post-test data collection had been completed, in order to uphold the principle of fairness in educational research.

The selection of the research site and participants also took into account the readiness of digital infrastructure, given that the ITD-NKK model requires adequate internet access and digital devices to support online verification activities and structured online discussions. The educational institution selected as the research site had a computer laboratory with a stable internet connection, thereby minimizing technical obstacles during the field trial. Nevertheless, the researcher also prepared a backup scenario in the form of concise printed modules for students

who encountered access difficulties at certain moments, so that the continuity of learning would not be disrupted by technical factors beyond the researcher's control.

As part of the research design, control was also exercised over extraneous variables that could potentially influence the findings, such as teachers' experience in teaching PAI subjects and students' basic digital skills. Both groups were taught by teachers with comparable teaching experience who had also received brief training in the use of the digital applications employed in the study. Meanwhile, students' basic digital skills in both groups were verified through a digital readiness questionnaire prior to the commencement of the study. This was intended to ensure that any observed differences in learning outcomes were attributable primarily to the instructional treatment rather than merely to differences in students' technical ability to use digital devices.

FINDINGS AND DISCUSSION

This section presents the findings of the development of the Turats-Digital Integration Model for Strengthening Islamic Critical Reasoning (ITD-NKK) following the stages of the 4D model, followed by a discussion of the findings. It should be emphasized that all numerical figures and quantitative data presented in this section are illustrative only as examples of how R&D findings may be reported, and must be replaced with actual field data before this manuscript is submitted for publication.

Results of the Define Stage (Needs Analysis)

The needs analysis was conducted through a document study of the PAI curriculum, interviews with six PAI teachers, and a preliminary survey of 45 students who were prospective research participants regarding their patterns of consuming digital religious information. The document analysis revealed that the learning outcomes of the PAI subject generally include the need to strengthen critical reasoning; however, these outcomes have not yet been translated into indicators and learning activities that explicitly train students to verify sources and compare religious arguments. Interviews with teachers confirmed that the majority of PAI learning activities still rely on lectures and one-way question-and-answer sessions, while the use of digital technology is generally limited to presentation slides or motivational religious videos rather than being employed as a means of cultivating critical reasoning.

The student survey showed that the majority of students first accessed religious information through social media and online video platforms, and they tended to place a relatively high level of trust in such sources, even though most admitted that they had never conducted further investigation into the scholarly background of the information providers. A small number of students demonstrated awareness of the need for verification; however, they did not possess a clear methodological strategy for doing so. These findings reinforce the urgency of

developing a learning model that explicitly trains students in the skills of verifying and comparing religious sources based on the methodological tradition of turats.

Results of the Design Stage (Model Design)

Based on the results of the needs analysis, a conceptual framework for the ITD-NKK model was designed, consisting of four main components: (a) A Map of Islamic Critical Reasoning Indicators, which elaborates four measurable domains—claim identification, source authority tracing, argument comparison (ikhtilaf), and balanced conclusion construction (tarjih)—each accompanied by clear achievement indicators; (b) A Staged Turats–Digital Learning Flow, which integrates the reading of short turats texts as the basis of classical argumentation with digital verification activities using digital Islamic text databases and credible academic search engines; (c) A Structured Digital Discussion Forum, in the form of an online discussion forum equipped with guiding questions that encourage students to compare scholars' opinions systematically; and (d) An Authentic Islamic Critical Reasoning Assessment Instrument, consisting of a rubric for evaluating assignments involving the analysis of contemporary religious cases, aligned with the formulated achievement indicators.

The ITD-NKK teaching modules were designed using materials from contemporary fiqh themes relevant to students' daily lives, such as digital muamalah issues and ethics of social media use. These themes were analyzed by referring to classical turats texts such as *Bidayah al-Mujtahid* and *Al-Fiqh al-Islami wa Adillatuh*, and were subsequently verified and enriched through digital searches in official fatwa databases and credible Islamic academic journals. This initial design was then documented in the form of a model draft and supporting instructional devices to be validated in the next stage.

Results of the Develop Stage (Validation and Trial)

The draft of the ITD-NKK model was validated by three experts representing the fields of PAI curriculum, educational technology, and PAI instructional practice in schools. The results of the expert validation are presented in Table 1.

Table 1. Expert Validation Results of the ITD-NKK

Assessment Aspect	Validator 1	Validator 2	Validator 3	Mean	Category
Relevance of Islamic Content	4.5	4.7	4.4	4.53	Very Valid
Learning Flow Design	4.3	4.4	4.6	4.43	Very Valid
Digital Technology Integration	4.4	4.2	4.5	4.37	Very Valid
Islamic Critical Reasoning Assessment Instrument	4.1	4.3	4.4	4.27	Valid

Assessment Aspect	Validator 1	Validator 2	Validator 3	Mean	Category
Module Language and Readability	4.6	4.5	4.7	4.60	Very Valid

Source: Primary data processed by the author, 2026.

The overall mean score of the expert validation was 4.44 out of a maximum scale of 5 (categorized as very valid), indicating that the ITD-NKK model was conceptually feasible for pilot implementation. Several revision notes were provided by the validators, including the need to add technical guidelines for the use of digital applications for teachers who are less familiar with technology, as well as the simplification of the assessment rubric so that it could be more easily applied in classes with a large number of students. Revisions were made before the model was piloted on a small group of ten students, the results of which showed that the model could be followed well, although adjustments were needed in the time allocation for digital discussion forums so that they would not exceed the available instructional hours.

The limited trial also generated important feedback regarding the gap in access to digital devices among students. Some students did not have adequate access to personal devices to participate independently in digital verification sessions outside classroom hours. Consequently, the model was modified by providing school computer laboratory sessions as an alternative for students facing such access constraints, in order to ensure the principle of equal learning opportunities in the implementation of the model.

Results of the Implementation Stage (Field Trial / Quasi-Experiment)

The field trial was conducted with an experimental group ($n = 34$) that implemented the ITD-NKK model over the course of one semester, and a control group ($n = 33$) that received conventional PAI instruction. Prior to the treatment, both groups were administered an Islamic critical reasoning pre-test. The results of the Shapiro–Wilk normality test indicated that the pre-test data of both groups were normally distributed ($p > 0.05$), while the Levene’s Test of homogeneity showed that the variances of the two groups were homogeneous ($p > 0.05$). Therefore, an independent sample t-test could be applied. The results of the t-test on the pre-test data showed no significant difference between the two groups ($p = 0.358$), confirming the equivalence of their initial abilities as a prerequisite for the quasi-experimental design.

After one semester of treatment, both groups were given a post-test using an equivalent instrument. A summary of the pre-test and post-test results is presented in Table 2.

Table 2. Summary of Pre-test and Post-test Results of Islamic Critical Reasoning

Group	Mean Pre-test	Mean Post-test	N-Gain	N-Gain Category
Experimental (ITD-NKK)	48.6	79.2	0.60	Moderate-High
Control (Conventional)	47.9	58.4	0.20	Low

Source: Primary data, processed in 2026.

The results of the independent sample t-test conducted on the post-test data showed a t value of 7.12 with $p = 0.000$ ($p < 0.05$), indicating that there was a statistically significant difference in mean scores between the experimental group and the control group after the treatment. The normalized N-Gain calculation showed that the experimental group reached a moderate-to-high category (0.60), which was substantially higher than that of the control group, which remained in the low category (0.20). These findings indicate that, in the context of this trial, the ITD-NKK model was empirically more effective in improving students' Islamic critical reasoning than conventional instruction.

The results of the learning implementation observation in the experimental group showed an average implementation rate of 86%, with the note that digital verification activities—in which students traced the sources and scholarly authority behind the religious claims being discussed—were the component that generated the highest level of student engagement. In contrast, the structured digital discussion forum required more intensive teacher facilitation during the initial meetings, as students were not yet accustomed to a discussion pattern that demanded source-based argumentation. Student response questionnaires regarding the practicality of the model yielded an average score of 4.28 out of 5 (practical category), with the most appreciated aspect being the relevance of the themes discussed to the students' everyday experiences in digital spaces.

Results of the Disseminate Stage and General Discussion

The limited dissemination of the model development results to the PAI MGMP forum received a positive response. Several teachers expressed interest in adapting the model to the subjects they teach, although they also highlighted the need for further training in the technical integration of digital technology into turats-based learning. The summative evaluation of the overall development process confirmed that the ITD-NKK model met the three quality criteria of an R&D product, namely validity, practicality, and effectiveness. These findings have several theoretical and practical implications that merit further discussion.

First, the finding that the integration of digital verification activities into turats-based learning improved students' Islamic critical reasoning confirms the argument that digital technology is not inherently incompatible with the classical Islamic scholarly tradition, as long as its use is intentionally designed to strengthen

rather than replace the critical reasoning methodologies that have long existed within the turats tradition, such as *ta'lil*, *ikhtilaf*, and *tarjih*. Concerns that digital technology may trivialize religious understanding appear to be more closely related to how technology is used—whether as a tool for passive consumption or active verification—rather than to the existence of the technology itself.

Second, the success of this model is consistent with the framework of Higher Order Religious Thinking (HORT), which emphasizes that religious learning should encourage analysis and evaluation, not merely memorization. The significant improvement in the domains of source authority tracing and argument comparison among students in the experimental group indicates that the ITD-NKK model successfully moved students from the level of passive reception of religious information to the level of critical analysis and evaluation, which is one of the central goals of HORT in the context of religious education.

Third, from the perspective of the Technological Pedagogical Content Knowledge (TPACK) framework, the success of this model confirms the importance of alignment among content (turats materials), pedagogy (a staged learning flow and structured discussion forums), and technology (verification applications and digital databases). When designed in an integrated manner, these three elements produce a more meaningful learning experience than the use of digital technology in isolation from pedagogical considerations and deep Islamic content knowledge.

Fourth, the finding of a low N-Gain in the control group strengthens the argument that conventional PAI instruction, which focuses on one-way knowledge transmission, risks producing students who cognitively understand religious content but are not trained to question, verify, or compare sources when confronted with digital religious information outside the classroom. This condition serves as a warning that mastery of religious subject matter alone, without accompanying methodological skills for navigating the flow of digital information, is no longer sufficient to prepare students for the complexity of the contemporary religious information landscape.

Fifth, from the perspective of *maqashid al-shari'ah*, the ITD-NKK model may be understood as a contemporary effort to simultaneously preserve *hifz al-'aql* (the protection of intellect) and *hifz al-din* (the protection of religion). By equipping students with critical reasoning skills, the model protects them from misleading religious information while also strengthening their religious commitment through understanding grounded in sound arguments and authoritative sources rather than through passive obedience without deep comprehension.

Sixth, the findings of this study also reinforce the importance of the teacher's role as a facilitator rather than merely a transmitter of content in learning that is oriented toward strengthening critical reasoning. Field observations showed that the success of the model's implementation was strongly influenced by the teacher's ability to guide digital discussion forums so that they remained productive and did not devolve into non-substantive debate, as well as by the teacher's ability to provide appropriate scaffolding when students experienced difficulty tracing

authoritative sources amid the flood of digital information. This confirms that the successful integration of turats and digital technology depends not only on the sophistication of the devices used but also on the pedagogical readiness of teachers to facilitate students' critical reasoning processes.

Comparison with previous studies on the integration of technology in religious education reveals a consistent pattern. Various studies on digital religious literacy emphasize the importance of equipping young people with the ability to perform digital tabayyun; however, most of these studies stop at the level of general recommendations without offering an empirically tested learning model. This study fills that gap by producing a concrete model that has undergone a systematic development process and quantitative effectiveness testing, thereby offering an operational reference for educational institutions seeking to adopt a similar approach.

This study is not without limitations. The trial was conducted on a limited scale in one educational institution over the course of one semester, meaning that the generalizability of the findings to other school contexts with different student characteristics and levels of digital infrastructure should be approached with caution. In addition, the measurement of effectiveness in this study focused primarily on the cognitive dimension of critical reasoning, whereas students' long-term digital behavior in responding to religious information outside formal learning contexts was not examined in depth and requires further investigation through longitudinal research designs.

Another limitation that must be acknowledged is the model's dependence on the availability of adequate digital infrastructure, including internet access and digital devices, which are not equally available across educational institutions in different regions, especially in areas with limited technological infrastructure. This condition is an important consideration for institutions intending to adopt the ITD-NKK model, and they should prepare mitigation strategies for digital access inequality, as was done in this study through the provision of school computer laboratory sessions.

For future research, it is recommended that experimental designs be expanded to involve more than one educational institution across different levels and geographical characteristics in order to test the broader generalizability of the ITD-NKK model. In addition, future studies should explore the long-term impact of this model on students' religious digital literacy behavior outside formal learning contexts, as well as examine the possibility of developing a dedicated digital application specifically designed to support the implementation of this model in a more integrated and autonomous manner.

Another aspect worthy of attention in future research is the role of parents and the family environment in supporting the strengthening of students' Islamic critical reasoning in digital spaces. Given that most digital religious information

consumption takes place outside school hours and beyond teacher supervision, the sustainability of the ITD-NKK model's impact is likely to be influenced by the extent to which the family environment either supports or undermines the habits of critical verification cultivated at school. Future studies that involve parents as part of the intervention design—for example, through brief socialization sessions on the importance of assisting religious digital literacy at home—have the potential to strengthen the sustainability of the model's impact in a more holistic way.

CONCLUSION

This study concludes that the Turats-Digital Integration Model for Strengthening Islamic Critical Reasoning (ITD-NKK) was successfully developed through the 4D stages and was proven to be valid, practical, and effective in improving students' Islamic critical reasoning. The validity of the model was confirmed through expert evaluation, which categorized it as highly valid; its practicality was confirmed through a high level of learning implementation and positive student responses; and its effectiveness was confirmed through a significant t-test result and a higher N-Gain score in the experimental group compared to the control group.

The principal contribution of this study lies in its offering of a conceptual and operational framework that positions digital technology not as a threat to the authenticity of Islamic studies, but rather as a means of strengthening the critical reasoning methodologies long embedded within the turats tradition, such as *ta'lil*, *ikhtilaf*, and *tarjih*. The model demonstrates that strengthening students' Islamic critical reasoning in the digital age does not require distancing them from technology; instead, it requires equipping them with the appropriate methodology to use that technology critically and responsibly.

Based on these findings, it is recommended that educational institutions offering PAI instruction consider adopting a similar framework, with adjustments to their respective local contexts, particularly regarding the availability of digital infrastructure and teachers' readiness to integrate technology into Islamic learning. Future studies are recommended to test this model on a broader scale and over a longer duration, as well as to explore its long-term impact on students' religious digital literacy behavior beyond formal instructional contexts.

More broadly, this study confirms that the challenge of digital religious literacy faced by contemporary young Muslims can in fact be addressed by reactivating the rich methodological heritage long preserved within the turats tradition, rather than by creating entirely new approaches disconnected from the roots of Islamic scholarship. In this way, Islamic Religious Education can play a strategic role in equipping students to face the complexity of digital information while remaining grounded in the authenticity of classical Islamic scholarly methodology that has been tested over centuries.

Ultimately, the success of the ITD-NKK model in this study also serves as a reminder that the modernization of Islamic Religious Education should not be

understood as a process of abandoning tradition in pursuit of contemporary relevance. Rather, it should be understood as a process of rearticulating the methodological richness of that tradition into forms capable of addressing contemporary challenges more effectively. Within this framework, PAI teachers are not positioned as actors who must choose between preserving the authenticity of turats and adopting digital technology; instead, they are envisioned as facilitators capable of bridging both for the best interests of students as they navigate the challenges of religious life in the digital era

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