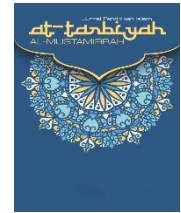




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Article

Analyzing the Gap between Conventional and TPACK-Based Assessment in Islamic Religious Education

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Abstract

This study aims to analyze the gap between the objectives of Islamic Religious Education (PAI) and assessment practices in schools, as well as to examine teacher-related factors from the perspective of Technological Pedagogical Content Knowledge (TPACK) and propose potential solutions. This research employs a qualitative approach using a library research method. Data were collected from relevant academic sources, including journal articles and scholarly books published between 2021 and 2026. The data were analyzed using a Systematic Literature Review (SLR) combined with content analysis. The findings reveal a significant gap between the holistic objectives of PAI and assessment practices that predominantly focus on cognitive aspects. This gap is influenced by teachers' limited ability to integrate technological, pedagogical, and content knowledge within the TPACK framework. As a result, assessment practices remain less authentic and fail to comprehensively measure students' affective and psychomotor competencies. The study highlights that strengthening teachers' TPACK competence is essential to developing more authentic, contextual, and technology-based assessments. This research contributes conceptually to the development of TPACK-based assessment in Islamic education and provides insights for improving the quality of educational evaluation in the digital era.

Keywords: Islamic Religious Education Assessment; Assessment Gap; TPACK; Teacher Competence; Technology-Based Learning

PUBLISHER'S NOTE

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INTRODUCTION

Assessment in Islamic Religious Education (PAI) should be able to comprehensively measure students' cognitive, affective, and psychomotor competencies. However, assessment practices in schools are still predominantly dominated by conventional cognitive-oriented evaluation through written tests that mainly emphasize memorization and conceptual understanding (Nst et al., 2025). Several studies criticize that such assessment practices have not been able to reflect the holistic objectives of PAI, particularly in measuring students' spiritual attitudes, moral values, and worship practices (Fadlillah & Kusaeri, 2024). As a

result, assessment in PAI tends to emphasize academic achievement rather than the internalization of Islamic values. This condition causes the evaluation process to become less capable of portraying students' character development and religious behavior comprehensively in everyday life. In fact, authentic assessment should function as a comprehensive instrument capable of evaluating students' competency development holistically (Kadir & Hasri, 2021).

This problem becomes increasingly serious in the digital era, where assessment is required to integrate technology, pedagogy, and content simultaneously. Nevertheless, conventional assessment practices in PAI are still dominated by manual and summative approaches, while the utilization of technology remains limited to administrative functions (Li & Li, 2024). , whereas TPACK-based assessment emphasizes authentic, technology-integrated, contextual, and process-oriented evaluation. In this context, the Technological Pedagogical Content Knowledge (TPACK) framework becomes relevant because it encourages teachers to integrate Technological Knowledge (TK), Pedagogical Knowledge (PK), and Content Knowledge (CK) in designing more meaningful assessment practices (Shambare & Simuja, 2024). Several previous studies indicate that the TPACK competence of PAI teachers is still not optimal, particularly in integrating technology into assessment and classroom practices, despite its significant contribution to improving technology-based learning quality (Afnan & Maksum, 2025). Furthermore, systematic reviews reveal that the implementation of TPACK in Islamic education continues to face various pedagogical and practical challenges, causing assessment practices to remain less authentic and insufficiently reflective of the holistic objectives of Islamic Religious Education

Although studies on TPACK and educational assessment continue to develop, most previous research still focuses on the general integration of technology in learning and has not specifically analyzed the gap between conventional assessment and TPACK-based assessment in Islamic Religious Education (Akyuz, 2018). Furthermore, existing studies often position TPACK merely as a general teaching competence without deeply examining its relationship with assessment problems in the context of PAI (Saputro et al., 2025). In fact, the assessment gap in PAI is not only caused by technical limitations but is also influenced by teachers' inability to simultaneously integrate the three main components of TPACK in assessment practices (Ning et al., 2022). Consequently, assessment practices remain dominated by cognitive evaluation and have not been able to optimally measure students' affective and psychomotor development. This condition indicates that the implementation of assessment in PAI has not yet fully reflected the holistic and value-oriented objectives of Islamic education. Therefore, further analysis is needed to understand how the imbalance of TPACK competencies contributes to the persistence of conventional assessment practices in Islamic Religious Education.

Teacher-related factors become one of the main aspects explaining the persistence of assessment gaps in PAI. Limitations in Technological Knowledge (TK) result in the underutilization of technology in assessment, while weaknesses in Pedagogical Knowledge (PK) affect teachers' understanding of authentic and process-based assessment (Clamucha & Napil, 2024). In addition, deficiencies in Content Knowledge (CK) influence teachers' ability to formulate assessment indicators that align with the characteristics and objectives of Islamic Religious Education (Jannah & Sutikno, 2024). Therefore, assessment practices in PAI still tend to be less holistic and not fully relevant to the demands of 21st-century learning. This condition causes the assessment process to focus more on cognitive achievement rather than on the development of students' character, spirituality, and religious practices comprehensively (Emawati et al., 2025). As a result, the implementation of assessment in

Islamic Religious Education has not yet fully reflected the principles of authentic, contextual, and competency-based evaluation required in the digital era.

Based on the explanation above, this study focuses on analyzing the gap between conventional assessment and TPACK-based assessment in Islamic Religious Education by positioning teacher-related factors within the TPACK framework as the main analytical perspective. This study aims to answer several research questions concerning the forms of assessment gaps in PAI practices, the influence of teacher-related factors from a TPACK perspective, and possible solutions to overcome these problems. By using a literature review approach, this study seeks to provide a comprehensive and systematic analysis of assessment problems in PAI. The novelty of this study lies in its effort to integrate three important aspects, namely assessment gaps in PAI, teacher-related factors, and the TPACK framework into a unified analytical perspective. Unlike previous studies that generally discuss TPACK in the context of learning in general, this study specifically emphasizes the gap between conventional assessment and TPACK-based assessment in Islamic Religious Education. Therefore, this study is expected to provide theoretical contributions to the development of TPACK-based assessment studies as well as practical contributions for teachers in designing more authentic, contextual, and technology-integrated assessment practices in the digital era.

METHOD

This study employed a Systematic Literature Review (SLR) approach using the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) framework. The PRISMA approach was used to ensure that the literature review process was conducted systematically, transparently, and comprehensively in analyzing the gap between conventional assessment and TPACK-based assessment in Islamic Religious Education (PAI) (Page et al., 2021). Data collection was conducted through literature searching in several academic databases, including Google Scholar, Scopus, and nationally accredited journals indexed by SINTA. The search process used several keywords, such as “TPACK,” “Islamic Religious Education assessment,” “conventional assessment,” “authentic assessment,” “technology-based assessment,” and “teacher competence.” The selected articles were publications from 2021–2026 that were relevant to PAI assessment, learning gaps, teacher-related factors, and the TPACK framework. Through this procedure, the study aimed to obtain relevant and credible literature sources capable of providing comprehensive insights into assessment problems and the implementation of TPACK in Islamic Religious Education.

The review process followed four stages in the PRISMA framework, namely identification, screening, eligibility, and inclusion. In the identification stage, relevant articles were collected from various databases using predetermined keywords (Page et al., 2021). In the screening stage, articles were selected based on title relevance, abstracts, publication year, and research focus, while the eligibility stage involved a more in-depth examination of the article content to determine its suitability with the objectives of this study. Finally, the inclusion stage resulted in selected articles that met the inclusion criteria and were considered relevant for further analysis. The inclusion criteria in this study were articles published between 2021 and 2026, studies discussing PAI assessment and TPACK-based assessment, research related to teacher-related factors in educational assessment, and publications originating from credible academic sources. Meanwhile, the exclusion criteria included articles that were irrelevant to the research topic, incomplete articles, duplicated publications, and studies that did not meet academic standards.

The data analysis technique combined the Systematic Literature Review (SLR) approach with content analysis. SLR was employed to systematically identify, evaluate, and synthesize findings from previous studies (Khairani & Nisa, 2024). While content analysis was used to categorize the findings into several major themes related to assessment gaps in PAI. The analysis focused on three main themes, namely cognitive-oriented assessment gaps, technology integration gaps, and teacher TPACK competency gaps. In analyzing teacher-related factors, this study used the Technological Pedagogical Content Knowledge (TPACK) framework developed by Punya Mishra and Matthew J. Koehler. This framework includes Technological Knowledge (TK), Pedagogical Knowledge (PK), and Content Knowledge (CK), which were used as analytical indicators to explain the relationship between teacher competencies and assessment practices in Islamic Religious Education (Dzulfiansyah et al., 2025). Through this analytical framework, the study sought to comprehensively understand how teacher competencies influence the persistence of conventional assessment practices in PAI learning.

RESULTS AND DISCUSSION

Forms of Assessment Gaps in Islamic Religious Education

In the field of educational evaluation, assessment is understood as a systematic process to measure the achievement of learning objectives, encompassing knowledge, attitudes, and skills in a comprehensive manner (Ahmad et al., 2025). In the context of Islamic Religious Education (PAI), assessment should not only focus on mastery of religious content but also on the internalization of Islamic values reflected in students' spiritual attitudes, morals, and worship practices (Ramli et al., 2025). Therefore, assessment in PAI should be holistic and authentic, enabling a comprehensive representation of students' competency development (Lisliningsih et al., 2024). Authentic assessment also emphasizes the importance of evaluating students through real-life activities and contextual learning experiences relevant to their daily lives. Through authentic assessment, teachers are expected to measure not only cognitive achievement but also students' behavioral, emotional, and spiritual development comprehensively. Consequently, assessment in Islamic Religious Education should function as a reflective and developmental process that supports the formation of students' Islamic character and competencies in a balanced manner.

However, various studies indicate that assessment practices in Islamic Religious Education in schools are still dominated by conventional evaluation that primarily focuses on cognitive aspects through written examinations and memorization-based learning (Negara et al., 2025). Teachers tend to emphasize students' academic achievement rather than assessing affective and psychomotor aspects, which are actually central objectives of Islamic Religious Education (Zakkiyah et al., 2024). In addition, the implementation of authentic assessment and technology integration in the evaluation process remains limited. Instruments such as portfolios, reflective journals, behavioral observations, and project-based assessments are still rarely implemented consistently in classroom practice (Rosfiani et al., 2025). This condition indicates a gap between the ideal objectives of Islamic Religious Education and the assessment practices implemented in schools. As a result, assessment activities in PAI have not yet been able to comprehensively portray students' spiritual development, moral behavior, and practical religious competencies in everyday life.

Table 1. Forms of Assessment Gaps in Islamic Religious Education

Researchers	Research Findings	Forms of Gap	Impact
Negara et al. (2025)	Assessment is still dominated by written examinations	Gap between the holistic objectives of PAI and cognitive-oriented assessment	Affective and psychomotor aspects are not optimally assessed
Zakkiyah et al. (2024)	Teachers focus more on final learning outcomes	Gap between process-oriented and result-oriented assessment	Internalization of Islamic values is less visible
Rosfiani et al. (2025)	Authentic assessment is rarely implemented	Gap between conventional and authentic assessment	Evaluation does not reflect real learning experiences
Wicaksono et al. (2025)	Technology use in assessment remains limited	Technology integration gap	Assessment is less interactive and contextual
Ning et al. (2022)	Teachers' TPACK competencies remain low	Gap in TK, PK, and CK competencies	Digital assessment has not been optimally implemented

Based on Table 1, the assessment gap in Islamic Religious Education is not only related to the dominance of cognitive-oriented evaluation but also includes the limited implementation of authentic assessment, inadequate technology integration, and weak teacher TPACK competencies. These findings indicate that assessment practices in PAI have not fully represented the holistic objectives of Islamic education, causing learning evaluation to focus more on academic achievement than on the development of students' character, spirituality, and religious practices comprehensively (Syamsiah & Prastowo, 2022). The literature review also indicates significant differences between conventional assessment and TPACK-based assessment in Islamic Religious Education. Conventional assessment tends to focus on measuring cognitive learning outcomes through written examinations and memorization-based evaluation, where teachers function as the primary evaluators who determine students' academic achievement through summative assessment (Dona et al., 2024). In contrast, TPACK-based assessment emphasizes the integration of technology, pedagogy, and content knowledge in the learning evaluation process, enabling teachers to develop more authentic, contextual, interactive, and process-oriented assessment practices. Through this approach, assessment is not only used to measure conceptual understanding but also to evaluate attitudes, skills, reflection, collaboration, and the application of Islamic values in students' daily lives.

Table 2. Comparison Between Conventional and TPACK-Based Assessment

Aspect	Conventional Assessment	TPACK-Based Assessment
Assessment Orientation	Focused on cognitive aspects	Holistic (cognitive, affective, psychomotor)
Assessment Method	Written tests and memorization	Authentic and technology-integrated assessment
Technology Use	Minimal and administrative	Integrated into learning and evaluation
Teacher Role	Primary evaluator	

		Facilitator and assessment designer
Assessment Focus	Final learning outcomes	Learning process and competency development
Assessment Instruments	Multiple-choice and essay tests	Portfolios, projects, digital assessment, reflective journals
Learning Outcomes	Academic achievement	Character and competency development

Table 2 demonstrates that TPACK-based assessment provides a more comprehensive approach compared to conventional assessment because it emphasizes not only final learning outcomes but also the overall process of students' competency development. Furthermore, technology integration within the TPACK framework enables assessment practices to become more flexible, contextual, interactive, and aligned with the demands of 21st-century learning. The literature review further indicates that teacher-related factors are among the primary causes of assessment gaps in Islamic Religious Education, particularly regarding teachers' ability to integrate Technological Knowledge (TK), Pedagogical Knowledge (PK), and Content Knowledge (CK) simultaneously in assessment practices. Many Islamic Religious Education teachers still utilize technology only for administrative purposes, such as assignment submission and simple online examinations, causing technology to be less optimally used to create authentic, reflective, and interactive assessment practices (Wicaksono et al., 2025). In addition, some teachers still have limited understanding of authentic assessment and process-oriented learning, resulting in assessment practices that remain dominated by conventional approaches focusing only on final learning outcomes. Consequently, assessment becomes less capable of comprehensively measuring students' attitudes, character development, skills, and religious practices in accordance with the objectives of Islamic Religious Education (Jannah & Sutikno, 2024).

These findings indicate that the low quality of assessment practices in Islamic Religious Education is not only caused by limitations in assessment instruments but also by the suboptimal competence of teachers in integrating technology, pedagogy, and content knowledge comprehensively. The findings further reveal that assessment gaps in Islamic Religious Education are not merely technical issues but are also closely related to the persistence of conventional evaluation paradigms in learning practices (Azizah & Maulaya, 2023). Most teachers still perceive assessment primarily as a tool for measuring students' academic achievement rather than as a reflective process for evaluating students' overall competency development. Consequently, assessment practices in PAI continue to be dominated by cognitive evaluation and remain less capable of representing the primary objectives of Islamic education, which emphasize character formation, spirituality, and religious practices (Sandy et al., 2023). From the TPACK perspective, this condition reflects an imbalance between technological, pedagogical, and content competencies in teachers' assessment practices, where teachers may possess adequate understanding of PAI materials but still lack sufficient pedagogical and technological competencies to develop authentic and digitally integrated assessment practices (Faizah & Sutopo, 2021). In addition, the use of technology in learning activities remains largely administrative and has not yet reached a

transformative level in educational evaluation, causing assessment practices to remain less contextual, reflective, and aligned with the demands of 21st-century learning.

These findings suggest that the transformation of assessment practices in PAI requires a paradigm shift from result-oriented evaluation toward more authentic, contextual, and process-based assessment approaches. In this context, the TPACK framework becomes essential because it integrates technology, pedagogy, and content knowledge simultaneously within assessment practices, enabling teachers to design more meaningful and holistic learning evaluation. Therefore, assessment should not only function as a tool for determining students' final scores but also as a medium for developing students' Islamic character and competencies holistically (Amin et al., 2024). Based on the findings of this study, several recommendations can be proposed to improve the quality of assessment practices in Islamic Religious Education, including continuous professional development programs to strengthen teachers' TPACK competencies, particularly in integrating technology into authentic assessment practices (Sari et al., 2021). Schools should also encourage the implementation of more holistic and competency-based assessment approaches through the use of portfolios, reflective journals, project-based assessment, digital assessment, and behavioral observation to assist teachers in evaluating students' development more comprehensively. Furthermore, educational institutions and policymakers need to provide adequate technological infrastructure and training to support the transformation toward TPACK-based assessment practices, while future studies are recommended to develop empirically applicable TPACK-based assessment models for Islamic Religious Education learning in schools.

Teacher Factors in the TPACK Perspective on Assessment Gaps in Islamic Religious Education

Within the framework of Technological Pedagogical Content Knowledge (TPACK), teachers' professional competence is not only understood as mastery of subject matter but also as the ability to integrate Technological Knowledge (TK), Pedagogical Knowledge (PK), and Content Knowledge (CK) simultaneously in learning and assessment practices (Mardati et al., 2024). In the context of Islamic Religious Education (PAI), the TPACK framework becomes highly relevant because assessment is expected not only to measure cognitive achievement but also to evaluate students' spiritual attitudes, moral values, and religious practices comprehensively (Solihin, 2025). However, the literature review indicates that assessment gaps in PAI are strongly associated with the imbalance of teachers' TPACK competencies, particularly in integrating technology, pedagogy, and content knowledge within assessment practices (Iskandar & Riantoni, 2023). Many teachers still experience difficulties in utilizing digital technology to support authentic and process-oriented assessment activities in classroom learning. In addition, pedagogical limitations also affect teachers' ability to design contextual and reflective assessment instruments that align with the characteristics of Islamic Religious Education. Consequently, assessment practices in PAI remain dominated by conventional evaluation approaches and have not yet fully reflected the holistic objectives of Islamic education in the digital era.

The first gap identified in this study is the Technological Knowledge (TK) gap, where many PAI teachers still demonstrate limited competence in utilizing digital technology for

assessment purposes. Technology is primarily used for administrative activities such as assignment submission, online attendance, or simple quizzes through platforms like Google Forms and WhatsApp, indicating that teachers often lack training and practical experience in designing technology-integrated assessment systems (Wuryan et al., 2026). As a consequence, assessment practices remain conventional and have not yet transformed into interactive, reflective, and authentic digital assessment, causing technology integration in PAI assessment to function merely as a substitution tool rather than as a transformative pedagogical instrument. The second gap relates to Pedagogical Knowledge (PK), where the literature review reveals that many teachers still possess limited understanding of authentic and process-oriented assessment approaches (Khoiriyah et al., 2025). Assessment practices continue to emphasize final learning outcomes because teachers are still strongly influenced by conventional evaluation paradigms that prioritize cognitive achievement and summative testing, resulting in affective and psychomotor dimensions being insufficiently assessed (Kalyana et al., 2025). Analytically, this gap demonstrates that teachers' pedagogical competence in assessment has not fully aligned with the holistic objectives of Islamic Religious Education, which require continuous, contextual, and competency-based evaluation processes.

The third gap is associated with Content Knowledge (CK), where several studies indicate that teachers still experience difficulties in translating the objectives of Islamic Religious Education into measurable and contextually relevant assessment indicators (Nenotaek & Novandini, 2024). This gap occurs because many assessment instruments remain general and are unable to specifically capture competencies related to Islamic character development, moral internalization, and spiritual awareness, causing assessment outcomes to fail in reflecting students' actual religious competencies comprehensively (Adi et al., 2025). From an analytical standpoint, this condition reflects a mismatch between the conceptual objectives of the PAI curriculum and the operational implementation of assessment practices in schools. The analysis further demonstrates that the three gaps Technological Knowledge (TK), Pedagogical Knowledge (PK), and Content Knowledge (CK) are interconnected and collectively contribute to the persistence of assessment gaps in Islamic Religious Education. The imbalance among these competencies has resulted in assessment practices that remain predominantly cognitive-oriented, minimally reflective, and insufficiently integrated with digital technology, while students with strong academic performance may not necessarily demonstrate strong internalization of Islamic values despite obtaining high assessment scores (Santoso et al., 2023). Consequently, assessment practices in PAI have not yet fully represented the holistic objectives of Islamic education, which emphasize character formation, spirituality, and religious practice comprehensively (Lailatus Sa'adah et al., 2025). (Harja & Sesmiarni, 2026).

Solutions and Implications for Improving Islamic Religious Education Assessment Based on TPACK

Conceptually, the improvement of assessment practices in Islamic Religious Education (PAI) in the era of digital transformation requires the comprehensive integration of technology, pedagogy, and content knowledge through the Technological Pedagogical Content Knowledge (TPACK) framework (Sofwan et al., 2024). Mishra and Koehler

emphasize that the quality of 21st-century learning is not determined by mastery of a single domain, but rather by teachers' ability to integrate Technological Knowledge (TK), Pedagogical Knowledge (PK), and Content Knowledge (CK) contextually and adaptively within learning and assessment practices (Shuaib, 2024). In the context of PAI, assessment should not merely function as a tool for measuring students' academic achievement, but also as an instrument for character formation, internalization of Islamic values, and reflection on students' spiritual development (Fauziah & Irawan, 2026). Therefore, the development of TPACK-based assessment becomes increasingly important in responding to curriculum demands that emphasize holistic, authentic, and competency-based learning. Through the integration of technology and pedagogy, teachers are expected to design assessment practices that are more contextual, interactive, and capable of comprehensively measuring students' cognitive, affective, and psychomotor competencies. Consequently, TPACK-based assessment can support the transformation of Islamic Religious Education learning toward more reflective, student-centered, and digitally integrated educational practices.

The literature review indicates that the implementation of TPACK-based assessment in Islamic Religious Education is still not optimally integrated in classroom practices (Wuryan et al., 2026). Teachers continue to rely predominantly on conventional assessment approaches that focus on final learning outcomes, while the use of technology remains largely administrative and substitutive rather than transformative (Anggraini et al., 2025). In addition, digital assessment tools are not yet consistently utilized to evaluate students' developmental processes comprehensively. Technology is still mainly used for assignment submission, online attendance, and simple testing rather than for developing reflective, authentic, and process-oriented assessment systems (Hidayati et al., 2025). This condition indicates that the integration of technology in assessment practices has not yet fully supported the achievement of holistic learning objectives in Islamic Religious Education. Consequently, assessment practices in PAI remain less contextual, minimally interactive, and insufficiently capable of measuring students' cognitive, affective, and psychomotor competencies in a balanced manner.

Table 3. Problems, Analysis, and Solutions of TPACK-Based Assessment in Islamic Religious Education

TPACK Aspect	Existing Problems	Critical Analysis	Proposed Solutions
Technological Knowledge (TK)	Technology is mainly used for administrative purposes and simple online testing	Technology integration has not yet reached a transformative pedagogical level and remains substitutive	Training in digital assessment, e-portfolios, learning analytics, and interactive assessment tools
Pedagogical Knowledge (PK)	Assessment remains result-oriented and dominated by summative evaluation	Teachers still adopt conventional assessment paradigms that focus on cognitive achievement	Implementation of authentic, formative, reflective, and process-based assessment
Content Knowledge	Difficulty translating	Assessment	Development of

(CK)	Islamic values into measurable assessment indicators	instruments are still general and unable to capture moral and spiritual competencies comprehensively	contextual and competency-based PAI assessment instruments
TPACK Integration	Lack of synergy between technology, pedagogy, and content knowledge	Assessment practices remain fragmented and fail to represent holistic Islamic education objectives	Continuous professional development programs based on integrated TPACK competencies

Based on Table 3, the main problem identified is not merely the lack of technology utilization in assessment practices, but the absence of a fully integrated TPACK competency ecosystem among PAI teachers. In terms of Technological Knowledge (TK), teachers still demonstrate limited competence in designing technology-based authentic assessment systems such as digital portfolios, learning analytics, and interactive assessment platforms, causing technology to function only as a supporting administrative tool rather than as a transformative pedagogical instrument (Wuryan et al., 2026). From the perspective of Pedagogical Knowledge (PK), assessment practices are still dominated by summative and product-oriented evaluation approaches, where teachers tend to emphasize final scores rather than students' developmental processes, reflective learning experiences, and competency growth. This condition indicates that assessment in PAI has not yet fully adopted authentic and contextual evaluation principles aligned with the holistic objectives of Islamic education, resulting in affective aspects such as morality, spirituality, and religious behavior not being systematically and continuously evaluated. Meanwhile, in terms of Content Knowledge (CK), teachers still experience difficulties in translating Islamic values such as worship discipline, moral behavior, and spiritual awareness into operational and measurable assessment indicators, causing assessment instruments to remain general and less capable of comprehensively capturing students' Islamic character development (Abdullah & Yusnaini, 2024). Consequently, assessment outcomes often fail to reflect the actual internalization of Islamic values in students' daily lives and remain less capable of representing the holistic objectives of Islamic Religious Education comprehensively.

The findings of this study indicate that the challenges of implementing TPACK-based assessment in PAI are not merely technical issues, but also reflect deeper pedagogical and epistemological problems in Islamic education. Teachers still tend to position assessment as an administrative requirement focused on academic achievement rather than as a reflective process for evaluating students' holistic competency development, causing the integration of technology in assessment to remain superficial and less transformative. Furthermore, the imbalance among Technological Knowledge (TK), Pedagogical Knowledge (PK), and Content Knowledge (CK) competencies demonstrates that the transformation of assessment in Islamic Religious Education requires not only technological support but also a paradigm shift in teachers' understanding of assessment itself. Without balanced TPACK integration, assessment practices will continue to remain cognitive-oriented and unable to accommodate

the broader objectives of Islamic education, particularly in developing students' character, spirituality, and religious practices comprehensively. This condition also creates a significant gap between students' academic achievement and their moral or spiritual development, where students may achieve high academic scores in PAI subjects without necessarily demonstrating the internalization of Islamic values in their daily attitudes and behavior (Azizah & Maulaya, 2023). Therefore, assessment has not yet fully functioned as an instrument of Islamic educational transformation capable of fostering holistic, reflective, and value-oriented student development in the digital era.

Empirical studies indicate that teachers with strong TPACK competencies are more capable of developing authentic and technology-based assessment practices that support reflective learning, collaboration, and 21st-century skills development (Sofwan et al., 2024). The integration of TPACK also contributes to increased teacher innovation in designing contextual, interactive, and process-oriented assessment systems, indicating that strengthening teachers' TPACK competencies should be viewed as a strategic effort to improve the overall quality of Islamic education in the digital era. Based on these findings, several recommendations can be proposed to improve the quality of assessment practices in Islamic Religious Education, particularly through continuous professional development programs that strengthen teachers' competencies in integrating technology, pedagogy, and content within authentic assessment practices. Schools should also encourage the implementation of more holistic and competency-based assessment approaches through the use of digital portfolios, reflective journals, project-based assessment, behavioral observation, and interactive digital assessment systems. In addition, educational institutions and policymakers need to provide adequate technological infrastructure and sustainable training programs to support the transformation toward TPACK-based assessment practices in schools. Finally, future studies are recommended to develop empirical models of TPACK-based assessment that can be directly implemented in Islamic Religious Education learning practices to support holistic, reflective, and technology-integrated student development.

Discussion

The findings of this study indicate that the assessment gap in Islamic Religious Education (PAI) reflects not only technical limitations but also broader pedagogical and epistemological challenges within Islamic education. The dominance of cognitive-oriented assessment shows that evaluation practices in PAI are still influenced by conventional paradigms emphasizing academic achievement over holistic competency development (Negara et al., 2025; Zakkiyah et al., 2024). This study also reveals that the persistence of conventional assessment practices is closely associated with the imbalance of teachers' TPACK competencies in integrating technological, pedagogical, and content knowledge within assessment activities. In addition, technology integration in assessment remains superficial because digital tools are still mainly used for assignment submission, attendance, and simple testing rather than for authentic and reflective assessment practices. Analytically, this condition occurs because many teachers still perceive technology as a supporting tool rather than as an integrated pedagogical instrument for holistic competency development. Consequently, the implementation of TPACK in assessment practices has not yet fully

supported reflective, contextual, and comprehensive assessment in Islamic Religious Education (Angraini et al., 2025; Wuryan et al., 2026).

The study also demonstrates that weaknesses in Pedagogical Knowledge (PK) and Content Knowledge (CK) contribute significantly to the persistence of assessment gaps in PAI, particularly in implementing authentic assessment and translating Islamic values into measurable indicators (Syamsiah & Prastowo, 2022). This study further highlights that the imbalance among Technological Knowledge (TK), Pedagogical Knowledge (PK), and Content Knowledge (CK) creates fragmented assessment practices that are unable to fully represent the holistic objectives of Islamic education. As a result, students with strong academic achievement do not necessarily demonstrate adequate internalization of Islamic values in their daily behavior and spiritual practices. Theoretically, this study contributes to the development of TPACK discourse by positioning the framework not only as a learning approach but also as an analytical framework for understanding assessment transformation in Islamic Religious Education. Practically, the findings imply that improving assessment quality requires not only technological infrastructure but also a paradigm shift in how teachers understand assessment as a reflective and developmental process. Finally, educational institutions and future researchers are encouraged to strengthen integrated TPACK implementation and develop applicable assessment models capable of measuring cognitive, affective, and psychomotor competencies comprehensively.

CONCLUSION

This study concludes that the assessment gap in Islamic Religious Education (PAI) is closely related to the imbalance of teachers' competencies in Technological Knowledge (TK), Pedagogical Knowledge (PK), and Content Knowledge (CK) within the TPACK framework. Assessment practices in PAI are still predominantly cognitive-oriented and continue to emphasize written examinations and final learning outcomes, causing affective and psychomotor dimensions such as spirituality, morality, character development, and religious practices to remain insufficiently assessed. The findings also reveal that limited technology integration, weak implementation of authentic assessment, and teachers' difficulties in translating Islamic values into measurable assessment indicators are the main factors contributing to the persistence of assessment gaps in PAI. Therefore, improving the quality of assessment in Islamic education requires not only technological support but also strengthening teachers' TPACK competencies in an integrated manner. In addition, assessment practices need to shift toward more authentic, contextual, and process-oriented approaches aligned with the objectives of Islamic education. Consequently, assessment in PAI is expected to function more effectively as a holistic and reflective process for developing students' competencies comprehensively.

Theoretically, this study contributes to the development of TPACK discourse by extending its application from instructional practices to the domain of educational assessment in value-based subjects such as Islamic Religious Education. Practically, the findings emphasize the importance of sustainable teacher professional development programs, authentic assessment training, and institutional support for integrated digital assessment implementation in schools. These findings also indicate that improving assessment quality requires collaboration among teachers, schools, curriculum developers, and educational

policymakers. Without adequate professional support and technological infrastructure, the transformation toward TPACK-based assessment practices will remain difficult to achieve effectively. This study is limited to a literature review approach based on studies published between 2020 and 2026. Therefore, future research is recommended to develop and empirically test applicable TPACK-based assessment models capable of comprehensively measuring students' cognitive, affective, and psychomotor competencies in Islamic Religious Education learning contexts.

REFERENCES

- Abdullah, K. R., & Yusnaini, Y. (2024). Analisis Kemampuan Guru PAI dalam Menyusun Instrumen Penilaian Ranah Afektif di Madrasah Aliyah Syamsuddhuha Dewantara, Aceh Utara. *Pase: Journal of Contemporary Islamic Education*, 3(1), 17–30. <https://doi.org/10.47766/pase.v3i1.2478>
- Adi, K. R., Ratnawati, N., Kurniawan, B., Nareswari, D. A., & Alfania, S. (2025). Peningkatan Kompetensi Guru dalam Menyusun Instrumen Evaluasi Berbasis Literasi Numerasi melalui Elaborasi Taksonomi Bloom, Marzano, dan Solo di SMP Negeri 22 Malang. *Jurnal Masyarakat Madani Indonesia*, 4(4), 960–969. <https://doi.org/10.59025/zwvbm543>
- Afnan, H., & Maksun, M. N. R. (2025). Enhancing Students' Soft Skills Through Digital Literacy Integration in Islamic Education: A TPACK-Based Approach. *Al-Idarah : Jurnal Kependidikan Islam*, 15(1), 31–39. <https://doi.org/10.24042/2rqwnd52>
- Ahmad, A. H. P., Savana, O., Abdullah, S., & Raharjo, R. (2025). Asesmen Autentik dalam Pembelajaran PAI di Sekolah Dasar: Praktik Tantangan dan Refleksi Guru. *JURNAL PARADIGMA : Journal of Sociology Research and Education*, 6(2), 985–1003. <https://doi.org/10.53682/a2rb7s53>
- Akyuz, D. (2018). Measuring technological pedagogical content knowledge (TPACK) through performance assessment. *Computers & Education*, 125, 212–225. <https://doi.org/10.1016/j.compedu.2018.06.012>
- Amin, K., Ni'mah, Z., & Susanto, A. (2024). Analisis bibliometrik perkembangan publikasi authentic assessment pada database scopus 1991—2023. *Berkala Ilmu Perpustakaan Dan Informasi*, 20(2), 321–336. <https://doi.org/10.22146/bip.v20i2.7721>
- Anggraini, A., Hasan, G. N. U., Zuhriyah, I. A., & Aminullah, M. (2025). Integrasi Teknologi dalam Evaluasi Pembelajaran: Model Technological Pedagogical Content Knowledge (TPACK) untuk Mengembangkan Kompetensi Digital. *Pedagogik Journal of Islamic Elementary School*, 8(2), 722–735. <https://doi.org/10.24256/pijies.v8i2.7514>
- Azizah, N., & Maulaya, Z. M. 3Rosendah D. (2023). Pengembangan Asesmen Pembelajaran Pai Pada Kurikulum Merdeka Belajar. *Proceeding Seminar Nasional Ilmu Pendidikan (SEPEKAN) FKIP Universitas Islam Syekh-Yusuf*, 1, 49–61.
- Clamucha, I. A., & Napil, M. C. (2024). TPACK and 21st Century Skills in Teaching: The Mediating Role of Implementing Authentic Assessment. *International Journal of Research and Innovation in Social Science*, VIII(VII), 1966–1983. <https://doi.org/10.47772/IJRISS.2024.807154>
- Dona, R., Puspa, P., Rahmayanti, R., & Arifmiboy, A. (2024). Evaluasi Pembelajaran PAI: Tinjauan Ranah Kognitif, Afektif Dan Psikomotorik di SDIT Cahaya Hati Bukittinggi. *Jurnal Pendidikan Tambusai*, 8(3), 43041–43052.
- Dzulfiansyah, M. F., Azimah, R. N., Jarisma, D., & Hernaeny, U. (2025). Systematic Literature Review (SLR): Pendekatan Problem-Based Learning sebagai Solusi Peningkatan Pemahaman Konsep pada Siswa SMA Kelas XI pada Materi Konsep

- Derivatif. *Nusantara Journal of Education and Social Science*, 2(2), 37–45. <https://doi.org/10.69959/nujess.v2i2.109>
- Emawati, Zulfikar, T., Karim, C. F. A., Ikhlas, S., & Fitria, L. (2025). Exploring Teachers' Voices: Conceptualization and Integration of TPACK in Islamic Education. *Fitrah: International Islamic Education Journal*, 7(2), 145–164. <https://doi.org/10.22373/fitrah.v7i2.9057>
- Fadlillah, N., & Kusaeri, K. (2024). Optimizing Assessment for Learning in Islamic Education through Authentic and Diagnostic Assessment: A Systematic Literature Review. *Jurnal Kependidikan: Jurnal Hasil Penelitian Dan Kajian Kepustakaan Di Bidang Pendidikan, Pengajaran Dan Pembelajaran*, 10(2), 654. <https://doi.org/10.33394/jk.v10i2.11555>
- Faizah, A., & Sutopo, D. (2021). The Implementation of Teachers' Pedagogical and Professional Competence in Authentic Assessment. *English Education Journal*, 11(4), Article 4. <https://doi.org/10.15294/eej.v11i1.48823>
- Fauziah, I. D., & Irawan, I. (2026). Analisis Literatur Peran Asesmen Otentik dalam Mendorong Sikap Inklusif dan Toleran pada Pembelajaran PAI. *Jurnal Kajian Ilmu Pendidikan (JKIP)*, 7(1), 163–168. <https://doi.org/10.55583/jkip.v7i1.1908>
- Harja, B., & Sesmiarni, Z. (2026). Kajian Sistematis Inovasi Penilaian PAI: Mendesain Model Penilaian Berbasis Dimensi Kognitif–Afektif–Spiritual untuk Pembelajaran Mendalam di SMP. *Jurnal Ilmu Pendidikan dan Pembelajaran*, 8(1). <https://journalversa.com/s/index.php/jipp/article/view/5010>
- Hidayati, N., Mellisa, Rahmayulis, P. A., Herlina, S., Safitri, L., Maylani, K., & Hermalia, R. (2025). Integrasi TPACK dalam Pengembangan Sumber Belajar: Produk Hasil Workshop Guru SMAN 1 Tambang. *Community Education Engagement Journal*, 6(2), 103–116. <https://doi.org/10.25299/ceej.v6i2.21621>
- Iskandar, I., & Riantoni, C. (2023). Kesulitan Guru Pai Mengintegrasikan Pembelajaran Berbasis TPACK pada Masa dan pasca Pandemi Covid 19. *Edukatif: Jurnal Ilmu Pendidikan*, 5(1), 533–542. <https://doi.org/10.31004/edukatif.v5i1.4721>
- Jannah, N. L., & Sutikno, P. Y. (2024). Interpretasi Karakteristik Siswa untuk Elaborasi Penggunaan Technological Pedagogical Content Knowledge (TPACK). *Journal of Education Action Research*, 8(1), 63–71. <https://doi.org/10.23887/jear.v8i1.70838>
- Kadir, A., & Hasri, K. S. (2021). Evaluative analysis of authentic thematic learning assessment at Indonesian Islamic primary school. *Jurnal Prima Edukasia*, 9(1), 96–106. <https://doi.org/10.21831/jpe.v9i1.35308>
- Kalyana, D., Hayatunnufus, G., Fauziah, F. H., Wijaya, H. R., Haryani, R., Sudarmaji, S., Sumarmia, S., Larashati, L., & Damayanti, F. (2025). Implementasi Asesmen Autentik Berbasis Kompetensi dalam Pembelajaran Abad Ke-21: Penelitian. *Jurnal Pengabdian Masyarakat dan Riset Pendidikan*, 4(2), 10521–10531. <https://doi.org/10.31004/jerkin.v4i2.3665>
- Khairani, P., & Nisa, S. (2024). Systematic Literature Review (SLR): Peran Lingkungan dalam Meningkatkan Keterampilan Siswa Berbahasa Indonesia. *Masaliq*, 4(3), 742–749. <https://doi.org/10.58578/masaliq.v4i3.3064>
- Khoiriyah, M., Kahfi, M. A., Fahmi, M., & Syaifuddin, S. (2025). Implementasi Model Pembelajaran Tpack (Technological Pedagogical And Content Knowledge) Pada Mata Pelajaran Pai Melalui Platform Wordwall Di Smpn 35 Surabaya. *Tabyin: Jurnal Pendidikan Islam*, 7(02), 11–31. <https://doi.org/10.70281/t4cb0794>
- Lailatus Sa'adah, Agus Fakhruddin, & Saepul Anwar. (2025). Assessment for Learning and Value Internalization: Cognitive Assessment in Islamic Religious Education at

- Indonesian Middle Schools. *Bulletin of Indonesian Islamic Studies*, 4(2), 935–960. <https://doi.org/10.51214/biis.v4i2.1683>
- Li, M., & Li, B. (2024). Unravelling the dynamics of technology integration in mathematics education: A structural equation modelling analysis of TPACK components. *Education and Information Technologies*, 29(17), 23687–23715. <https://doi.org/10.1007/s10639-024-12805-w>
- Lisliningsih, N., Mariyanti, N., Fajri, N., & Arifmiboy. (2024). Konsep Penilaian Autentik (Autentik Asesmen). *Jurnal Pendidikan Ilmiah Transformatif*, 8(11). <https://oaj.jurnalhst.com/index.php/jpit/article/view/5778>
- Mardati, A., Maryani, I., & Suyatno, S. (2024). TPACK and its Contribution to Develop Differentiated Learning in Elementary School. *Profesi Pendidikan Dasar*, 50–63. <https://doi.org/10.23917/ppd.v11i1.3336>
- Negara, B. N., Nisa', I. M., FatikaSari, T., & Sutrisna. (2025). Analisis Tingkat Kognitif pada Butir Soal Asesmen Sumatif Tengah Semester PAI dan Budi Pekerti di SMP Negeri 8 Salatiga. *La-Tahzan: Jurnal Pendidikan Islam*, 17(2), 333–343. <https://doi.org/10.62490/latahzan.v17i2.1638>
- Nenotaek, B., & Novandini, C. D. (2024). Analisis Kesulitan Guru SMA dalam Membuat Indikator Pencapaian Kompetensi. *JURNAL SPEKTRO*, 7(2), 40–47.
- Ning, Y., Zhou, Y., Wijaya, T. T., & Chen, J. (2022). Teacher Education Interventions on Teacher TPACK: A Meta-Analysis Study. *Sustainability*, 14(18), 11791. <https://doi.org/10.3390/su141811791>
- Nst, T. M., Remiswal, R., & Khadijah, K. (2025). Implementasi Penilaian Autentik pada Materi Pembelajaran Pendidikan Agama Islam di SDN 329 Suka Damai. *YASIN*, 5(4), 3184–3197. <https://doi.org/10.58578/yasin.v5i4.5953>
- Page, M. J., McKenzie, J. E., Bossuyt, P. M., Boutron, I., Hoffmann, T. C., Mulrow, C. D., Shamseer, L., Tetzlaff, J. M., Akl, E. A., Brennan, S. E., Chou, R., Glanville, J., Grimshaw, J. M., Hróbjartsson, A., Lalu, M. M., Li, T., Loder, E. W., Mayo-Wilson, E., McDonald, S., ... Moher, D. (2021). The PRISMA 2020 statement: An updated guideline for reporting systematic reviews. *Systematic Reviews*, 10(1), 89. <https://doi.org/10.1186/s13643-021-01626-4>
- Ramli, R., Lestari, U., Taufik, T., Hamran, H., & Syamsuriah, S. (2025). Pengembangan Model Penilaian Autentik dalam Pembelajaran Pendidikan Agama Islam di Sekolah Dasar. *Arus Jurnal Psikologi dan Pendidikan*, 4(3), 581–587. <https://doi.org/10.57250/ajpp.v4i3.1790>
- Rosfiani, O., Aulia, V., Fathurrahman, H., Azkiya, S. N., & Azis, F. K. A. (2025). *Asesmen Alternatif Dalam Pembelajaran Pai: Sebuah Asesmen Untuk Menemukan Potensi Siswa*. 5(3).
- Sandy, T. A., Ismaniati, C., Abbas, S., & Dalu, Z. C. A. (2023). Research Trends based on Technological Pedagogical Content Knowledge (TPACK) in Indonesia: A Systematic Review. *Epistema*, 9–21. <https://doi.org/10.21831/ep.v4i1.59486>
- Santoso, M. M., Reziana, B., Yusuf, M., Irawan, D., & Ashari, H. (2023). Implementasi Penggunaan Teknologi Informasi dan Komunikasi untuk Penilaian Kognitif pada Pembelajaran PAI Di Sekolah Dasar. *Jurnal Basicedu*, 7(5), 2920–2927. <https://doi.org/10.31004/basicedu.v7i5.4669>
- Saputro, Y. M., Asmara, L., & Fiddarain, Z. (2025). Implementation of the TPACK Approach in Islamic Religious Education Learning at SMA Negeri Karanganyar. *Multicultural Islamic Education Review*, 87–98. <https://doi.org/10.23917/mier.v3i1.10079>
- Sari, Y. R., Drajati, N. A., So, H.-J., & Sumardi, S. (2021). Enhancing Efl Teachers' Technological Pedagogical Content Knowledge (TPACK) Competence Through

- Reflective Practice. *TEFLIN Journal*, 32(1), 117–133. <https://doi.org/10.15639/teflinjournal.v32i1/117-133>
- Shambare, B., & Simuja, C. (2024). Unveiling the TPACK pathways: Technology integration and pedagogical evolution in rural South African schools. *Computers and Education Open*, 7, 100206. <https://doi.org/10.1016/j.caeo.2024.100206>
- Shuaib, M. (2024). An Overview of Technological Pedagogical Content Knowledge (TPACK) and Its Application in Education: A Review of Current Research. *ProScholar Insights*, 3(1), 232–238. <https://doi.org/10.55737/psi.2024a-31144>
- Sofwan, M., Yaakob, M. F. M., & Habibi, A. (2024). Technological, pedagogical, and content knowledge for technology integration: A systematic literature review. *International Journal of Evaluation and Research in Education (IJERE)*, 13(1), 212. <https://doi.org/10.11591/ijere.v13i1.26643>
- Solihin, R. (2025). Analysis of TPACK Content in the Curriculum of Educational Study Programs in Higher Education. *Scaffolding: Jurnal Pendidikan Islam Dan Multikulturalisme*, 7(3), 1–18. <https://doi.org/10.37680/scaffolding.v7i3.7936>
- Syamsiah, P. N., & Prastowo, A. (2022). *Implementasi Penilaian Autentik Pada Ranah Psikomotorik Dalam Pembelajaran Pendidikan Agama Islam Di Sekolah Dasar*. 5(2).
- Wicaksono, V. D., Rahmawati, I., & Nurlaily, V. A. (2025). Evaluasi Sistematis Literatur tentang Penggunaan Asesmen Autentik dalam Pembelajaran: Studi Kasus Pendidikan di Indonesia. *Educator (Directory Of Elementary Education Journal)*, 6(2), 120–127. <https://doi.org/10.58176/edu.v6i2.3305>
- Wuryan, Putra, L. D., Niarna, I. N., A, N. R. D., Nauroh, A. N., & Aulia, S. (2026). Implementasi dan Tantangan Technological Pedagogical Content Knowledge (TPACK) pada Guru Pendidikan Agama Islam di SDIT Bakti Insani. *Jurnal Pendidikan Agama Islam*, 2(1), 21–31. <https://doi.org/10.62712/jurpai.v2i1.37>
- Zakkiyah, F., Armedi, R., & Zuhriyah, I. A. (2024). Analisis Instrumen Tes Kognitif Mata Pelajaran Pendidikan Agama Islam di Sekolah Dasar. *Jurnal Evaluasi Pendidikan*, 15(2), 63–75. <https://doi.org/10.21009/jep.v15i2.50143>